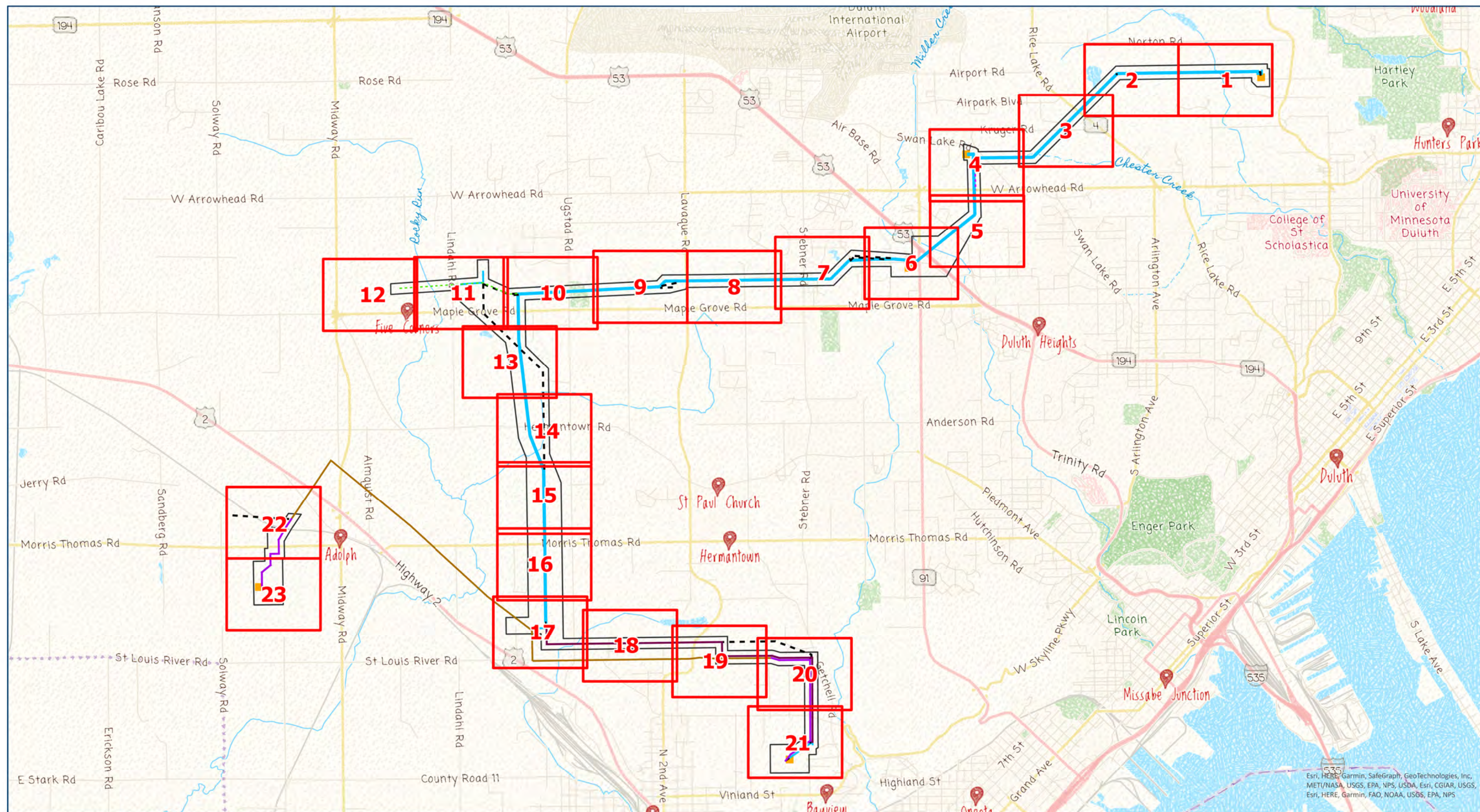
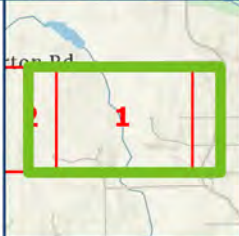




Appendix B: Detailed Preliminary Layout HVTL Routes



- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

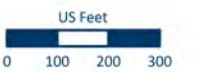
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

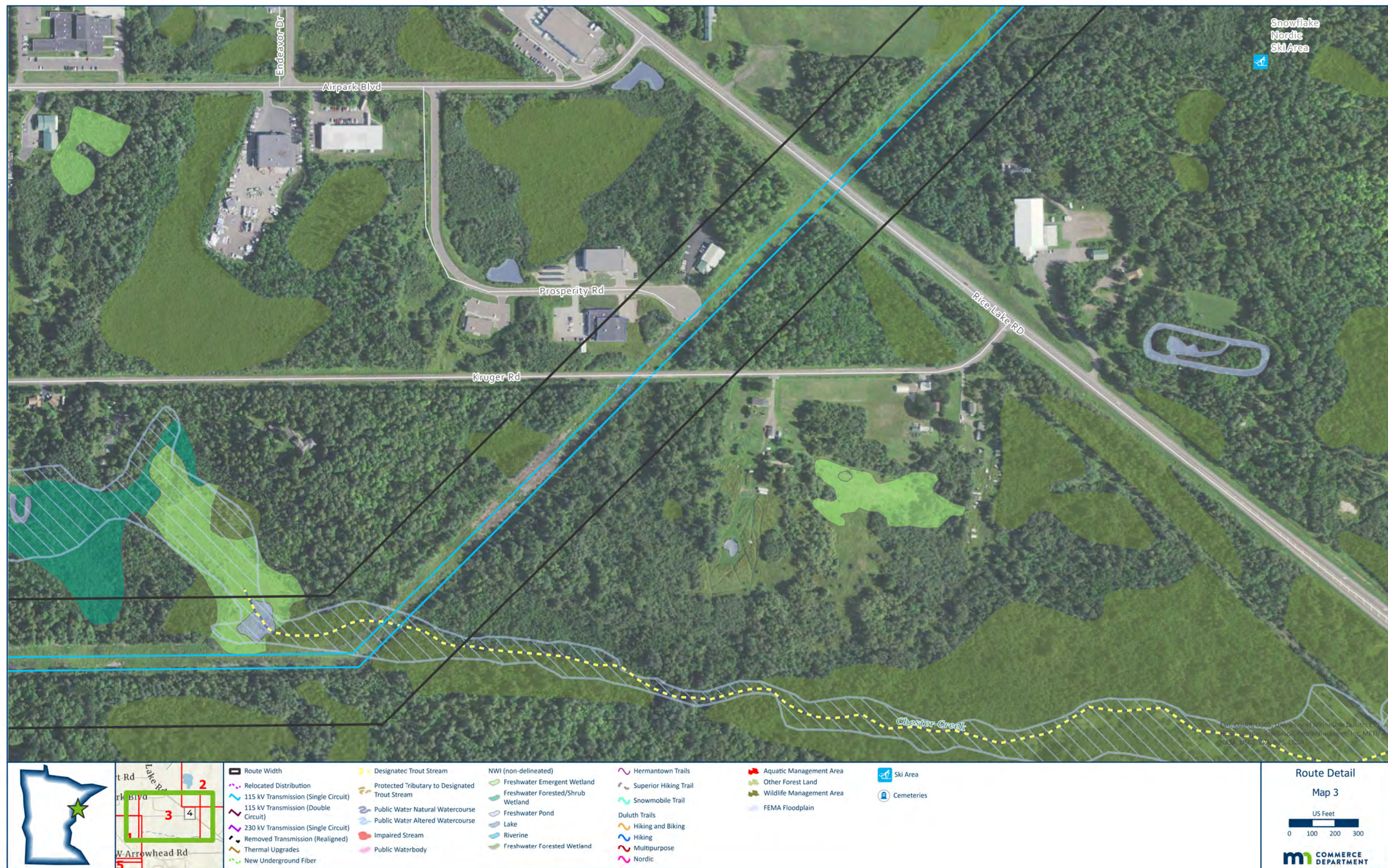
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

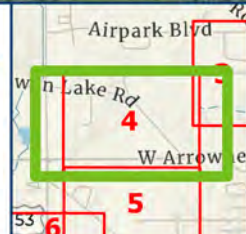
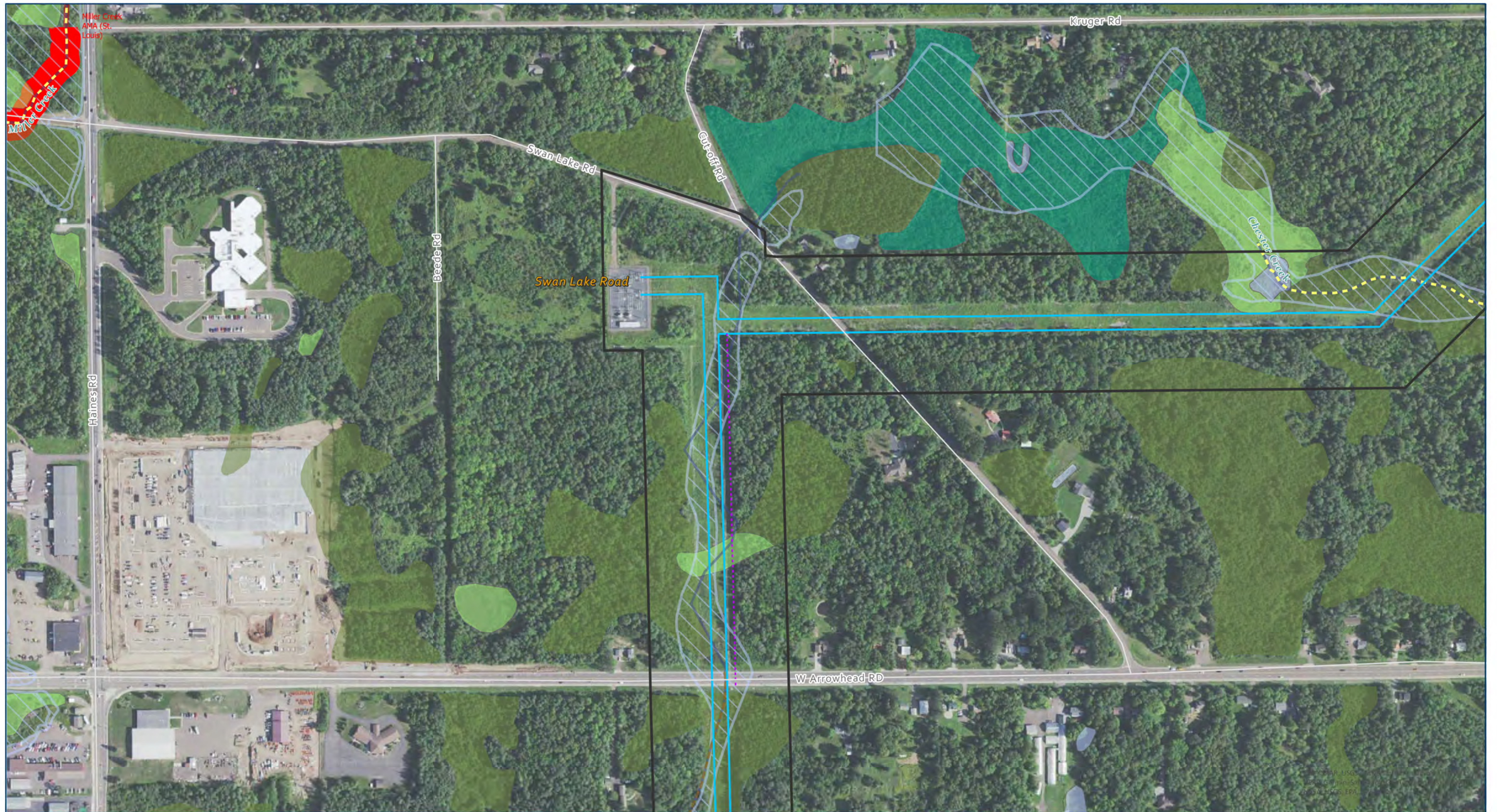
- Ski Area
- Cemeteries

Route Detail

Map 1







- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

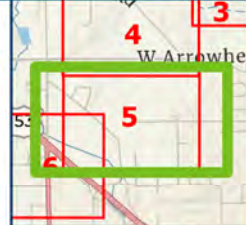
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 4

US Feet
0 100 200 300

mi COMMERCE DEPARTMENT



- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

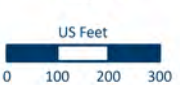
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

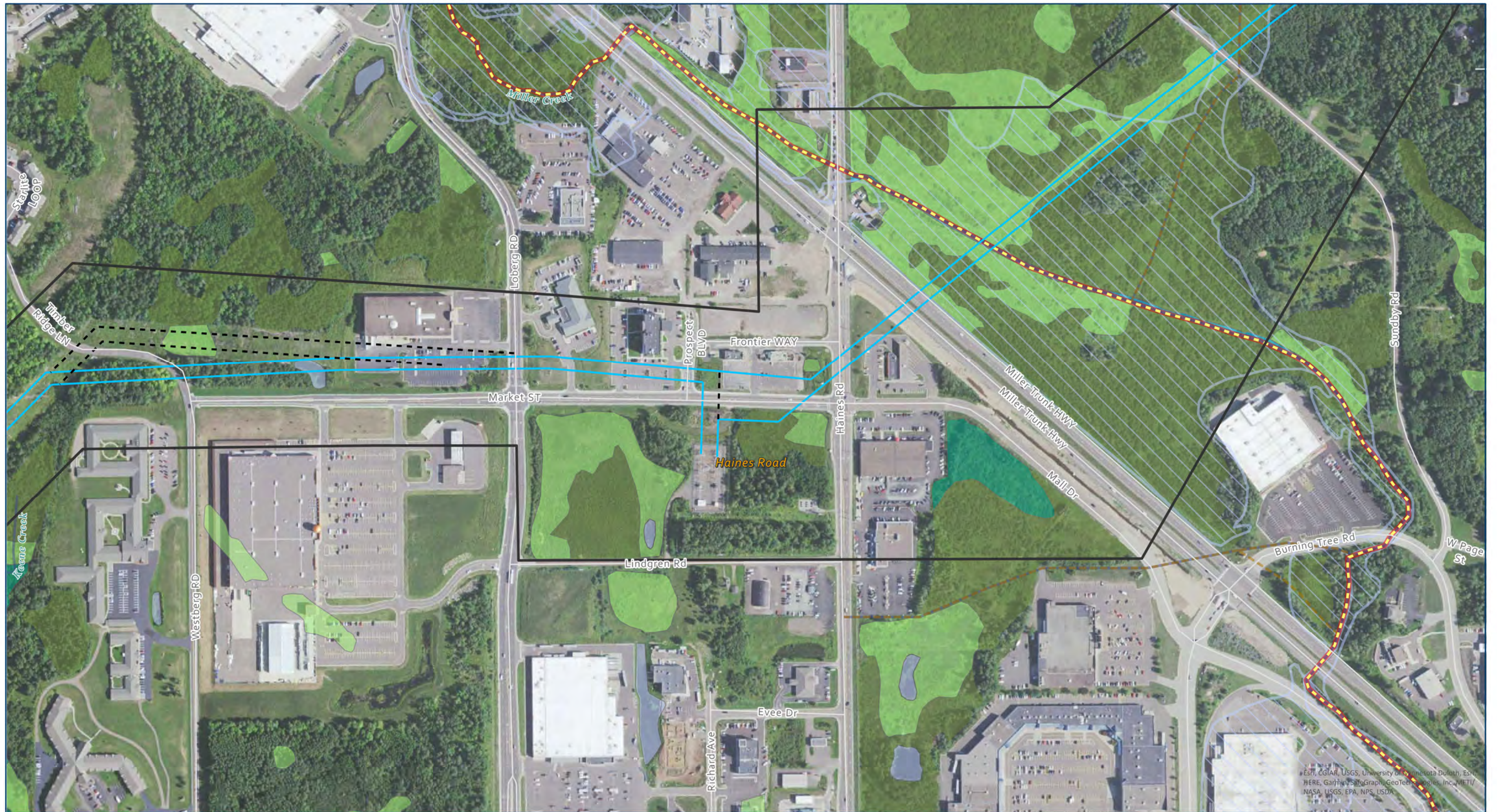
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

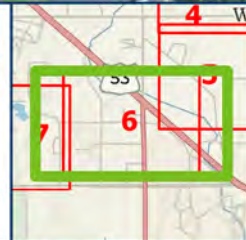
Route Detail

Map 5





ESRI, CGIAR, USGS, University of Minnesota Duluth, ESRI HERE, Garmin, SatGraph, GeoTechnologies, Inc., METI/ NASA, USGS, EPA, NPS, USDA

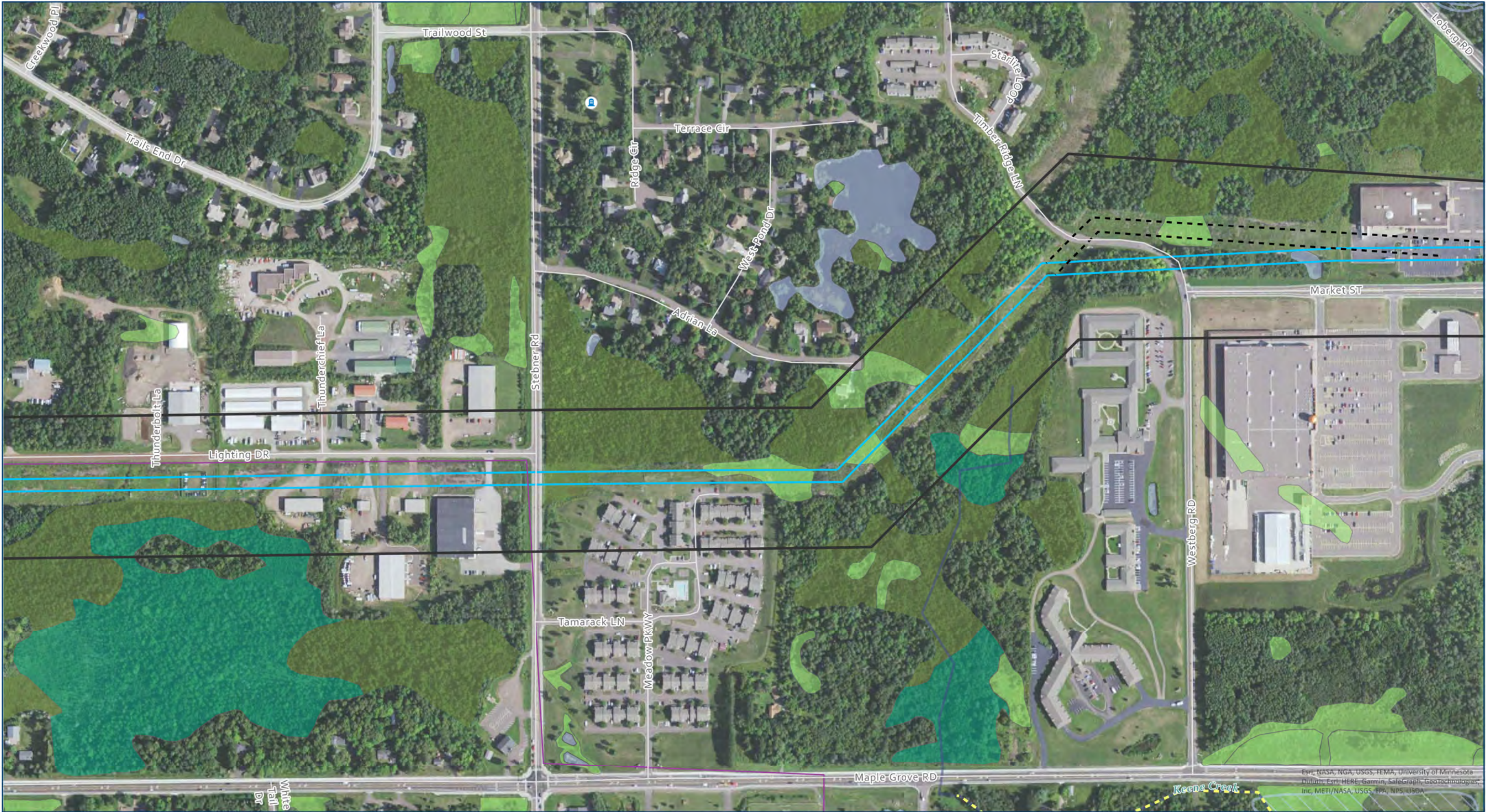


- Route Width - Relocated Distribution 115 kV Transmission (Single Circuit) 115 kV Transmission (Double Circuit) 230 kV Transmission (Single Circuit) - Removed Transmission (Realigned) - Thermal Upgrades - New Underground Fiber	- Designated Trout Stream - Protected Tributary to Designated Trout Stream - Public Water Natural Watercourse - Public Water Altered Watercourse - Impaired Stream - Public Waterbody	- NWI (non-delineated) - Freshwater Emergent Wetland - Freshwater Forested/Shrub Wetland - Freshwater Pond - Lake - Riverine - Freshwater Forested Wetland	- Hermantown Trails - Superior Hiking Trail - Snowmobile Trail - Duluth Trails - Hiking and Biking - Hiking - Multipurpose - Nordic	- Aquatic Management Area - Other Forest Land - Wildlife Management Area - FEMA Floodplain	- Ski Area - Cemeteries
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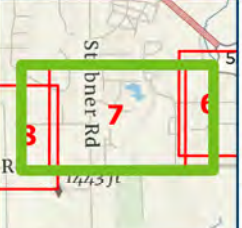
Route Detail
Map 6

US Feet
0 100 200 300

mi COMMERCE DEPARTMENT



Esri, NASA, NGA, USGS, FEMA, University of Minnesota
Duluth, Esri, HERE, Garmin, SafeGraph, Geotechnologies,
Inc, METI/NASA, USGS, EPA, NPS, USDA



- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

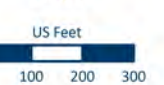
- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

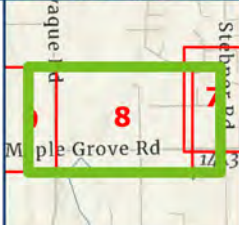
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 7





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

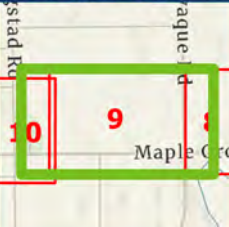
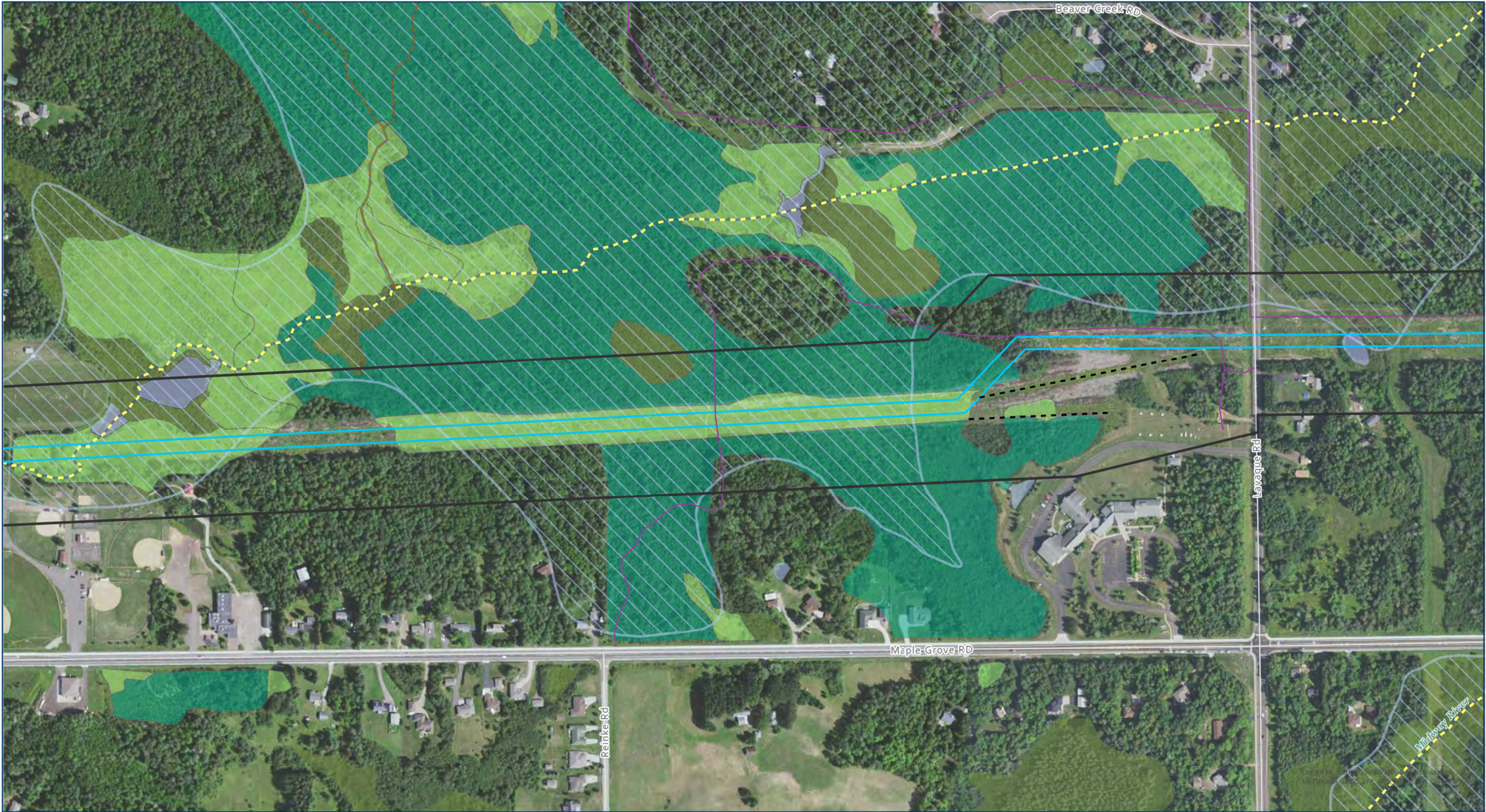
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail

Map 8





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

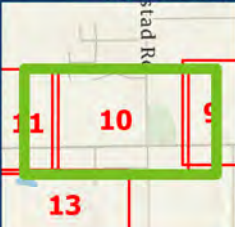
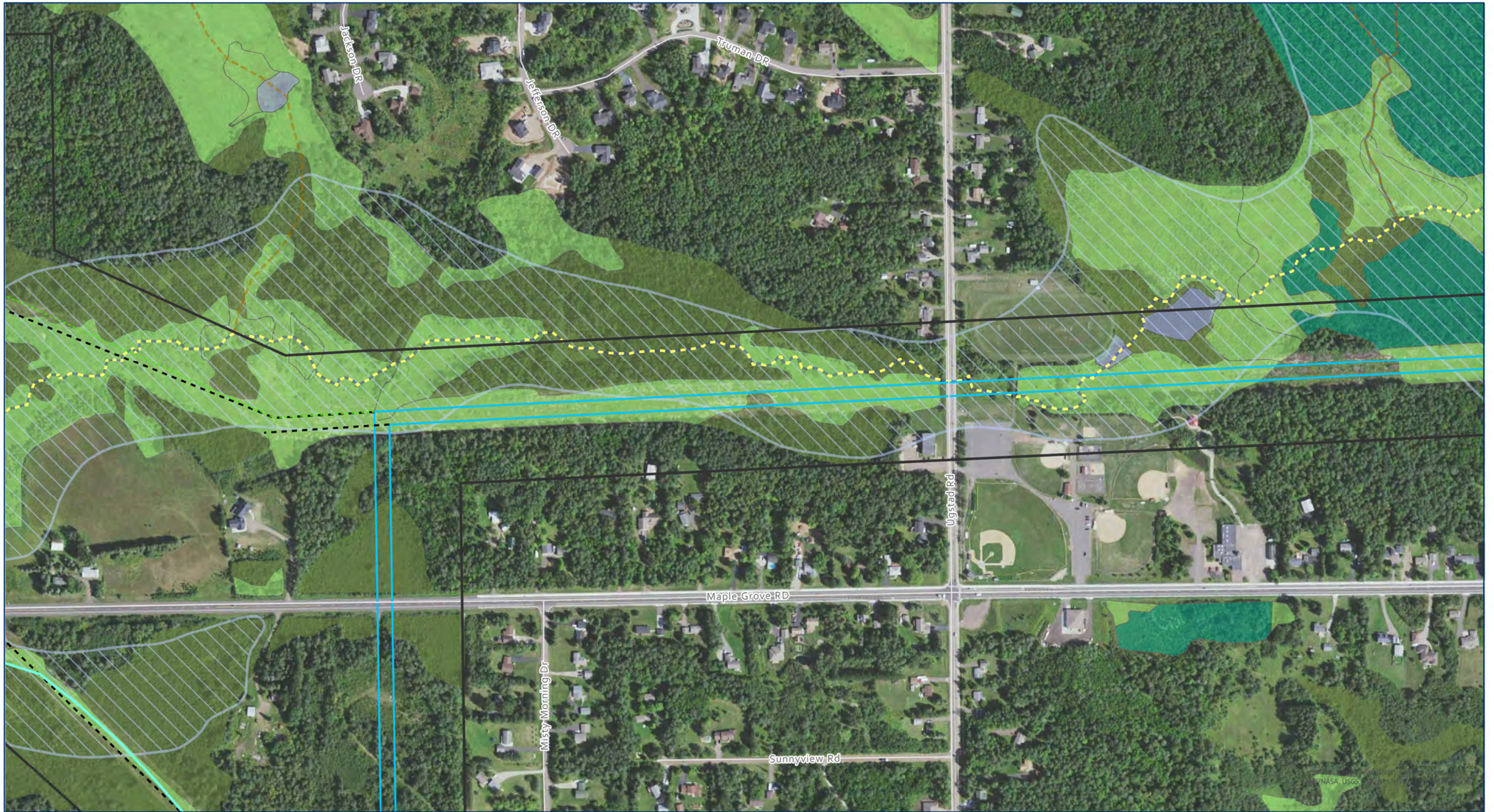
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail

Map 9





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

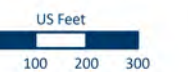
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

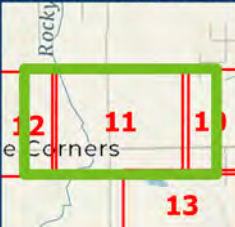
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail

Map 10





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

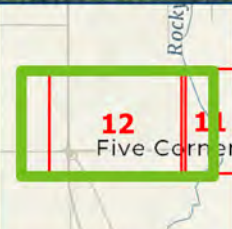
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail

Map 11





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

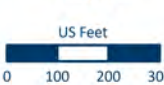
- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

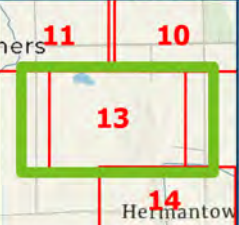
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 12





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

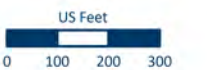
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

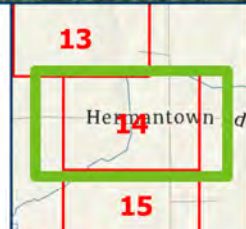
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail

Map 13





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

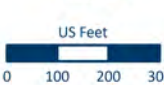
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

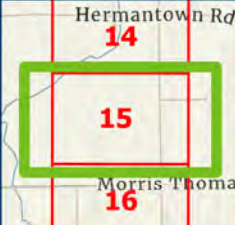
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail

Map 14





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

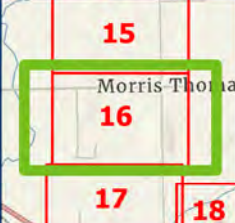
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 15





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

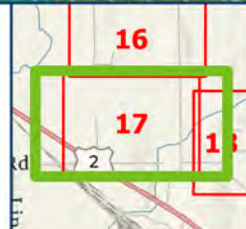
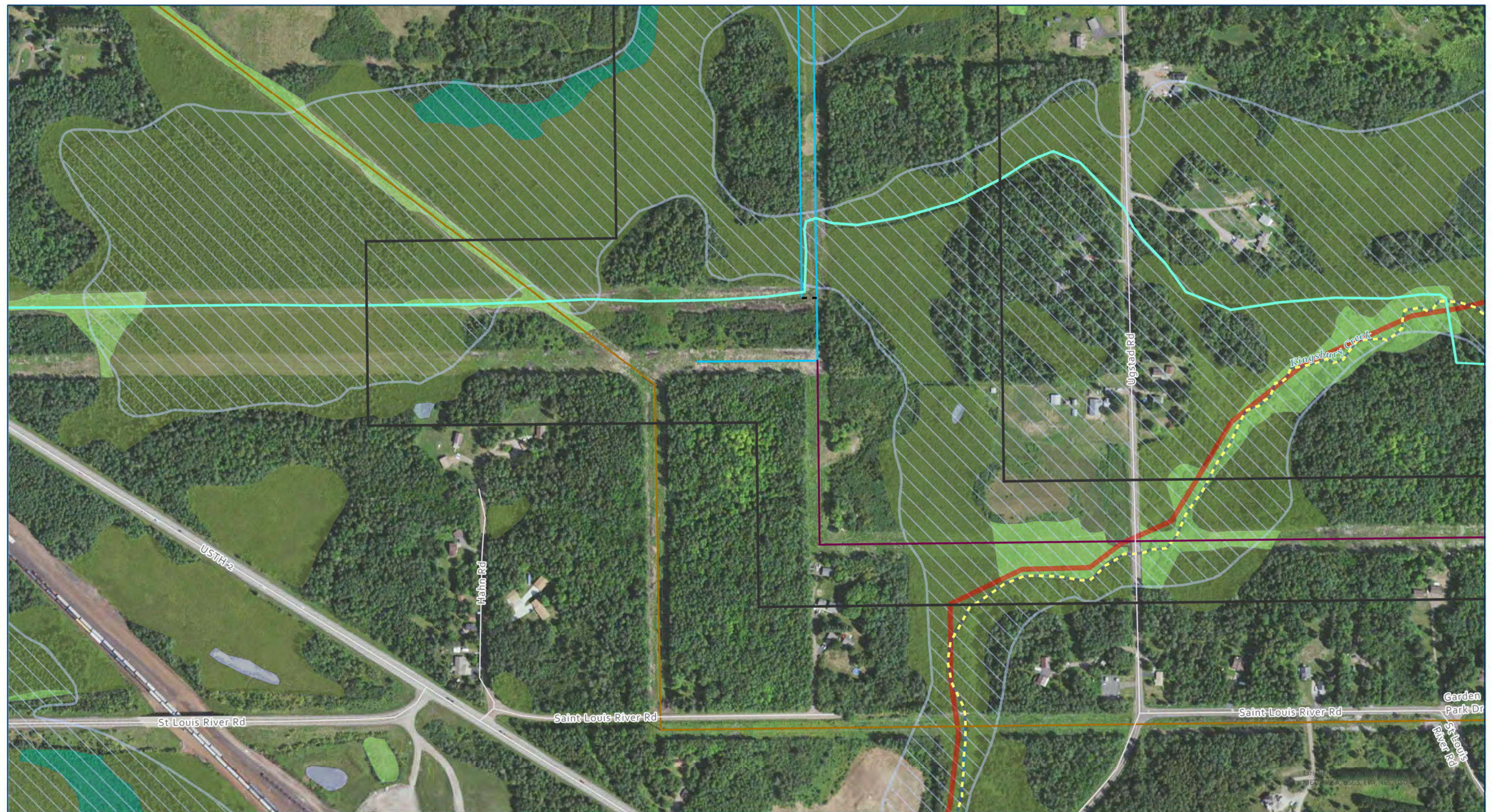
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 16





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

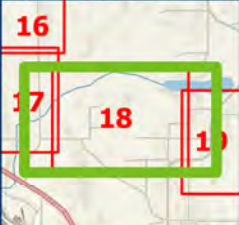
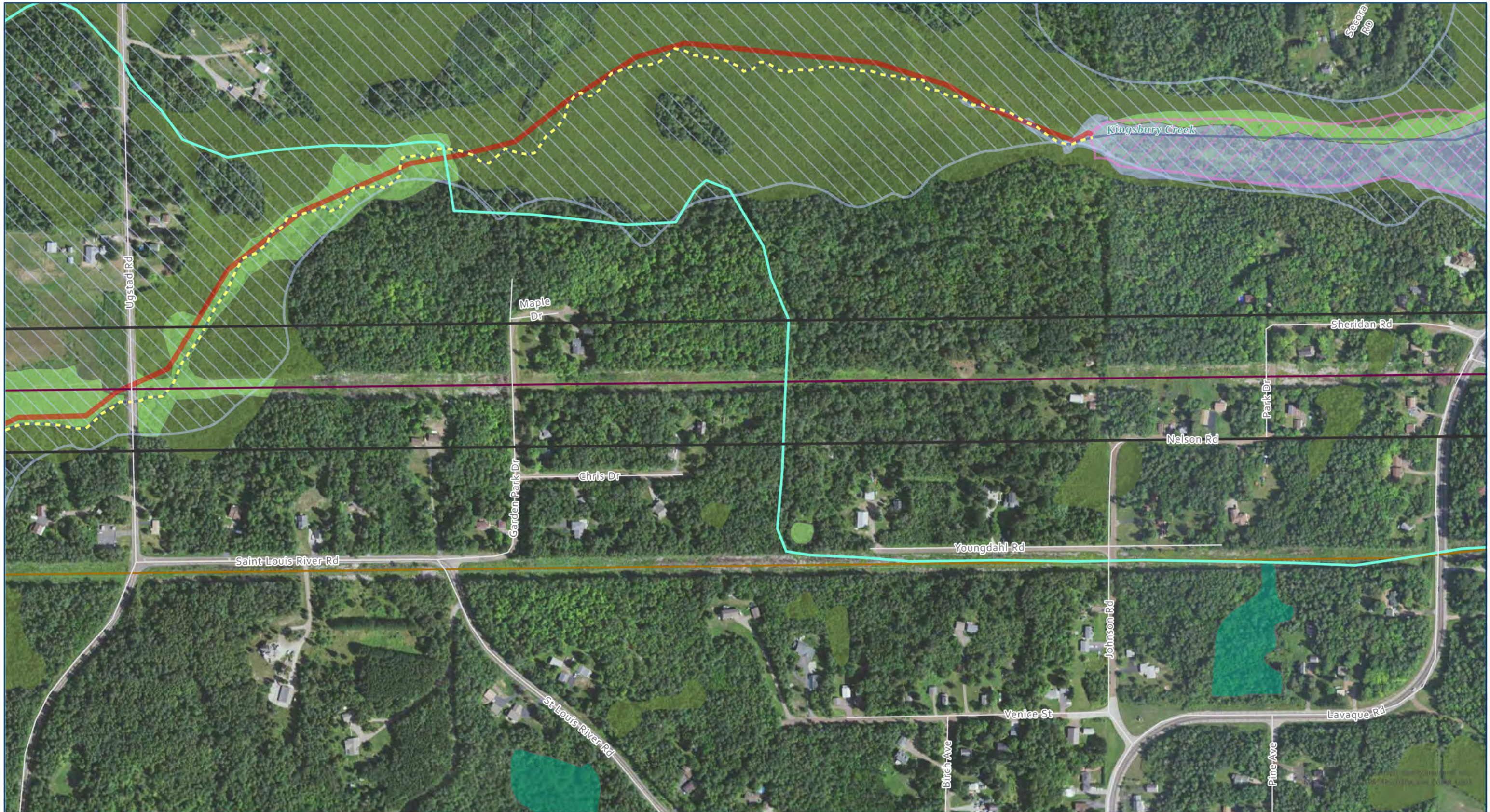
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 17

US Feet
0 100 200 300

mi COMMERCE
DEPARTMENT



- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

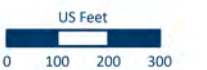
- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

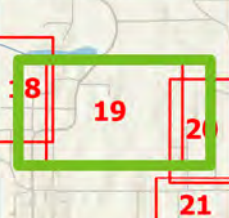
- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 18







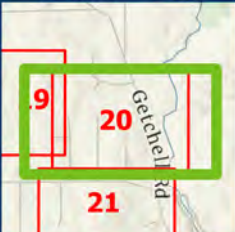
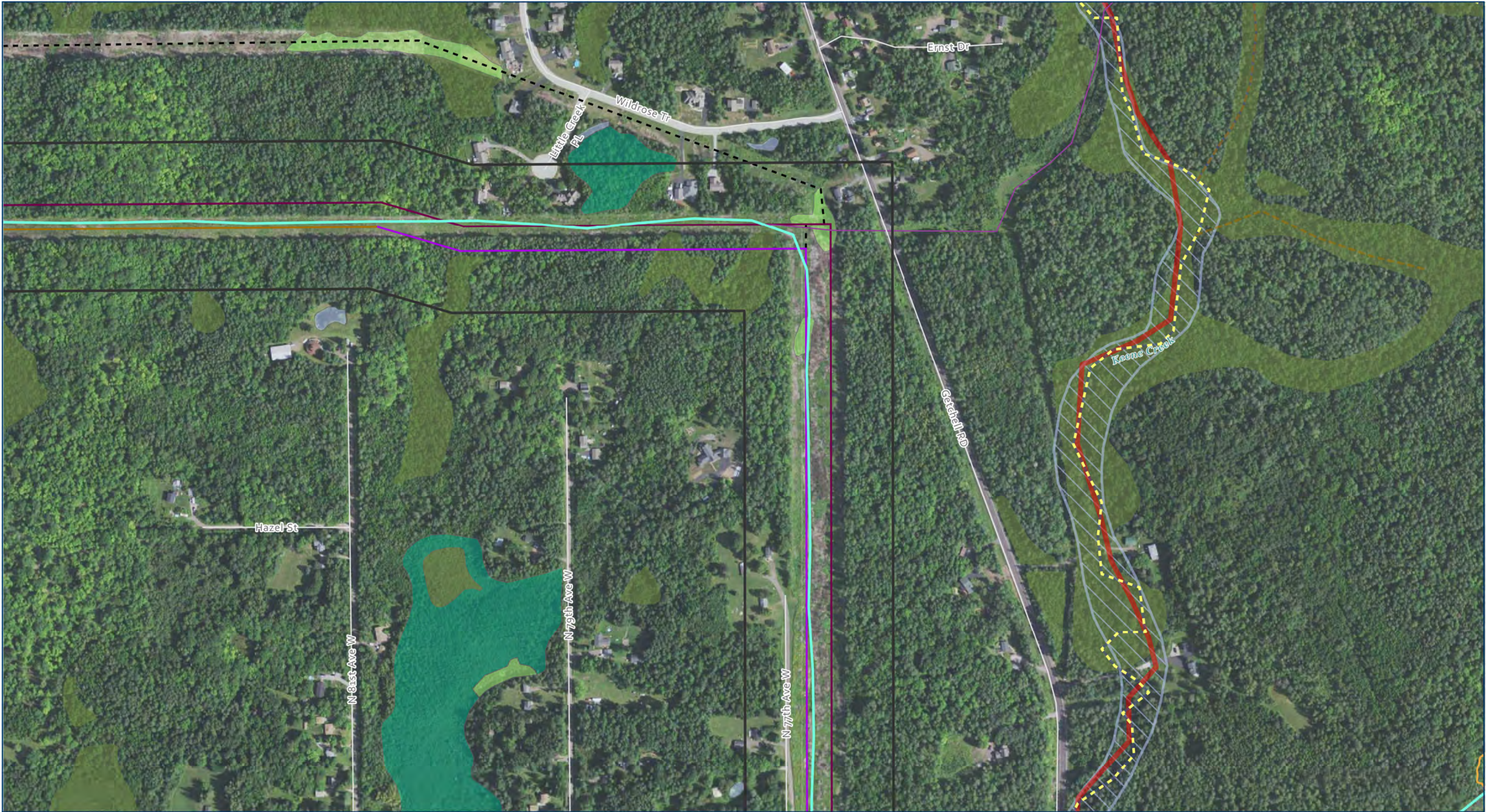
- Route Width - Relocated Distribution 115 kV Transmission (Single Circuit) 115 kV Transmission (Double Circuit) 230 kV Transmission (Single Circuit) - Removed Transmission (Realigned) - Thermal Upgrades - New Underground Fiber	- Designated Trout Stream - Protected Tributary to Designated Trout Stream - Public Water Natural Watercourse - Public Water Altered Watercourse - Impaired Stream - Public Waterbody	NWI (non-delineated) - Freshwater Emergent Wetland - Freshwater Forested/Shrub Wetland - Freshwater Pond - Lake - Riverine - Freshwater Forested Wetland	- Hermantown Trails - Superior Hiking Trail - Snowmobile Trail - Duluth Trails - Hiking and Biking - Hiking - Multipurpose - Nordic	- Aquatic Management Area - Other Forest Land - Wildlife Management Area - FEMA Floodplain	- Ski Area - Cemeteries
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Route Detail
Map 19

US Feet

0 100 200 300

 COMMERCE DEPARTMENT



- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

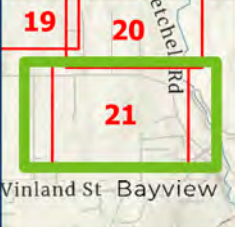
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 20





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

- NWI (non-delineated)
- Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine
 - Freshwater Forested Wetland

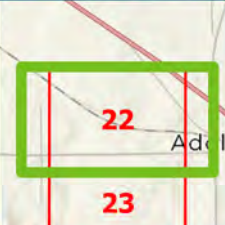
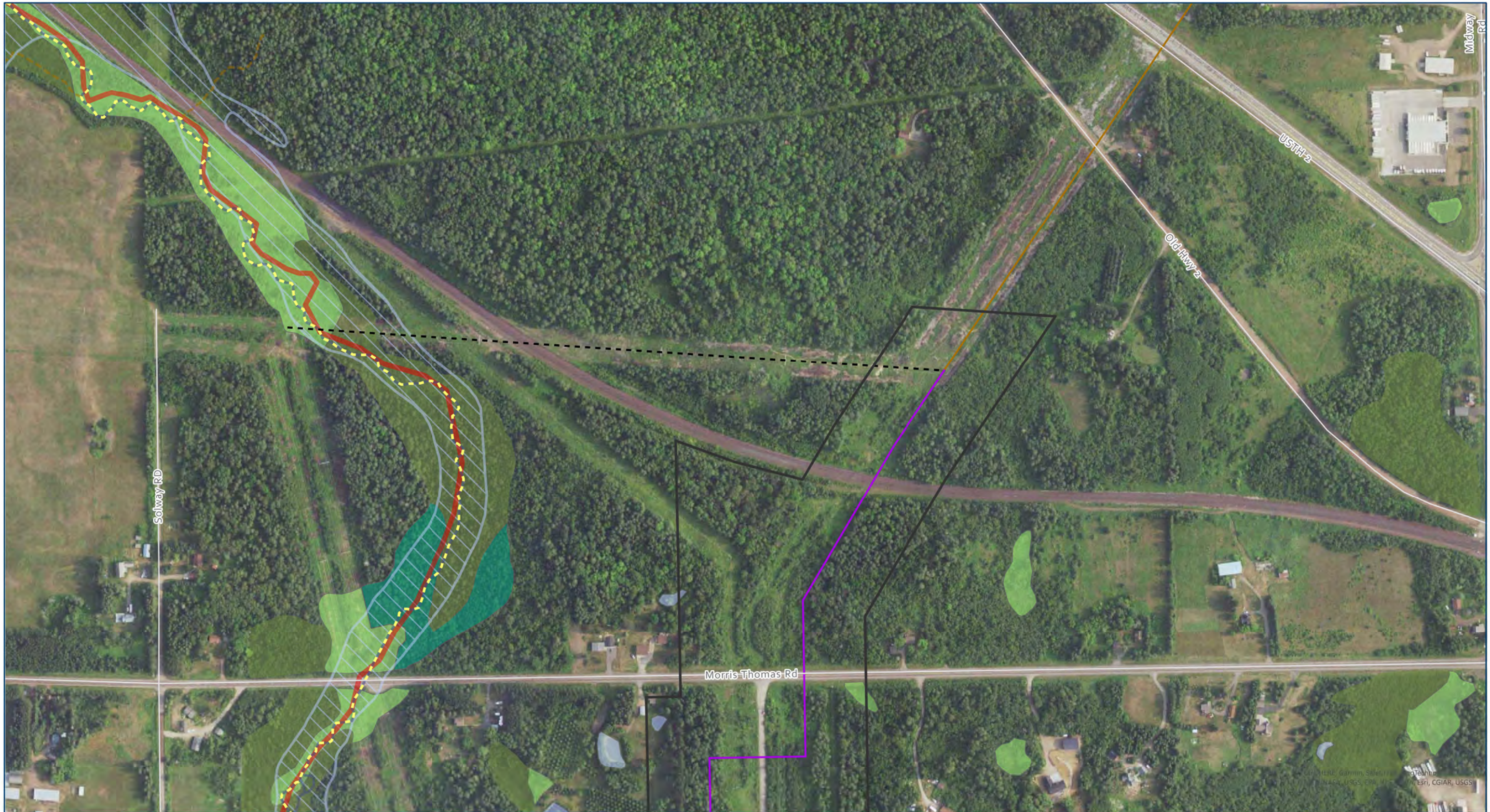
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 21





- Route Width
- Relocated Distribution
- 115 kV Transmission (Single Circuit)
- 115 kV Transmission (Double Circuit)
- 230 kV Transmission (Single Circuit)
- Removed Transmission (Realigned)
- Thermal Upgrades
- New Underground Fiber

- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Public Water Natural Watercourse
- Public Water Altered Watercourse
- Impaired Stream
- Public Waterbody

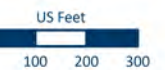
- NWI (non-delineated)
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Freshwater Forested Wetland

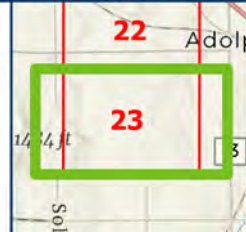
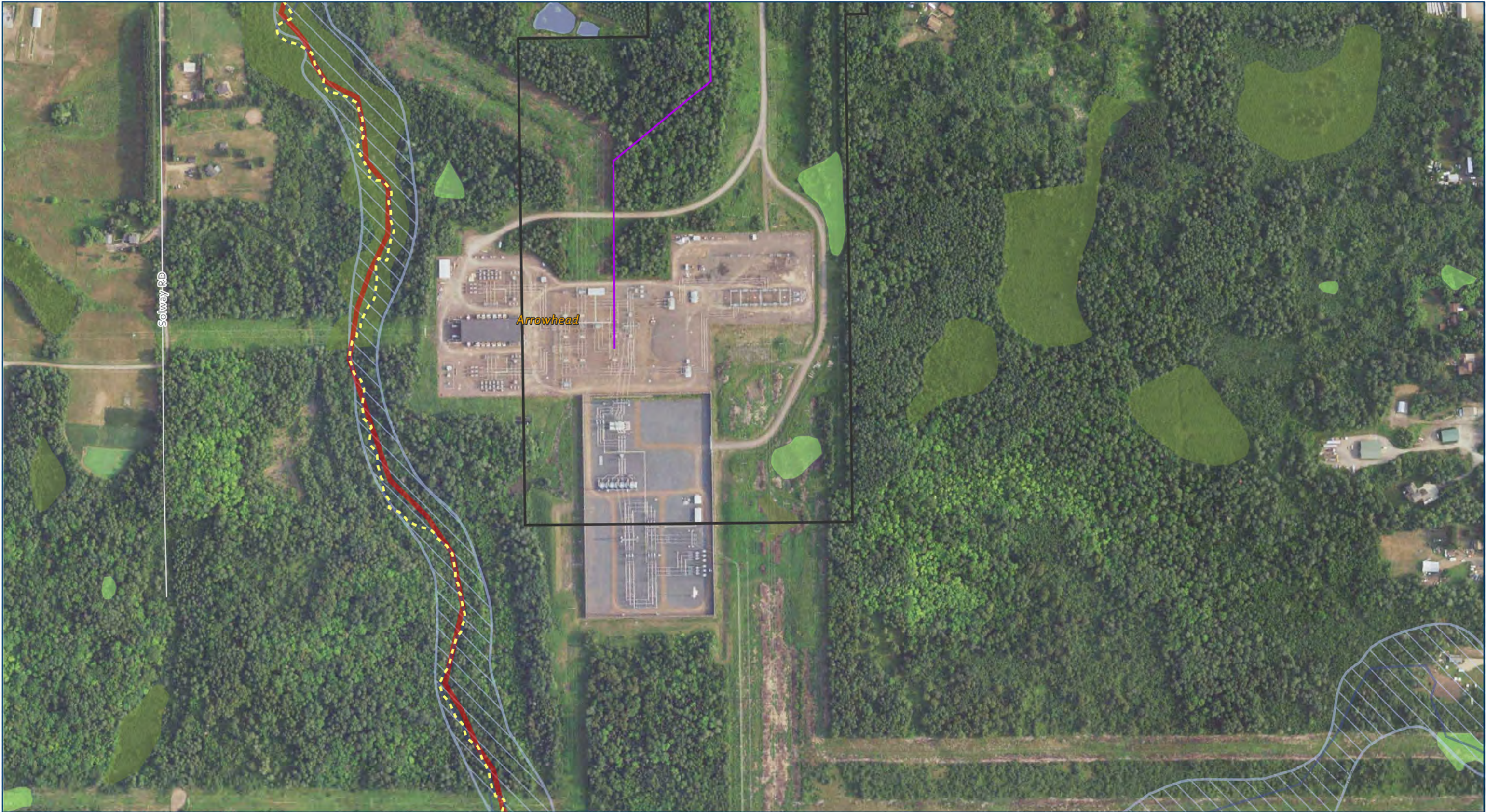
- Hermantown Trails
- Superior Hiking Trail
- Snowmobile Trail
- Duluth Trails
- Hiking and Biking
- Hiking
- Multipurpose
- Nordic

- Aquatic Management Area
- Other Forest Land
- Wildlife Management Area
- FEMA Floodplain

- Ski Area
- Cemeteries

Route Detail
Map 22





- | | |
|--------------------------------------|--|
| Route Width | Designated Trout Stream |
| Relocated Distribution | Protected Tributary to Designated Trout Stream |
| 115 kV Transmission (Single Circuit) | Public Water Natural Watercourse |
| 115 kV Transmission (Double Circuit) | Public Water Altered Watercourse |
| 230 kV Transmission (Single Circuit) | Impaired Stream |
| Removed Transmission (Realigned) | Public Waterbody |
| Thermal Upgrades | |
| New Underground Fiber | |

- | | |
|----------------------|-----------------------------------|
| NWI (non-delineated) | Freshwater Emergent Wetland |
| | Freshwater Forested/Shrub Wetland |
| | Freshwater Pond |
| | Lake |
| | Riverine |
| | Freshwater Forested Wetland |

- | | |
|-----------------------|-------------------|
| Hermantown Trails | |
| Superior Hiking Trail | |
| Snowmobile Trail | |
| Duluth Trails | Hiking and Biking |
| | Hiking |
| | Multipurpose |
| | Nordic |

- | |
|--------------------------|
| Aquatic Management Area |
| Other Forest Land |
| Wildlife Management Area |
| FEMA Floodplain |

- | |
|------------|
| Ski Area |
| Cemeteries |

Route Detail
Map 23

US Feet
0 100 200 300

COMMERCE DEPARTMENT