

7.5 Helena Substation to Lake Marion Substation

7.5.1 Description of Segment Alternatives

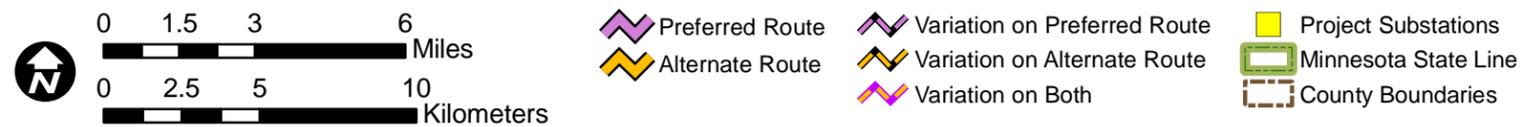
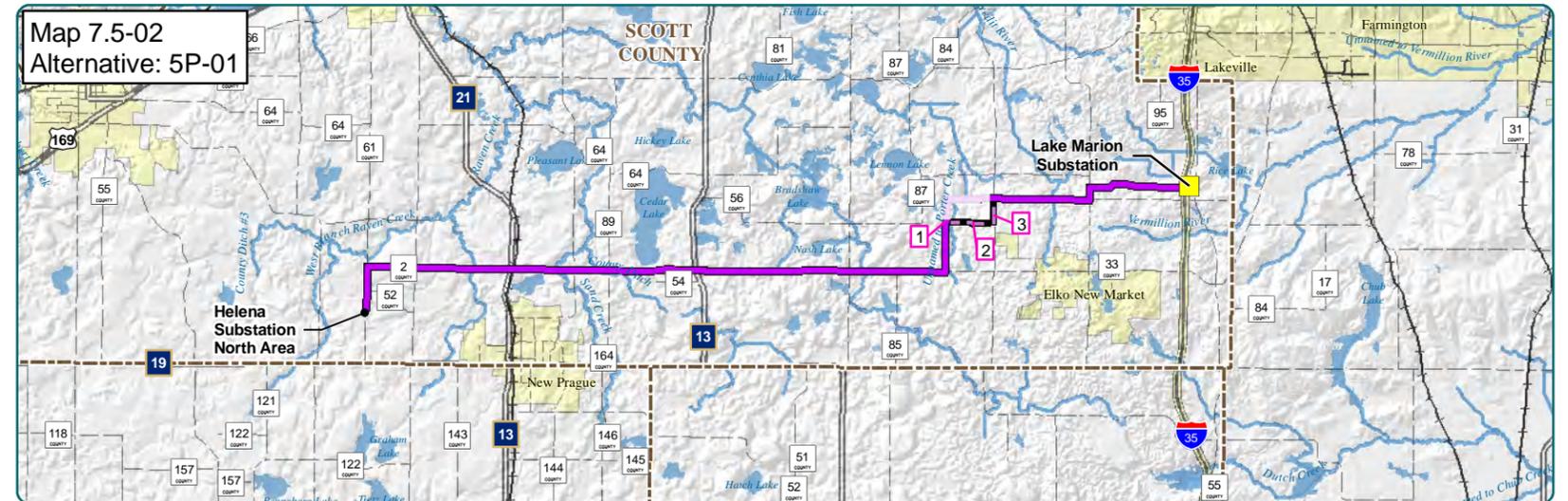
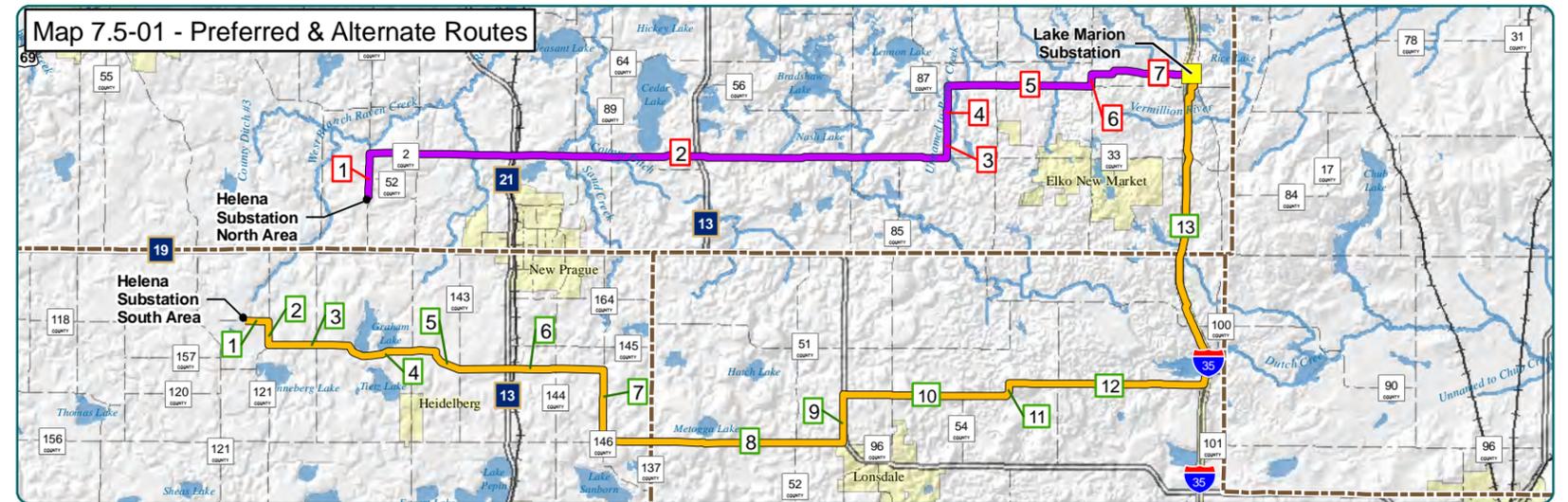
Segment 5 (Helena to Lake Marion) begins at the proposed Helena Substation area and ends at the Lake Marion Substation northeast of Elko New Market. Within Segment 5 there are ten route alternatives that were suggested during the public comment period. Three of the route alternatives (5P-01, 5P-02 and 5P-03) are variations on the Preferred Route and four of the route alternatives (5A-01 thru 5A-04) are variations on the Alternate Route. Three of the route alternatives (5B-01, 5B-02 and 5B-03) are variations on both the Preferred and Alternate Routes. There are also four alignment alternatives within Segment 5 that were suggested during the public comment period.

The Preferred and Alternate Routes, all route alternatives and alignment alternatives are described in Section 7.5.1. Section 7.5.4 is an analysis and comparison of impacts by the Preferred and Alternate Routes and all suggested route alternatives.

Helena to Lake Marion (Preferred Route)			
Turn by Turn	Distance (miles)	Comments	
1	From the north area go north following Aberdeen Ave. to Cnty Hwy 2 / 260th St.	1.0	
2	From the north area go north following Aberdeen Ave. to Cnty Hwy 2 / 260th St.	12.0	
3	Turn north at Jonquil Ave. following cross-country	0.5	
4	Continues north following private roads / Jonquil Ave.	1.1	
5	Turn east following field lines and cross-county	3.0	
6	Turn north following Natchez Ave.	0.25	
7	Turn east following field lines to the Lake Marion Substation	2.0	The route width is 0.6 miles to allow for flexibility in avoiding impacts and engineering considerations for the Lake Marion Sub

Helena to Lake Marion (Alternate Route)			
Turn by Turn	Distance (miles)	Comments	
1	From the south area of the Helena Sub follow 296th St. east to 211th Ave.	0.5	
2	Turn south following Cnty Rd. 121 (211th Ave.) to Cnty Rd. 122 (300th S.)	0.5	
3	Turn east following Cnty Rd. 122 (300th St.)	1.6	
4	Continues east following Cnty. Rd. 122 along the south edge of Graham Lake	1.5	
5	Continues east then southeast across agricultural fields to Cnty Rd. 143 / 171st Ave.	1.2	
6	Continues east following field lines to Cnty Rd. 146	3.0	Crosses TH 13
7	Turn south following Cnty Rd. 146 to Le Sueur Cnty Hwy. 28	1.5	
8	Turn east following Rice Cnty Hwy. 2 to TH 19 and the northwest corner of Lonsdale	5.0	
9	Turn north following TH 19	1.0	
10	Turns east following Cnty Rd. 54 / 60th St. to Elmore Ave.	3.5	
11	Turn north following Elmore Ave.	0.3	
12	Turn east following 57th St. W. to I-35	4.0	
13	Turn north following I-35 to the Lake Marion Sub	6.75	The route width is 3,000 feet to avoid impacts

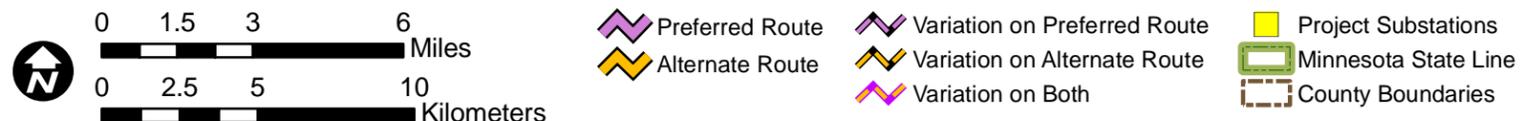
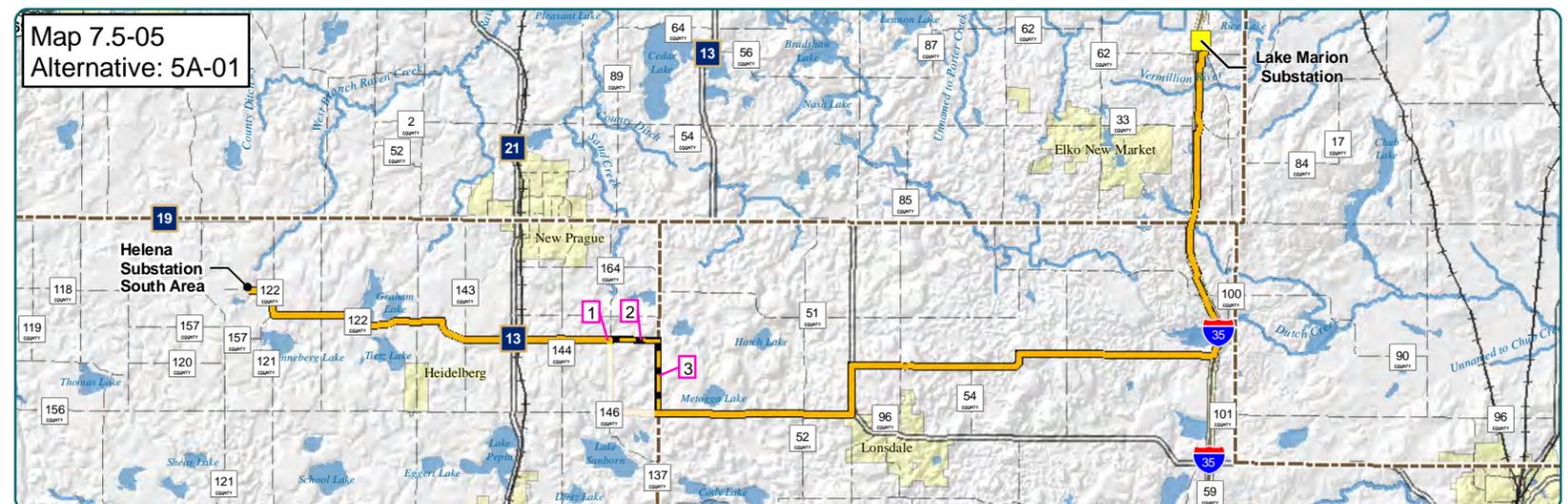
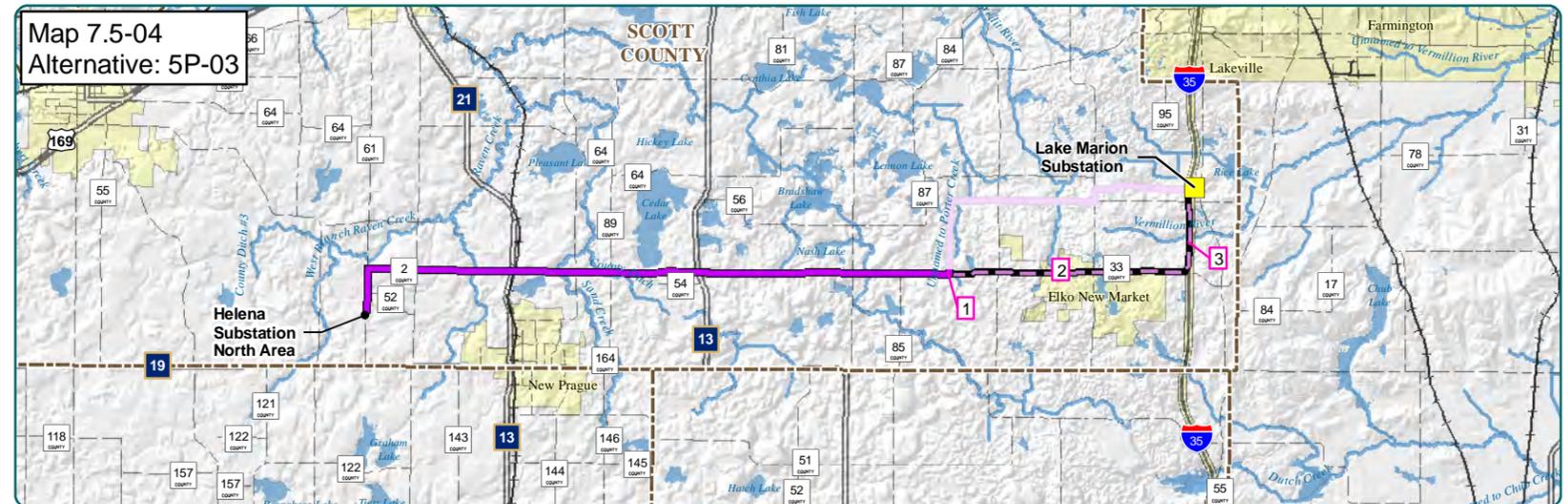
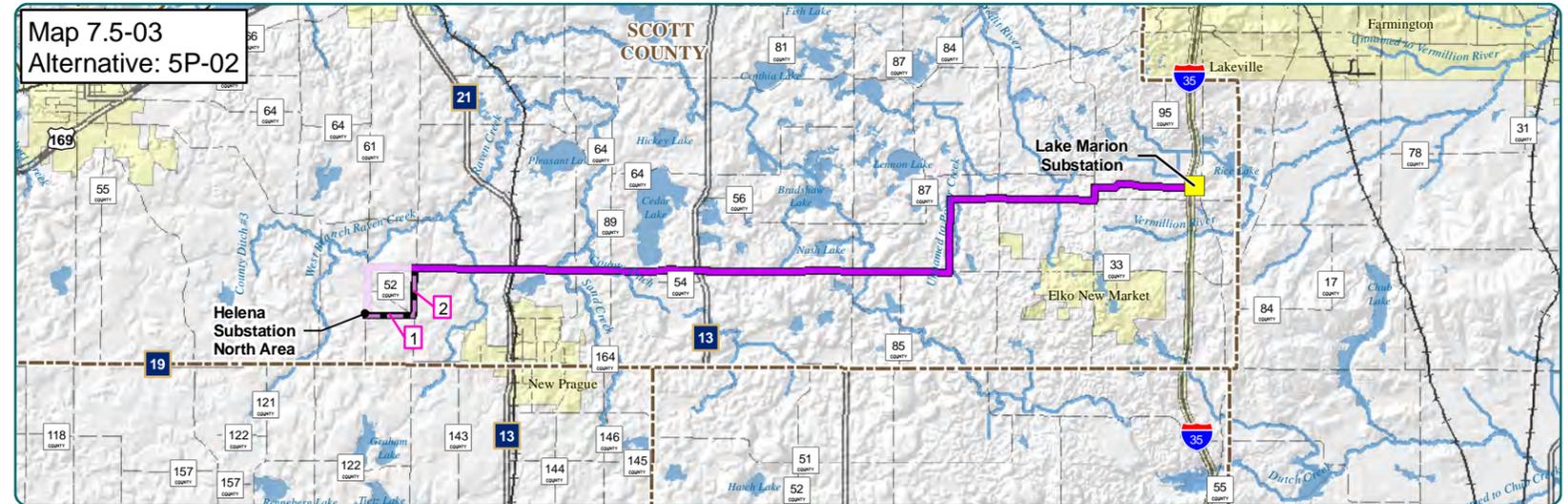
Helena to Lake Marion (5P-01)			
Turn by Turn	Distance (miles)	Comments	
1	Follows the preferred route until 250th St. E.		
2	Turn east following 250th St. E. to Texas Ave.	1.0	
3	Turn north following Texas Ave. to the preferred route	0.5	Connects with preferred route



Helena to Lake Marion (5P-02)		
Turn by Turn	Distance (miles)	Comments
1 From the north area of the Helena Sub go east cross-country to Delmar Ave.	1.0	
2 Turn north following Delmar Ave to the preferred route	1.0	Connects with preferred route

Helena to Lake Marion (5P-03)		
Turn by Turn	Distance (miles)	Comments
1 Follows the preferred route until Jonquil Ave.		
2 From Jonquil Ave and CSAH 2 continue east following CSAH 2 to I-35	5.0	
3 Turn north following I-35 (on the west side of I-35) to the preferred route	1.7	Connects with preferred route

Helena to Lake Marion (5A-01)		
Turn by Turn	Distance (miles)	Comments
1 Follows the preferred route until 141st Ave.		
2 From 141st Ave. continue east following field lines to Le Sueur Ave.	1.0	
3 Turn south following Le Sueur Ave to the alternate route	1.5	Connects with alternate route



Helena Substation to Lake Marion Substation Segment

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Environmental Impacts

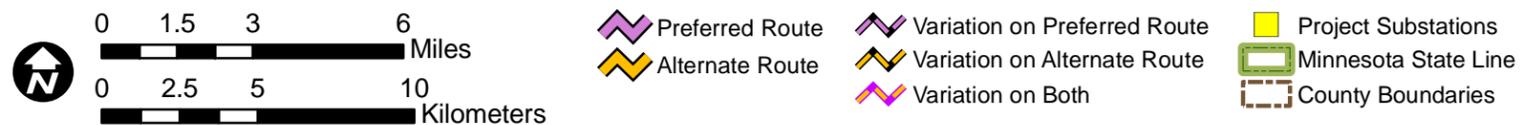
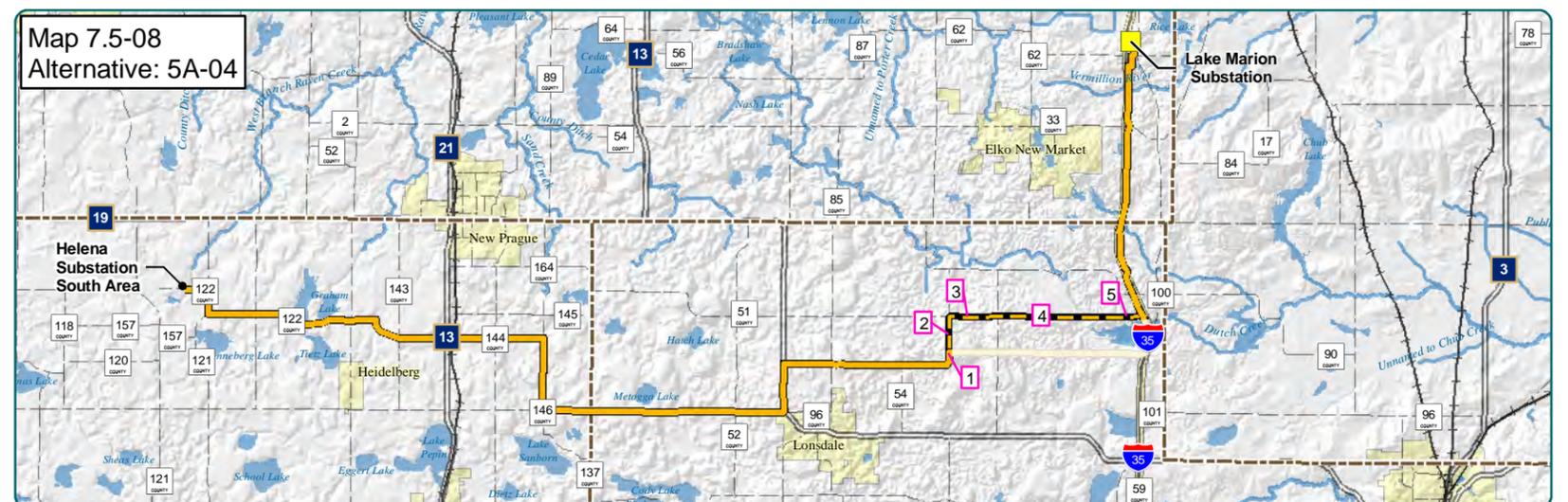
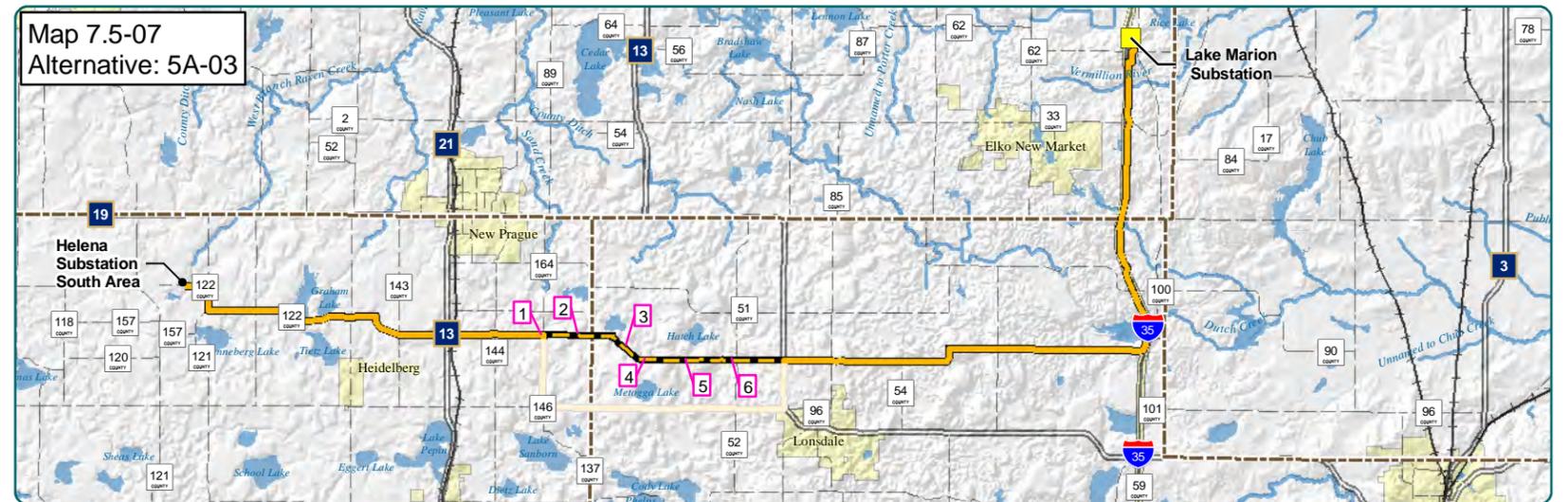
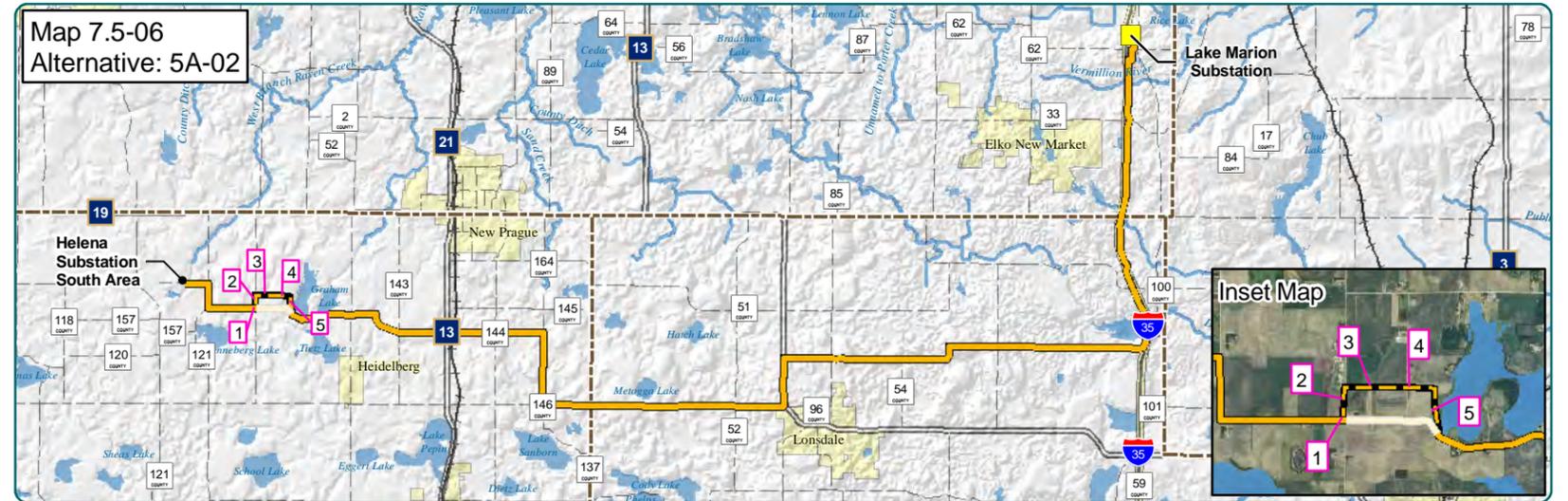
Helena Substation to Lake Marion Substation Segment

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Helena to Lake Marion (5A-02)		
Turn by Turn	Distance (miles)	Comments
1 Follows the preferred route until 201st Ave.		
2 From 300th St. and 201st Ave. turn north following 201st Ave.	0.25	
3 Turn east following field lines	0.5	
4 Continue east cross-country	0.2	
5 Turn south cross-country to the alternate route	0.4	Connects with alternate route

Helena to Lake Marion (5A-03)		
Turn by Turn	Distance (miles)	Comments
1 Follows the preferred route until 141st Ave.		
2 From 141st Ave. continue east following field lines	1.4	
3 Turn southeast following Leaf Tr.	0.8	
4 Turn east following 60th St. W.	0.2	
5 Continue east cross-country to 60th St. W.	1.3	
6 Continue east following 60th St. W. to the alternate route	1.5	Connects with alternate route

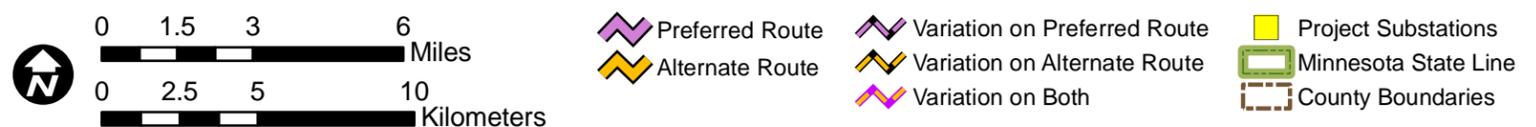
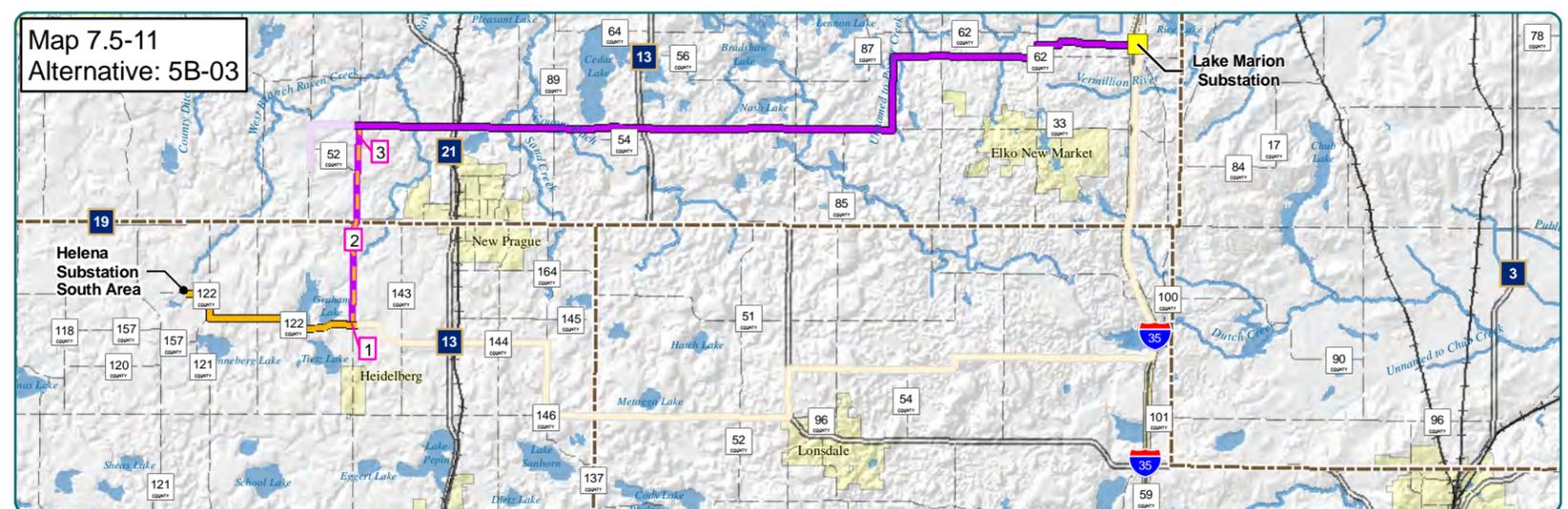
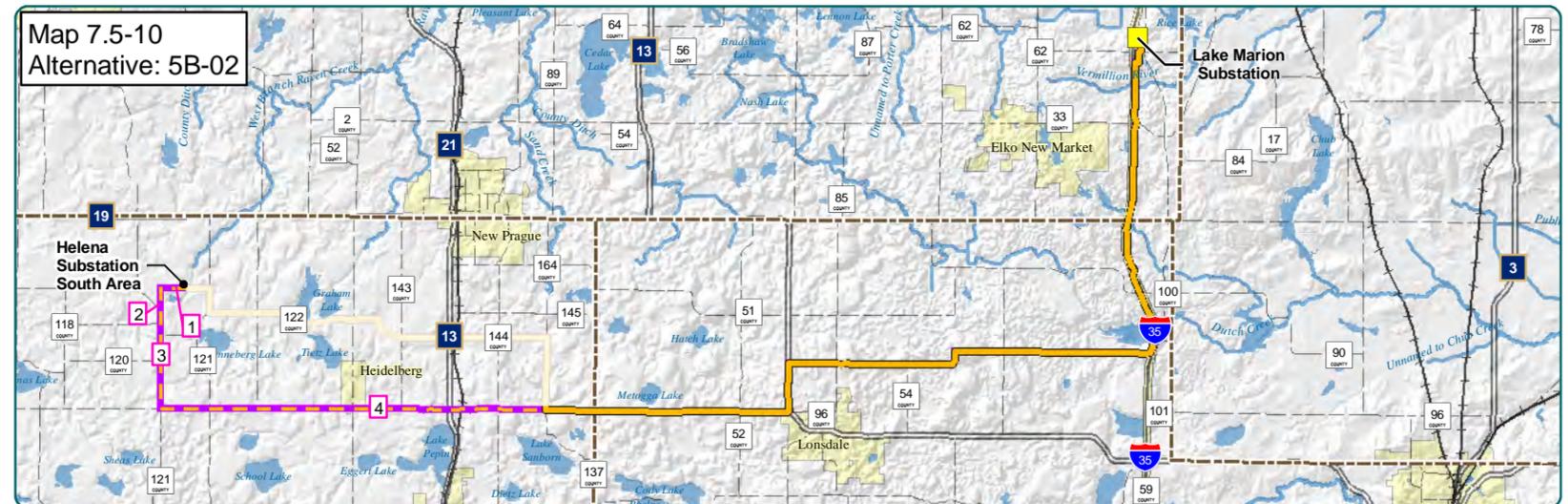
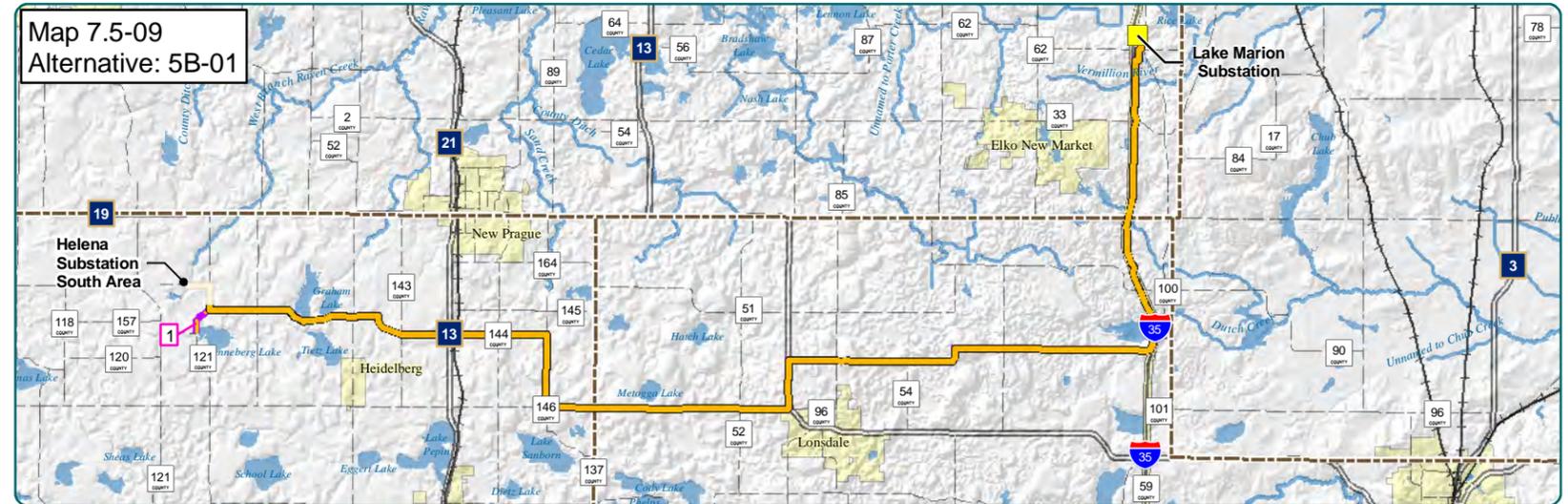
Helena to Lake Marion (5A-04)		
Turn by Turn	Distance (miles)	Comments
1 Follows the preferred route until Elmore Ave.		
2 From Elmore Ave. and 57th St. W. continue north following Elmore Ave. to 50th St. W.	0.8	
3 Turn east following field lines to 50th St. W.	0.75	
4 Continue east following 50th St. W.	2.4	
5 Continue east following field lines to the alternate route	0.9	Connects with alternate route



Helena to Lake Marion (5B-01)		
Turn by Turn	Distance (miles)	Comments
1 From the suggested (modified south Helen Sub) go north/northeast following 211th Ave to the alternate route	0.6	Connects with alternate route

Helena to Lake Marion (5B-02)		
Turn by Turn	Distance (miles)	Comments
1 From the south area of the Helena Sub go west following 296th St.	0.5	
2 Turn south following field lines to 221st Ave.	0.5	
3 Continue south following 221st Ave. to 320th St.	2.0	
4 Turn east following 221st Ave. to the alternate route	8.0	Crosses TH 13. Connects with alternate route at 141st Ave.

Helena to Lake Marion (5B-03)		
Turn by Turn	Distance (miles)	Comments
1 Follow the alternate route to 181st Ave.		
2 From 300th St and 181st Ave. turn north following 181st Ave to Delmar Ave.	2.1	
3 Continue north following Delmar Ave. to the preferred route	2.0	Connects with preferred route



7.5.1.1 Alignment Alternatives

Segment 5 has four alignment alternatives that were suggested during the public comment period.

- 1) Route: Preferred (Inset #1)

Description: Run the line on the south side of Hwy 2

Purpose: to avoid property that has already been impacted by the MinnCan pipeline.

- 2) Route: Preferred (Inset #2)

Description: Run the line on the north side of Hwy 2. (already the side of the proposed alignment)

Purpose: to keep it further away from Anderson’s house and the neighbor who is “quite close to the road.”

- 3) Route: Alternate (Inset #3)

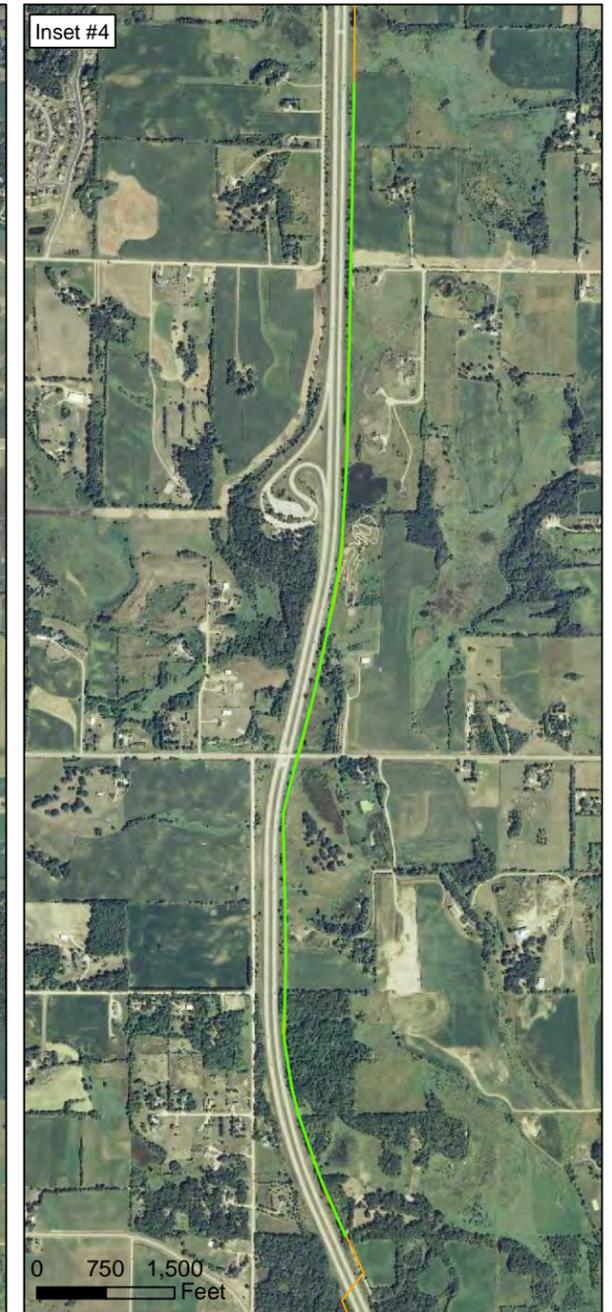
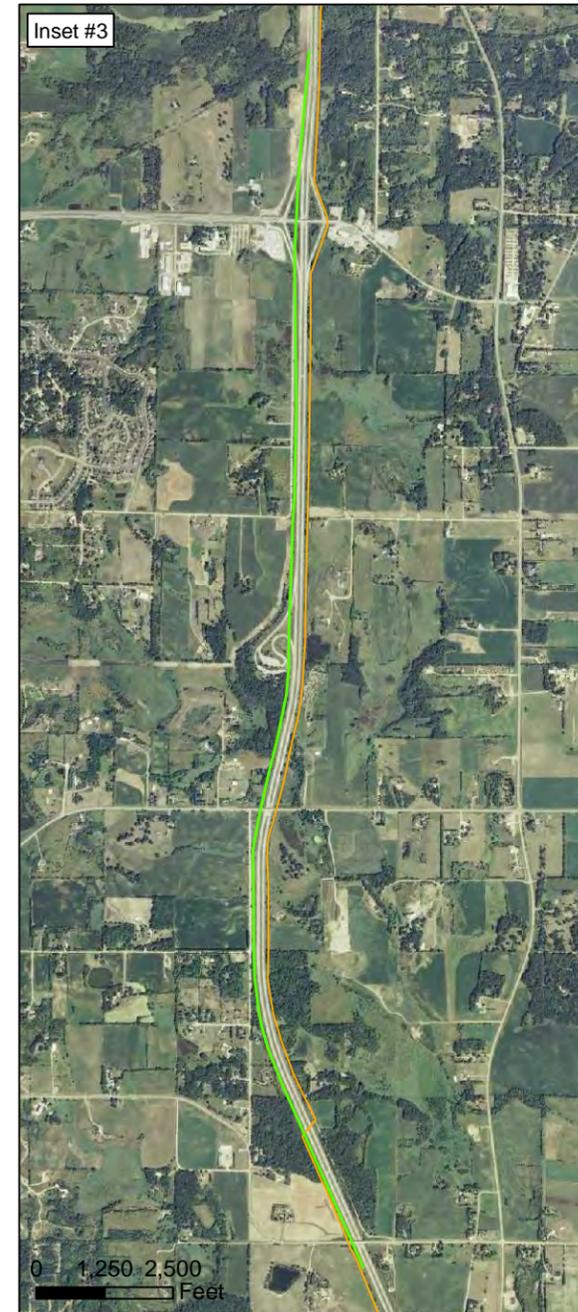
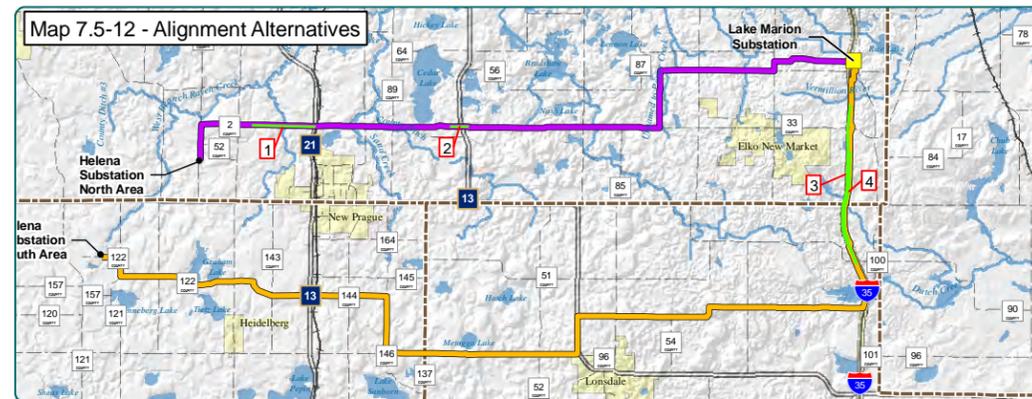
Description: Run the line on the west side of I-35W

Purpose: to avoid homes

- 4) Route: Alternate (Inset #4)

Description: Run the line on the east side of I-35W (already the side of the proposed alignment)

Purpose: to avoid homes



7.5.2 Environmental Setting—Helena Substation to Lake Marion Substation

This route segment extends from the proposed Helena Substation South area to the existing Lake Marion Substation, and is located in two subsections within the Eastern Broadleaf Forest Province. According to the ECS, Scott County is located within the Big Woods Subsection and Rice County is located within the Oak Savanna Subsection. The Big Woods Subsection is characterized by gentle to moderate rolling hills and large forested areas. The Oak Savanna Subsection is distinguished by rolling plains over till and bedrock with oak openings rather than forested areas, due to frequent fires on the adjacent southern prairies. Elevations along this segment of the route range from 931 feet to 1,182 feet AMSL.

Pre-settlement vegetation was dominated by maple-basswood and oak woodland forests in the northern portion of the Project area and bur oak savannas with areas of tallgrass prairies in the southern portion of the Project area. The primary present-day use of the land along this segment of the route is agriculture; few remnants of native vegetation are present (DNR 2008). Many of the wetlands have been drained and most of the smaller watercourses have been channelized to increase the acreage of land available for agricultural production. Urban development has

started to encroach on the northern border of the farming communities in this area.

The majority of this segment of the route crosses cropland used to grow corn and soybeans. Cities near this segment of the route include New Prague and Elko New Market. Urban development has started to encroach on these agricultural communities.

7.5.3 Socioeconomic Setting—Helena Substation to Lake Marion Substation

This segment passes near several towns in a low population density area. The Preferred Route crosses parts of Le Sueur and Scott Counties. The Alternate Route crosses parts of Le Sueur, Rice and Scott Counties. The primary industries for Le Sueur, Rice and Scott Counties include “Educational, Health & Social Services,” Construction, Manufacturing, Retail Trade, and “Professional, Scientific, Management.” Table 7.5.3-1 shows the differences in population, minority population percentage and median age across the counties spanned by this segment of the Project.

Table 7.5.3-1. Socioeconomic stats in Le Sueur, Rice, and Scott Counties

County	2008 Population	Total Minority Population	Minority Population Percentage	Median Age
Le Sueur	28,042	1,795	6.4	40
Rice	62,390	7,300	11.7	35
Scott	128,937	17,664	13.7	34

Source: U.S. Census Bureau

7.5.4 Analysis of Segment Alternatives for Helena Substation to Lake Marion Substation

The analysis of segment alternatives includes the following:

- Human settlement
- Public health and safety
- Air quality
- Interference
- Property values
- Archaeological and historic resources
- Land use compatibility
- Land-based economics
- Transportation and public services
- Recreation
- Water resources
- Flora and fauna
- Rare and unique natural resources/critical habitat

See Section 6 for a general overview of the potential impacts to the resources listed above and a summary of the mitigation measures that would be utilized to minimize impacts to these resources. General overview maps are present throughout Section 7; however, more detailed maps are provided in Appendix A.

7.5.4.1 Human Settlement—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Impacts to human settlement have been assessed by looking at a variety of factors including noise, aesthetics, proximity to structures, displacement, tree groves and windbreaks, existing utilities, and domestic water well installation and maintenance. Section 6.1 provides detailed discussion of each of these potential impact areas.

The extent to which particular route alternatives may impact these features is primarily linked to the proximity of the proposed route alternatives to human settlement areas. Aesthetic impacts to humans, for example, are expected to be greatest where the line is located nearest to human settlement features such as homes, businesses, schools, daycares, hospitals, churches and cemeteries. If the transmission line is in close proximity to human settlement areas, other features of these areas could also be impacted. For example, tree groves and wind breaks are frequently established to protect homes and other structures. Therefore, the potential for impacts to tree groves and wind breaks may be closely correlated with the proximity of the line to homes.

Displacement impacts are also dependent upon the proximity of the transmission line to homes. For electrical safety code and maintenance reasons, utilities would not generally allow residences or other buildings within the actual ROW easement for an HVTL.

Because of the close correlation between the extent to which particular route alternatives may impact human settlement and the proximity of

the proposed route alternatives to homes and other human settlement features like schools, churches, cemeteries, nursing homes and hospitals, this impact summary focuses on the proximity of the proposed route alternatives to these features. For each alternative, pinch points, or narrow areas where human settlement impacts would be difficult to avoid, have also been identified.

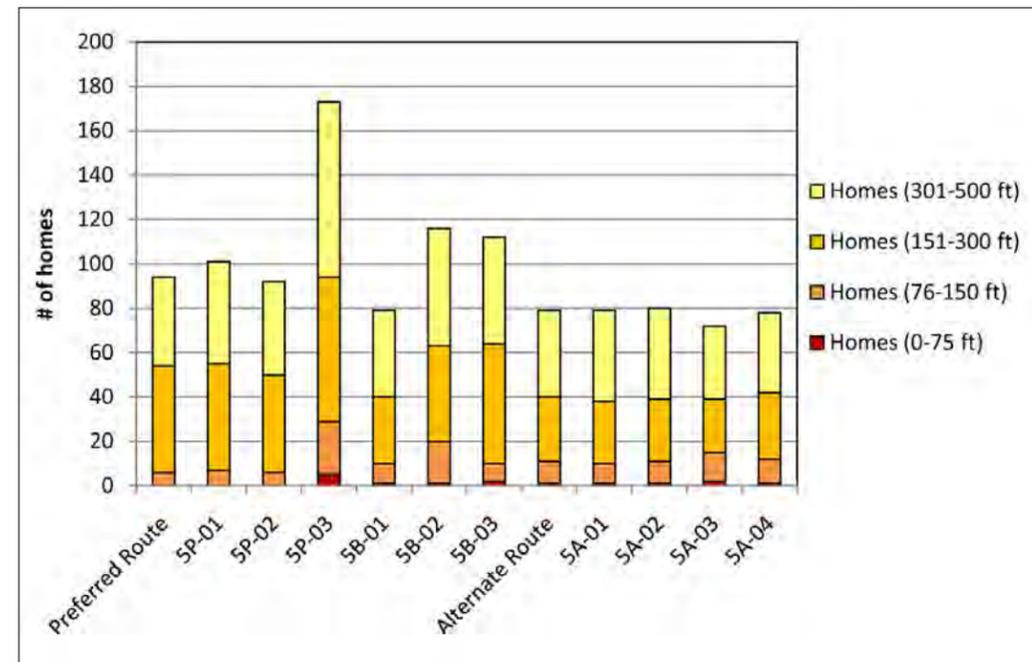
Proximity to homes, schools, churches, cemeteries, nursing homes and hospitals for each of the proposed alternatives for the route segment from Helena Substation to Lake Marion Substation (shown in Map 7.5-13 and Appendix A) is summarized in Figures 7.5.4.1-1 to 7.5.4.1-2.

Figure 7.5.4.1-1 compares the number of homes within 75 feet, 150 feet, 300 feet, and 500 feet of the centerline of each route alternative in this segment.

Due to increasing proximity to more populated areas, total house counts for this line segment are notably higher than house counts for the portions of the Project located further to the west. At 72 homes, proposed route alternative 5A-03 has the fewest homes within 500 feet of the proposed centerline. Proposed route alternative 5P-03 has the most homes within 500 feet of the route centerline and this route option’s centerline is also located within 75 feet of five homes.

There are a number of narrow areas that have been identified along the route alternatives where homes, other buildings or tree groves are located close to the road and may be within the right of way (ROW) of the line unless the route alternative is aligned on the side of the road opposite these features.

Figure 7.5.4.1-1. Proximity of homes along each proposed route alternative



Source: Field survey observations, comments from project public meetings and aerial photograph interpretation by HDR, 12/29/08, updated by Barr 7/21/09

Approximately one mile after proposed route alternative 5B-03 turns to head north after leaving the Helena Substation, a pinch point has been identified where a house is located on the west side of the road and a church is located to the east (Map 7.5-13 and Appendix A). Both structures would be within 75 feet of the proposed centerline. Another Pinch point has been identified along proposed route alternative 5A-03 where two structures are located within the ROW on either side of the road. A third pinch point is encountered where proposed alternative 5P-03 runs through Elko New Market. The line runs close to number of homes and businesses and may encounter space constraints that require undergrounding or other mitigation measures.

Along the Alternate Route and associated route alternatives, except for 5A-03, the line is proposed to run through a narrow area where a house is located on the north and a cemetery is located

on the south. Both features are very close to the existing road, and routing the line through this area may require displacement or the removal of trees from the cemetery.

Figure 7.5.4.1-2 compares the number of schools, churches and cemeteries for each of the proposed alternatives for the route segment. No nursing homes or hospitals are located within 500 feet of any proposed route centerline along this segment.

No schools are located within 500 feet of any of the route centerlines. Few churches and cemeteries were encountered within 500 feet of any of the route centerlines. At most, one church and one cemetery are located within 500 feet of the proposed route centerlines.

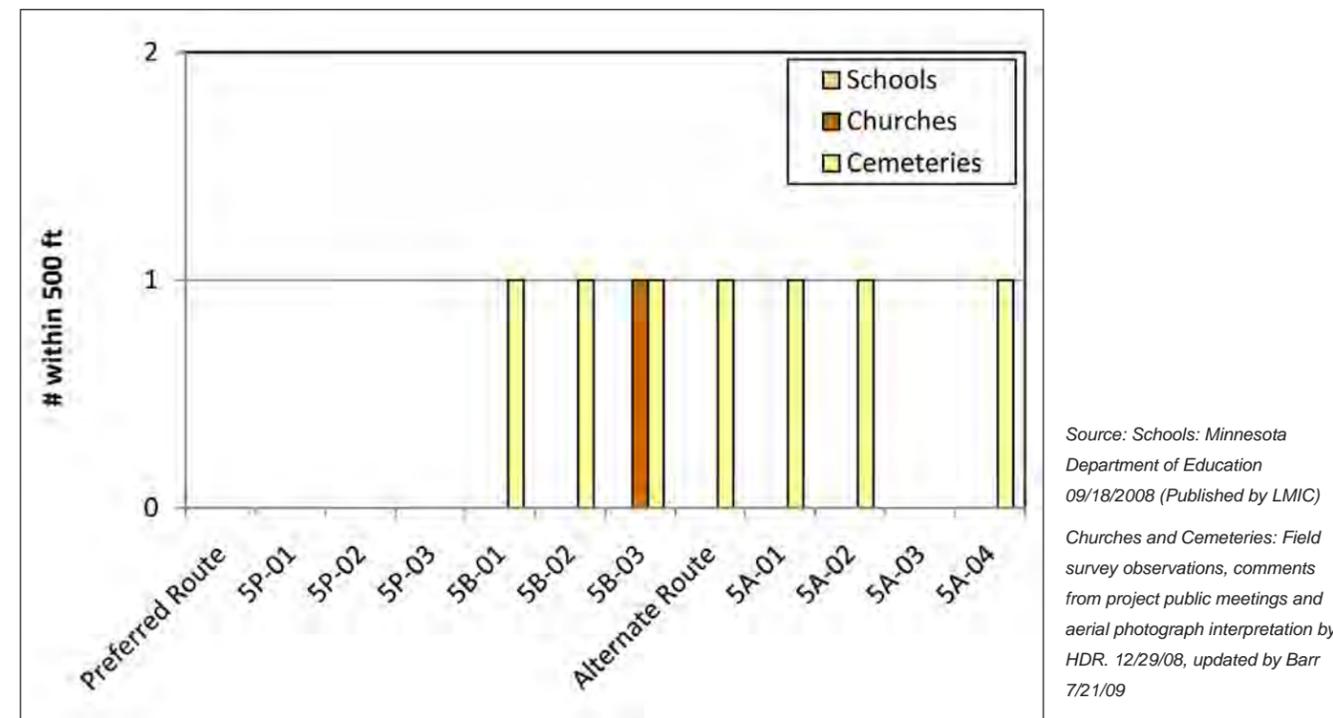
Mitigation

General mitigation measures to minimize impacts to human settlement are discussed in Section 6.1. Within this route segment, impacts to human

settlement can be managed through choosing a route that minimizes the proximity of the line to homes as well as minimizing the total number of homes located within the Project route width. In this route segment route 5A-04 has the fewest homes within the 1,000-foot route width.

Mitigation of impacts at the pinch points along route alternatives 5B-03 and 5A-03, where structures are located on either side of the road, may include compensation for structures that must be removed. Mitigation of purely visual impacts at these locations would require undergrounding of the line or routing the line around or behind these homes. In the narrow area where proposed route alternative 5P-03 runs through Elko New Market mitigation may require undergrounding of the line through this developed, populated area. In the narrow area along all proposed route alternatives except 5A-03 impacts to either a home or a cemetery are unavoidable. Mitigation may include routing the line around either of these features and compensation for structures that must be removed.

Figure 7.5.4.1-2. Proximity of other human settlement features along each proposed route alternative



Section 7.5.4.2 Public Health and Safety—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

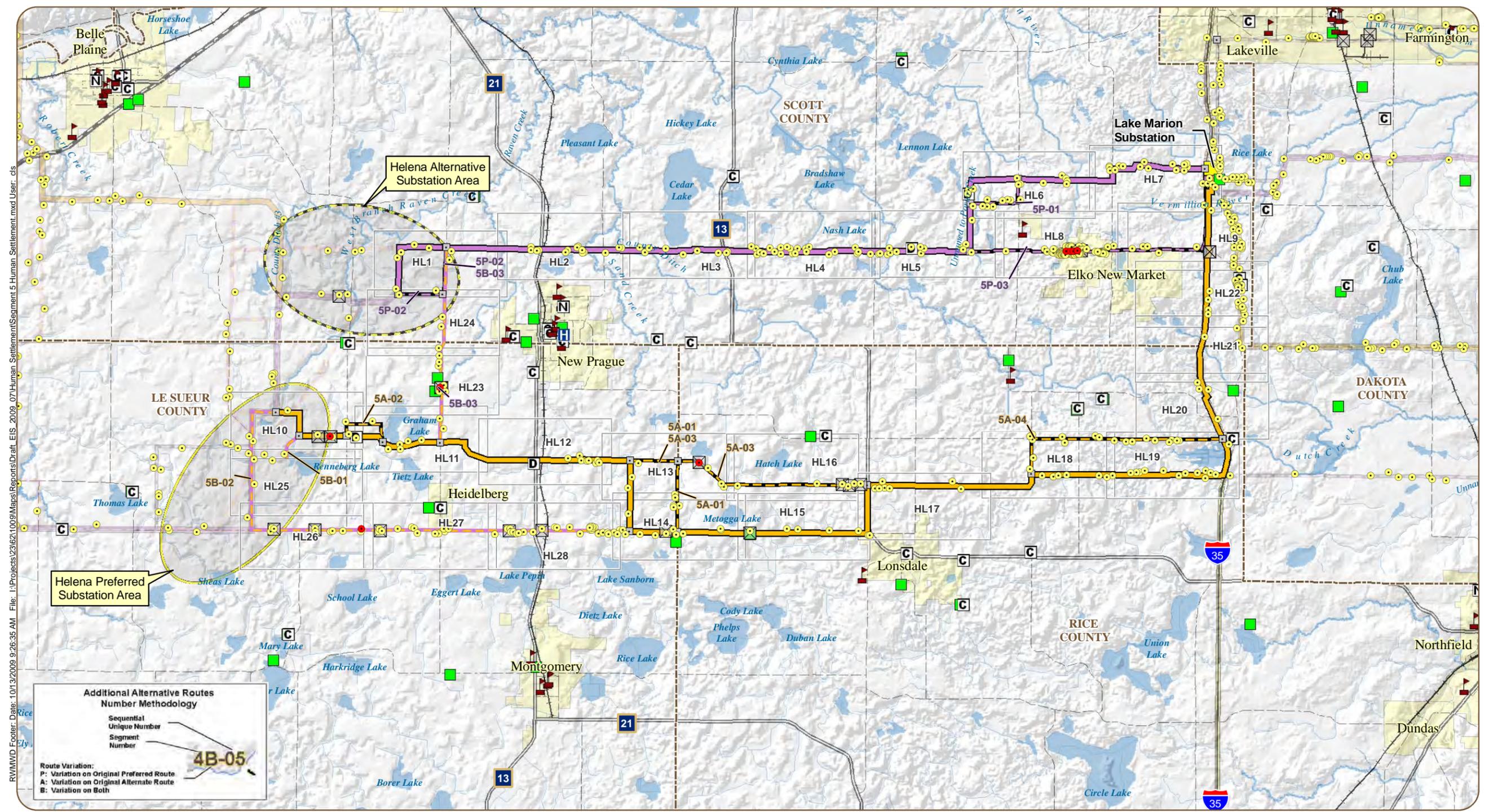
Public health and safety impacts associated with this Project are not anticipated. Any perceived risk of health impacts from electric and magnetic fields is likely to be correlated with the proximity of human dwellings to the proposed line. Information on the proximity of homes to each proposed route alternative within this route segment is provided in Section 7.5.4.1.

RES Pyrotechnic Specialties, Inc., an explosives company located in Belle Plaine along the Alternate Route in this route segment. Storage of explosives is highly regulated for safety reasons. Regulations and best practices exist to ensure that any source of spark or electrical discharge does

not come in contact with the explosives. There are also minimum required distances between storage magazines for explosives and other buildings and highways. An accident or failure at a transmission line in close proximity to an explosives storage magazine could have severe results if any spark came in contact with the explosives. Induced voltage and current from a transmission line could also cause problems with explosives near the line if the storage magazine is not properly grounded and any sparks were generated. Due to these considerations the Applicant has submitted a proposed route alternative designed to avoid any interference with this facility.

Section 7.5.4.3 Air Quality—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Detailed discussion of potential air quality impacts are provided in Section 6.3. Potential air quality impacts are primarily associated with the production of small amounts of ozone and oxides of nitrogen in the air surrounding transmission line conductors and the potential release of small amounts of SF₆ during operation and maintenance of certain electrical substation equipment. These features do not vary notably between the proposed route alternatives in this segment. Thus, the nature of impacts to air quality are not expected to vary notably from one route alternative to the next. The operation of the proposed transmission line would not create any potential for the concentration of these pollutants to exceed existing air quality standards.



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Additional Alternative Routes Number Methodology

Sequential Unique Number
Segment Number

Route Variation:
 P: Variation on Original Preferred Route
 A: Variation on Original Alternate Route
 B: Variation on Both

4B-05

- Original Alignments
- Preferred Route
- Alternate Route
- Additional Alternative Routes
- Variation on Preferred Route
- Variation on Alternate Route
- Variation on Both
- Project Substations
- Proposed Substation Areas
- Preferred
- Alternate
- County Boundaries
- Residences within 75 Feet of Alternatives
- Residences within 500 Feet of Alternatives
- Narrows
- Hospitals
- Nursing Homes
- Observed Day Cares
- Schools
- Churches
- Cemeteries
- Tribal Land

Map 7.5-13
 Human Settlement Map
 Segment 5, Helena Substation Area to
 Lake Marion Substation

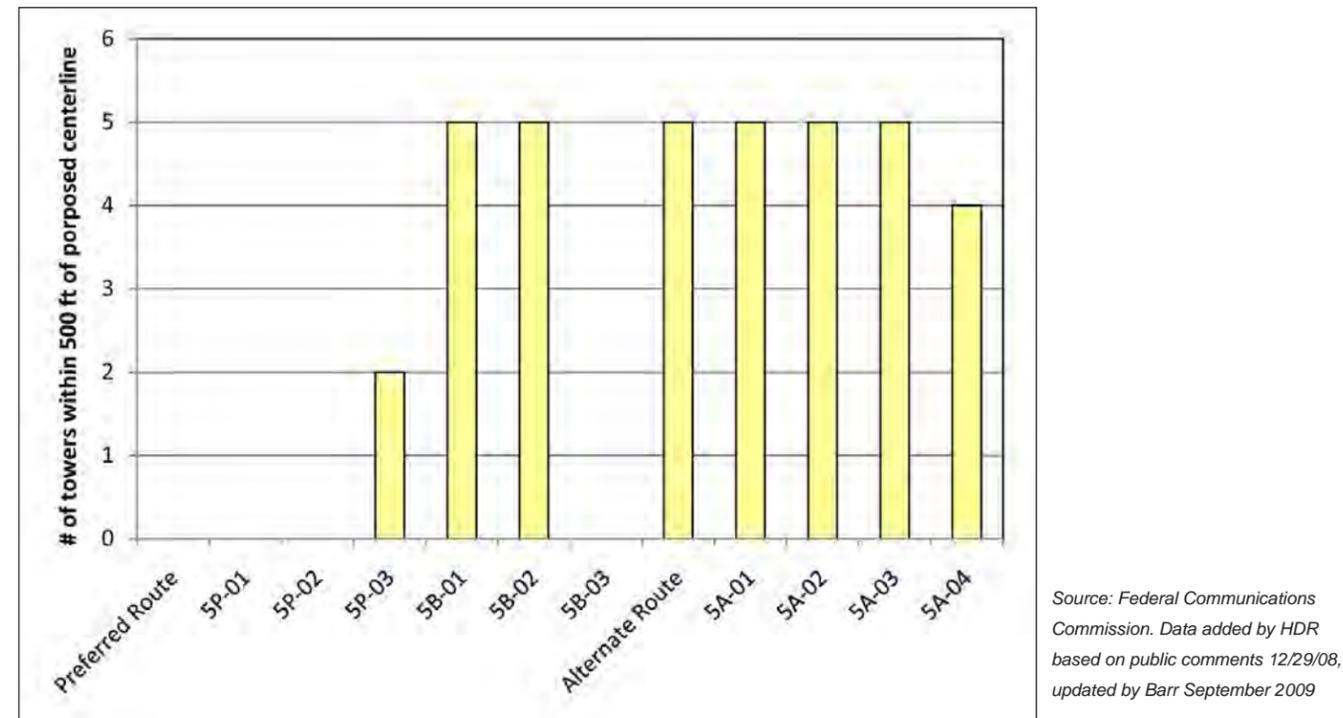
Source: Refer to Appendix B for information on data sources

Section 7.5.4.4 Interference—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

The nature of impacts related to interference, are not likely to vary notably between route segments or route alternatives. Impacts are expected to be greatest very close to the line for AM radio reception and very minor for all other types of reception. The placement of structures may also result in interference. Structure placement would be coordinated so as not interfere with microwave communication corridors.

Figure 7.5.4.4-1 shows the number of communication towers within 500 feet of the proposed centerline for each route alternative in the Helena Substation to Lake Marion Substation segment.

Figure 7.5.4.4-1. Number of towers within 500 feet of proposed centerline for each proposed route alternative



Section 6.4 provides an overview of potential impacts from interference and outlines general steps that would be taken to mitigate impacts from interference.

Section 7.5.4.5 Property Values—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Impacts to property values are a concern of many residents near existing or proposed transmission lines. Research assessing the relationship between property value and proximity to transmission lines suggests that the presence of a transmission line is one of several factors that interact to affect the value of a particular property. Since property value is influenced by many other factors that may vary widely from one property to the next and that may vary over time and across different regions, the results of current research is limited. Current studies have been unable to

provide detailed quantitative assessments of how transmission lines may impact property values at the scale necessary to provide insight in comparing property value impacts across proposed route alternatives within this section or across this Project.

7.5.4.6 Historical and Archaeological Resources—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Within the Helena Substation to Lake Marion Substation segment, available SHPO records have been used to identify known archaeological resources, historical structures, and historic landscapes within one-half mile on either side of the proposed centerline for each route alternative. In order to protect information about the specific location of certain resources that may be vulnerable to unauthorized removal of artifacts or other unauthorized disturbances, SHPO records only provide a township, range and section for certain resources. If any part of one of these identified areas is within one-half mile of a proposed route centerline, it has been assumed that the resource is potentially within the relevant area. Due to the uncertainty about the exact location of certain SHPO identified resources, total impacts have been characterized in terms of the total number of sites potentially within one-half mile of the route centerline.

Within the SHPO records, particular consideration is given to historical and archaeological resources listed on the National Park Service’s NRHP as these locations have been identified as critical national resources and are protected by the *National Historic Preservation Act of 1966*.

Potential Historical and Archaeological resource impacts for each of the proposed alternatives for the route segment from Helena Substation to Lake Marion Substation (shown in Map 7.5-14 and Appendix A) are summarized in Figures 7.5.4.6-1 to 7.5.4.6-2.

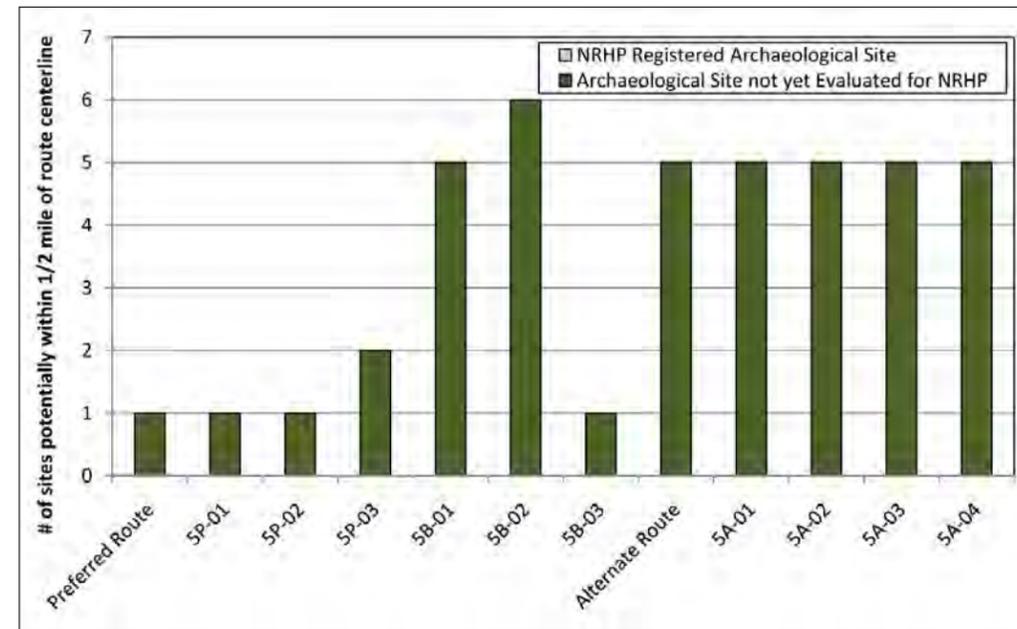
Figure 7.5.4.6-1 compares the number of archaeological sites within one-half mile on either side of the proposed centerline for each route alternative in this segment. No NRHP registered archaeological sites are located within one-half mile of any route alternative’s centerline in this segment. None of the archaeological sites potentially located within the one-half mile of the route centerlines have been evaluated for eligibility for listing on the NRHP and thus, these sites have not been evaluated for significance. Across the proposed route alternatives impacts vary from one to six sites potentially within one-half mile of the route centerlines. The Preferred Route and three of the proposed route alternatives (5P-01, 5P-02 and 5A-01) have only one site within one-half mile of the route centerline. Proposed route alternative 5B-02 has six sites within one-half mile of the route centerline.

Figure 7.5.4.6-2 compares the number of historical architectural sites within one-half mile on either side of the proposed centerline for each route alternative in this segment. One NRHP registered architectural site, the Kajer Farmstead, is located within one-half mile of each of the proposed route centerlines. Aside from the Kajer Farmstead, all other architectural sites potentially located within the one-half mile of the route centerlines have not been evaluated for eligibility for listing on the NRHP.

Mitigation

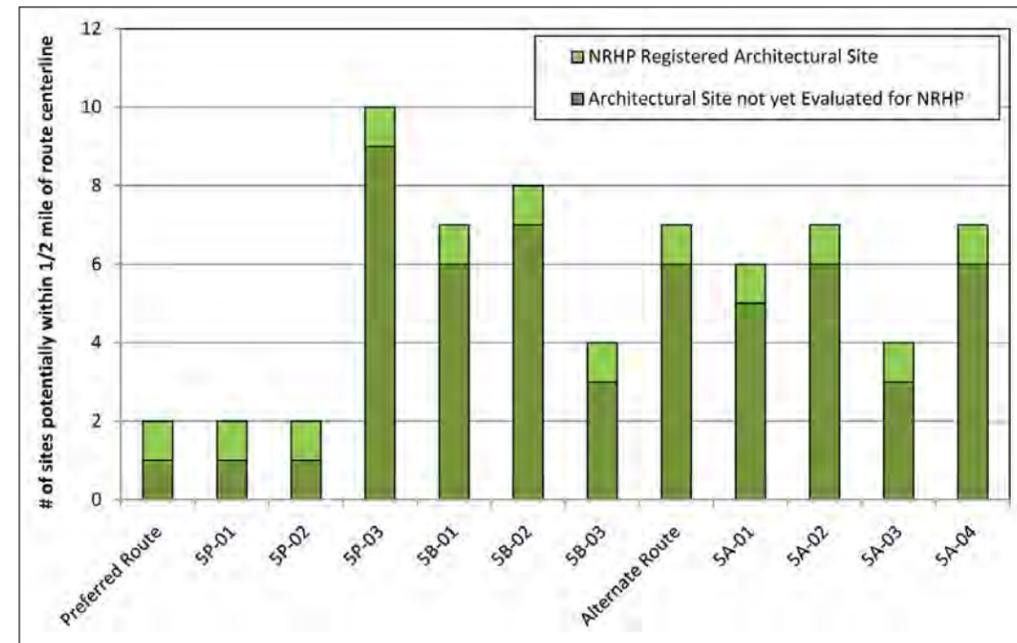
Project planning and engineering efforts would strive to avoid any sites within the proposed route width for each alternative. Route alternatives 5P-01, 5P-02, 5B-03 and the Preferred Route have the fewest archaeological sites potentially within one-half mile of the

Figure 7.5.4.6-1. Number of archaeological sites along proposed route alternatives



Source: SHPO

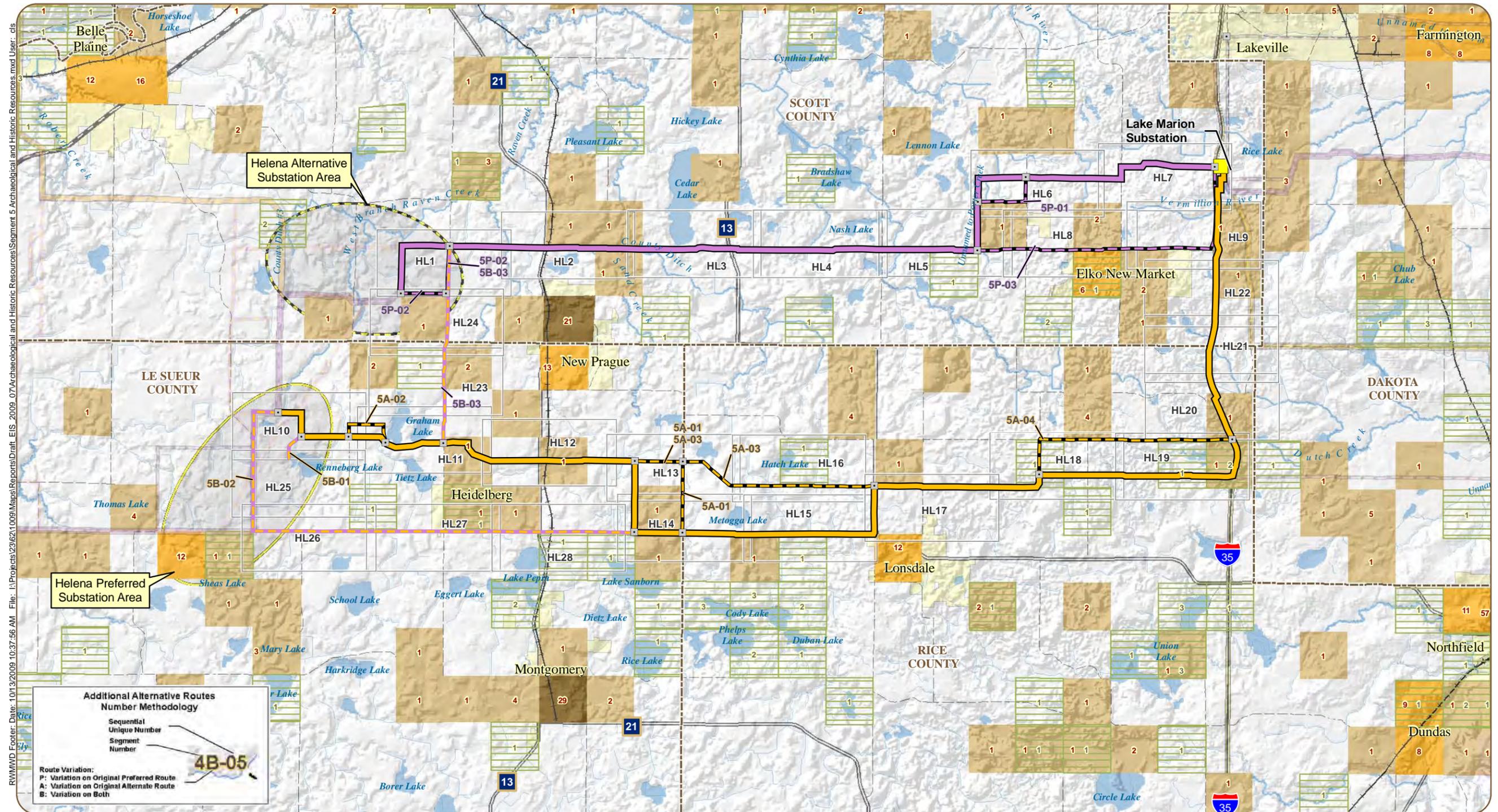
Figure 7.5.4.6-2. Number of historical architectural sites along proposed route alternatives



Source: SHPO

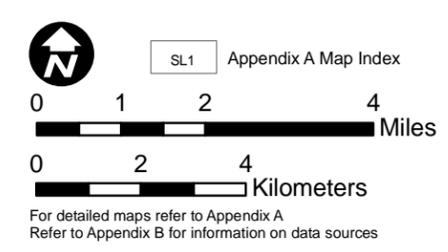
route centerline. The Preferred Route and route alternatives 5P-01 and 5P-02 have the fewest historical architectural sites potentially within one-half mile of the route centerline. At this time it is not clear which route would have the fewest actual impacts on archaeological or historical

resources or what the magnitude of the impacts since a complete assessment of all sites for NRHP status has not been completed. Specific mitigation plans cannot be made until a complete assessment of these sites has been made. For any resources within the route width, once the Project



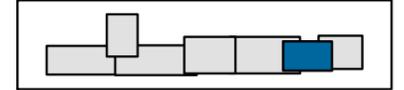
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Helena Substation to Lake Marion Substation Segment
Section 7.5



- Original Alignments
- Preferred Route
- Alternate Route
- Additional Alternative Routes
- Variation on Preferred Route
- Variation on Alternate Route
- Variation on Both
- Project Substations
- Proposed Substation Areas
- Preferred
- Alternate
- County Boundaries
- Archaeological Sites
- 1 - 5
- 6 - 10
- 11 - 15
- Historical Sites
- 1 - 5
- 6 - 20
- >20

Map 7.5-14
Archaeological & Historic Resources Map
Segment 5, Helena Substation Area to
Lake Marion Substation



Source: Refer to Appendix B for information on data sources

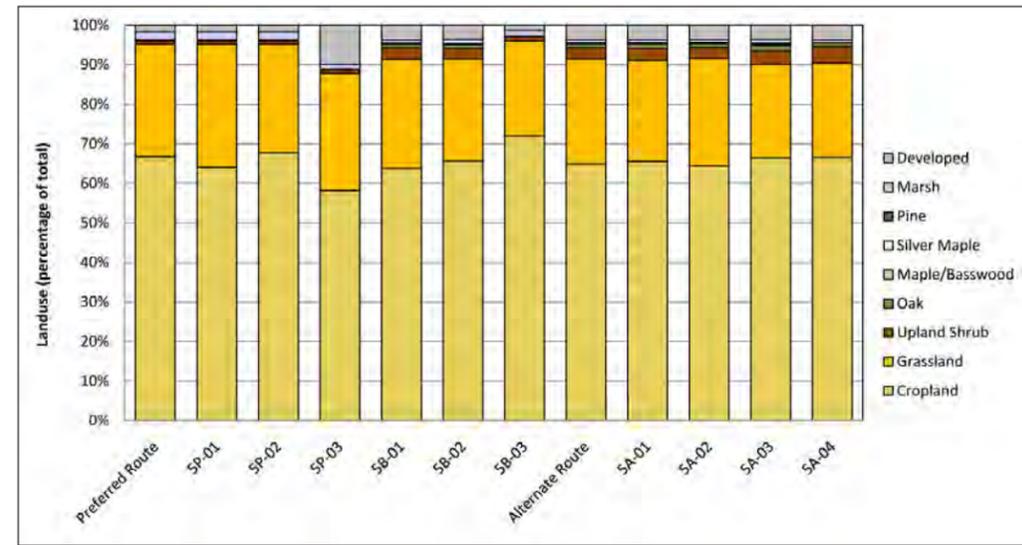
ROW is accessible, the Applicants, as indicated in the RPA, would sponsor an archaeological investigation to locate these sites and provide a report to the OES and SHPO on the existing conditions, site management recommendations, and efforts, if known, to avoid, minimize, or treat impacts related to construction and maintenance of the Project. Planning specific mitigation measures Mitigation would entail compensating for the losses of properties that are eligible for listing on the NRHP. The Applicants have also indicated that they may invite other parties (particularly Native American tribes and other state and federal permitting or land management agencies) to assist in the development of the avoidance, minimization, or treatment measures. Section 6.6 provides an overview of potential impacts to archaeological and historical resources and outlines general steps that would be taken to mitigate impacts to these resources. Specific mitigation plans cannot be made until the steps described above have been completed.

7.5.4.7 Land Use Compatibility—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Impacts to current land use can be caused by activities associated with transmission line development. These impacts may range from temporary construction impacts to permanent impacts introduced where structure, substation, and line placement disturb current land uses or future land use plans. Current land use and zoning and available plans for future development have been evaluated in order to assess the compatibility of the proposed route alternatives with these land uses.

Current land cover types along the 150-ROW for each route alternative in this route segment have

Figure 7.5.4.7-1. Land cover types along each route alternative



Source: DNR, Department of Forestry 06/06/2002

been reviewed and are summarized in Figure 7.5.4.7-1.

All route alternatives in this segment traverse the urbanizing areas of Scott and Rice Counties. The Preferred Route and associated route alternatives are mostly located in southern Scott County, while the Alternate Route and associated route alternatives pass through portions of northern Le Sueur and Rice Counties.

The Scott County 2030 Land Use Plan shows that the pass through areas around both New Prague and Elko New Market guided for future sewered residential growth at densities of at least 3 units per acre. Proposed route alternative 5B-03 crosses land west of New Prague guided for sewered residential use. Proposed route alternative 5B-01 follows CSAH 2 throughout the entire length of Elko New Market. The City’s future land use plan identifies a town center on both sides of CSAH 2 as well as two different residential land use types and commercial land uses in this same transportation corridor. West of New

Prague, the Preferred Route and proposed route alternatives 5P-02, and 5B-03 cross over land guided for “agricultural transition” (protected for agricultural use until urbanization occurs, sometime beyond 2030). Preferred Route and proposed route alternative 5P-01 cross over land north of Elko New Market guided for and currently in use as rural residential land. Lot sizes in these areas range from 1 to 10 acres. These areas are unlikely to be served by public sewer and are expected to remain developed at very low densities.

From the Helena substation, the Alternate Route and proposed route alternatives based on the alternate route are located on or adjacent to agricultural land in crop, pasture or grassland use until they approach the northwest corner of Lonsdale. All route alternatives associated with the Alternate Route except 5A-03 and 5A-04 are located in the West 70th Street ROW, adjacent to land guided for future low density residential use at densities of at least 3 units per acre on

the south and land guided for future Industrial use to the north. These route alternatives turn north at the intersection with TH 19. Land along this corridor is either industrial or highway commercial until the transmission line leaves the city. Proposed route alternatives 5A-03 and 5A-04 are located on or adjacent to agricultural land in crop, pasture, or grassland. Unlike the other route alternatives associated with the Alternate Route, these route segments do not approach Lonsdale or other urbanizing areas. West of Lonsdale, the Alternate Route and associated route alternatives are located on or adjacent to agricultural land pasture and crop use.

Transmission lines may affect agricultural land use in this segment by the amount of land removed from productive use by the footprint of each tower. Tower placement may also affect the operation of irrigation equipment if present as well as crop spraying operations. Stray voltage and cattle may be a compatibility concern.

Single pole towers would be the primary tower type used for the Project and they use relatively little land compared to other tower types. Transmission towers and lines also change the visual quality of views within the agricultural landscape, however, due to the relatively low population densities and small numbers of travelers along most route alternatives, this potential impact would not affect many people. Impacts during tower construction may include the potential for destruction of crops within the grading/ construction zoning and the compacting of soils by construction equipment and activities.

The major impact on residential areas, such as the urbanizing area of north Lonsdale, may include changes to viewsheds for some properties and

minor noise impacts during construction for properties in close proximity to the transmission line.

Individual property values may be negatively affected depending on proximity to, and views of, the transmission line. Impact on property values varies depending on a range of other factors including current market conditions, proximity and access to open space, commercial services and community services such as schools. Land used for tower siting may change or reduce the current and future functionality of the property depending on its size as well as its current and future use. The height of vegetation allowed within the transmission line easement is generally limited to 25 feet which may conflict with the property owner’s desire for landscaping. Maintenance activities within the easement may pose temporary periodic conflicts with use and enjoyment of the property

The major impacts to commercial and industrial properties, such as the industrial area north of Lonsdale, are similar to those affecting residential areas. The compatibility of transmission lines with commercial and industrial uses is generally less of a concern with commercial property and even less so with industrial uses. Most commercial and industrial activities are located in close proximity to more heavily used road corridors and thus exposed to higher sound levels and affected viewsheds. Commercial activities may be more sensitive to impacts than industrial activities depending on the nature of commercial use. Parking and outdoor storage areas, typically a large portion of commercial and industrial land use, are not affected by transmission lines. Parking, vehicle circulation, and outdoor storage are generally allowed under transmission lines

Mitigation

General measures to minimize impacts to Land Use Compatibility are discussed in Section 6.7. Within this route segment impacts to land use compatibility would be addressed primarily through BMPs to reduce impacts to agricultural areas during construction, operation, and maintenance.

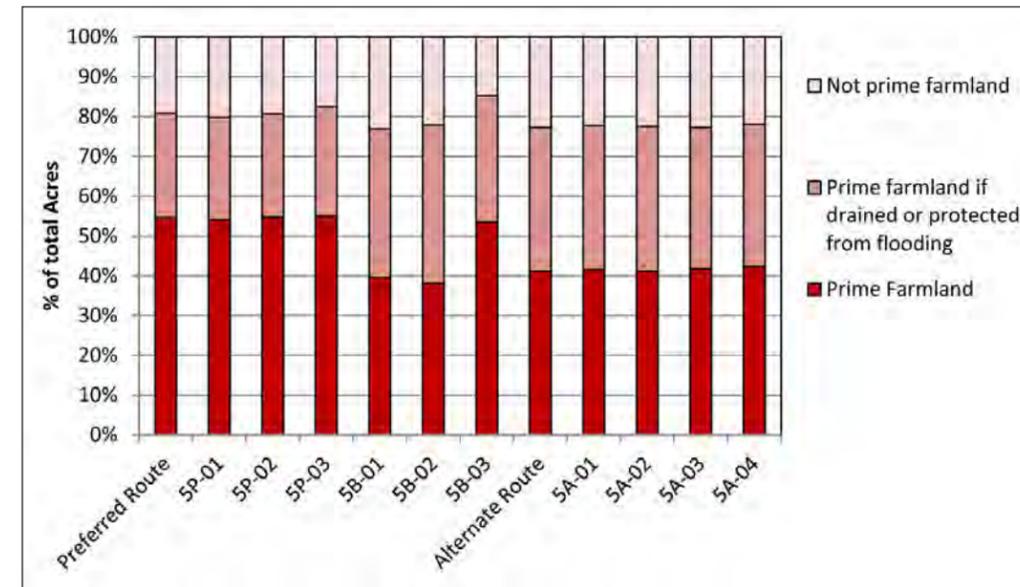
7.5.4.8 Land Based Economies—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

The primary land based economies along this route segment are agriculture based. Agricultural economies in the area may include livestock and dairy farms as well as bee-keeping. No mining or forestry operations are expected to be impacted by the Project.

The highest yield agricultural activities include cultivation of corn, soybeans and oats as well as raising cattle. Much of the agricultural land is designated as “prime farmland,” indicating land that this land is most desirable for agricultural production. The Project would result in permanent and temporary impacts to farmland. Permanent impacts would occur as a result of structure placement along the route centerline. It is estimated that the permanent impacts in agricultural fields would be 1,000 square feet per pole. During construction, temporary impacts, such as soil compaction and crop damage within the ROW, are possible. Temporary impacts in agricultural fields are estimated to be one acre per pole for construction activities.

Figure 7.5.4.8-1 shows the amount of prime farmland within the ROW of each of the proposed route alternatives in this segment.

Figure 7.5.4.8-1. Farmland and non-farmland within ROW of proposed route alternatives



Source: U.S. Department of Agriculture, Natural Resources Conservation Service

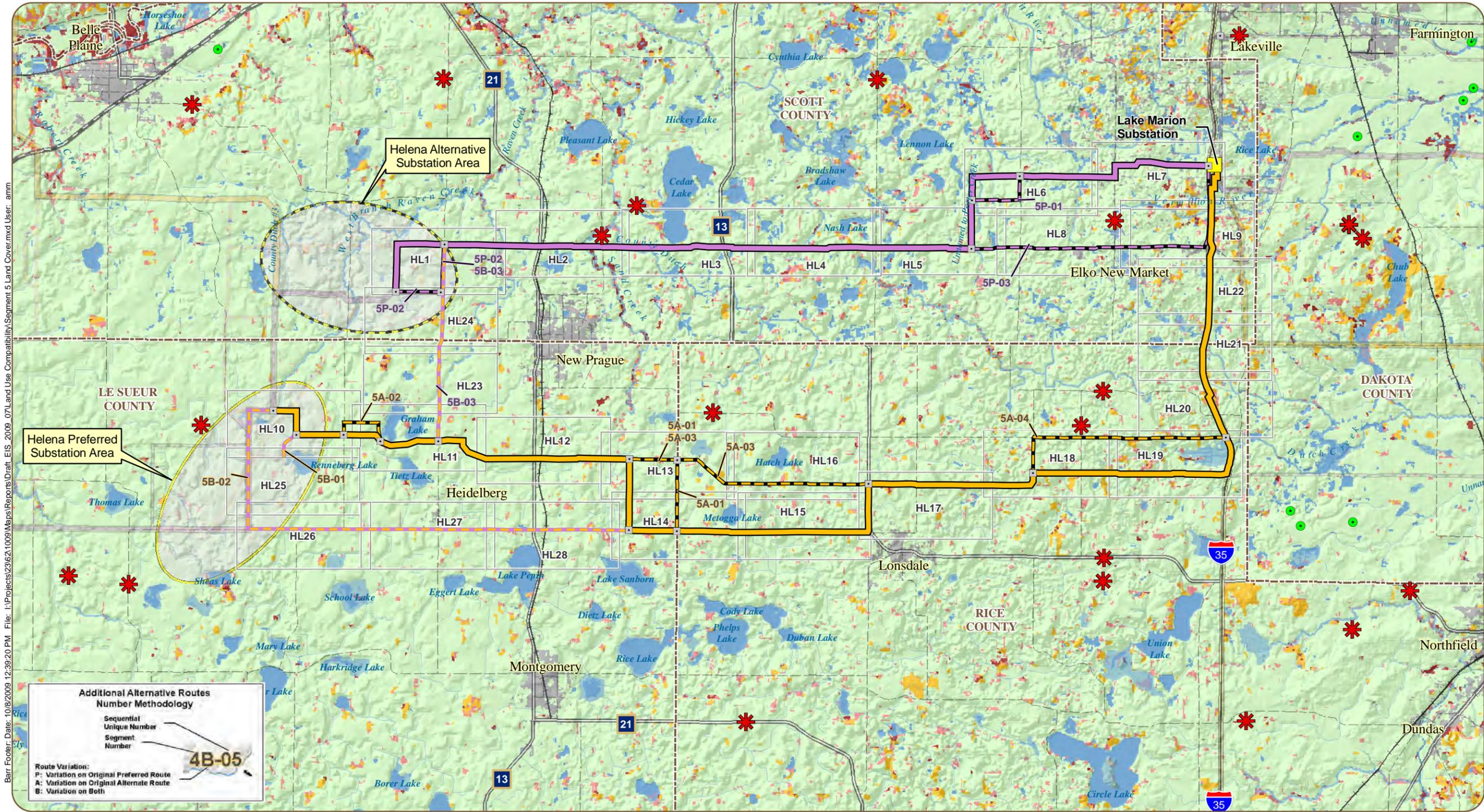
The percentage of prime farmland within the 150 foot ROW for the Preferred Route and associated route alternatives is slightly higher than for the remaining route alternatives. Proposed route alternatives 5B-01 and 5B-02 include the smallest percentage of prime farmland within the 150-foot ROW.

The locations of organic farms are shown in the Map 7.5-15 and Appendix A. While certain proposed route alternatives are in closer proximity to organic farms than other proposed route alternatives, the implementation of mitigative measures described below would prevent impacts to organic farm status.

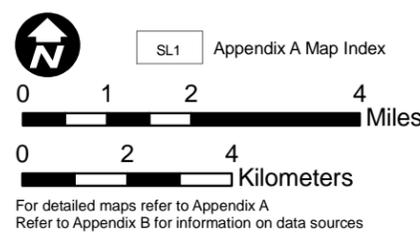
Mitigation

While the presence of an HVTL near an organic agricultural area does not directly impact organic status, special procedures must be followed during the construction and maintenance activities associated with HVTLs to avoid impacts to organic farms. The applicant has worked with the MDA to develop an AIMP for this Project.

The overall objective of this AIMP is to identify measures the Utilities would take to avoid, mitigate, repair and/or provide compensation for impacts that may result from transmission line construction projects on agricultural land in Minnesota. The AIMP includes an appendix that outlines mitigation measures and procedures specific to construction and maintenance procedures near Organic Agricultural Land as described in the National Organic Program Rules, 7 CFR Parts 205.100, 205.202, and 205.101. By following the procedures outlined in the AIMP, impacts to Agricultural land based economies due to construction and maintenance of the line can be eliminated or mitigated.



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- | | | | |
|-------------------------------|---------------------------|--------------------------|------------------------------|
| Original Alignments | Project Substations | Land Cover | Upland Conifer-Deciduous mix |
| Preferred Route | Proposed Substation Areas | Upland Conifer Forest | Aquatic Environments |
| Alternate Route | Preferred | Upland Deciduous Forest | Crop/Grass |
| Additional Alternative Routes | Alternate | Lowland Deciduous Forest | Non-Vegetated |
| Variation on Preferred Route | County Boundaries | Lowland Conifer Forest | Shrubland |
| Variation on Alternate Route | | | |
| Variation on Both | | | |

Map 7.5-15
Land Use Compatibility Map
Segment 5, Helena Substation Area to
Lake Marion Substation



Source: Refer to Appendix B for information on data sources

7.5.4.9 Transportation and Public Services— Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Roadways, Railroads and Emergency Services

The nature of impacts to roadways, railroads and emergency services are not expected to vary notably from one route segment to the next or from one route alternative to the next. Impacts are expected to be limited to temporary impacts along roads and railroad corridors due to construction and maintenance of the line. Section 6.9 provides an overview of potential impacts to transportation and emergency services.

Rest Areas

The Alternate Route and associated route alternatives and the B-LES-07 and B-LES-08 route alternatives would pass within 1,000 feet of the New Market Safety Rest Area. The rest area is located on southbound (west side) Interstate 35, one-half mile north of the Rice County line and shown on Map 7.5-16. It is DOT’s concern that the proposed route alternatives would have negative aesthetic and scenic impacts, unreasonable limitations to future rest area expansion and limitations on current and future use of the site. Currently the proposed alignment is on northbound (east side) Interstate 35. If the line is placed on the east side of Interstate 35 little or no impact to the rest area would occur.

Airports and Landing Strips

Potential impacts to airports and landing strips are expected to vary by route depending on the proximity of the line to the airport and the particular characteristics of the airport in question. Map 7.5-16 shows the location of airports along this route segment.

Consideration was given to a number of small airports, including unregistered airports, Loon Lake Water Landing and Tuma Private Airport, all of which appear to be outside the area of concern for the proposed route alternatives.

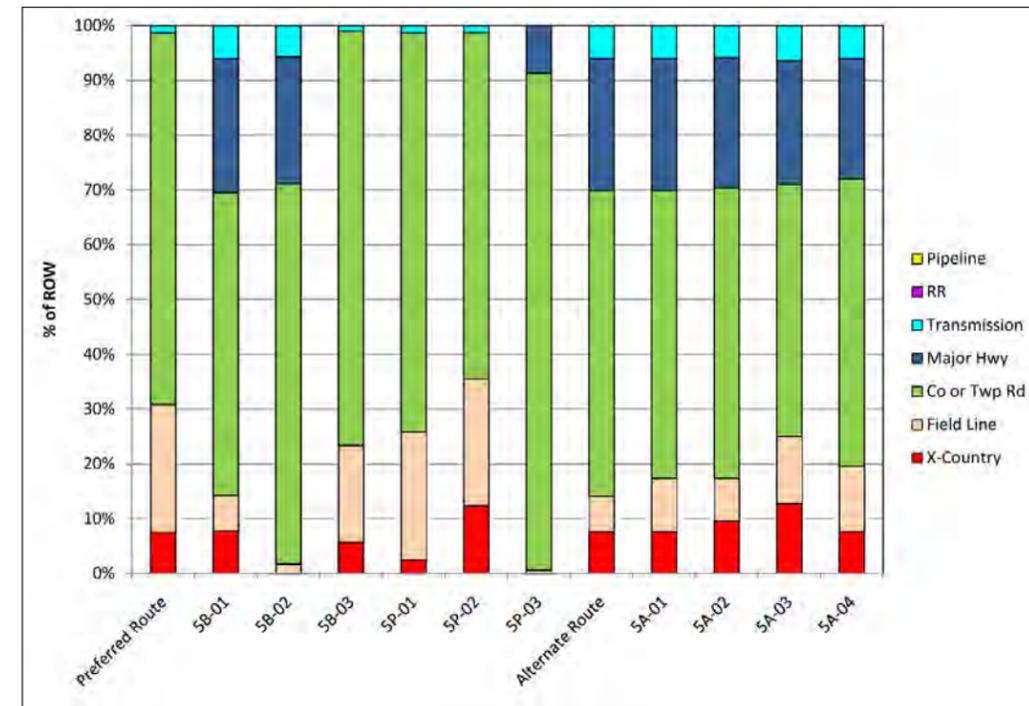
The Alternate Route is located approximately 7,000 feet from Sky Harbor Residential Air Park. Sky Harbor Residential Airpark is currently a private, non-public use airport located near Webster, Minnesota. It has been reported that the airport has requested the zoning to be changed to allow the airport to be registered as a public use facility. As a public use airport the facility and surrounding area would be subject to FAA obstruction and Minnesota zoning rules. The facility has one turf runway (12/30) measuring 2,800 x 150 feet that is aligned northwest to southeast. The single runway is approximately 3,031 feet from the new 5A-04 proposed route alternative. The section of the new proposed route alternative would be within a distance of 5,000 feet from the runway, restricting structures in this area to below 150 feet above the airport surface. The new proposed route alternative does not appear to impinge upon the protected approach airspace required for utility runways.

Right of Way Sharing

Sharing ROW with existing infrastructure can minimize the ROW needed for the transmission line, minimizing impacts to adjacent property. In Map 7.5-16, areas where the ROW for the proposed route alternatives would share existing transportation, transmission line or pipeline infrastructure have been identified.

Figure 7.5.4.9-1 shows the percentage of total line distance where ROW is shared with existing infrastructure under each route alternative in this

Figure 7.5.4.9-1. Shared ROW types along each route alternative



Source: Field survey observations, comments from project public meetings and aerial photograph interpretation by HDR. 12/29/08, updated by Barr 9/01/09

segment. Areas where proposed routes follow field lines (survey lines, natural division lines and agricultural field boundaries), or cut cross-country through fields, pastures, and forests have been highlighted. In these areas there is no opportunity to minimize impacts to property by sharing existing ROW area.

Proposed route alternatives 5B-02 and 5P-03 share the greatest percentage of their ROW with existing infrastructure. The Preferred Route and the 5P-02 route alternative share the least existing ROW. Most of the shared ROW in all proposed route alternatives in this segment occurs along county or township roads and the majority of the unshared ROW follows field lines.

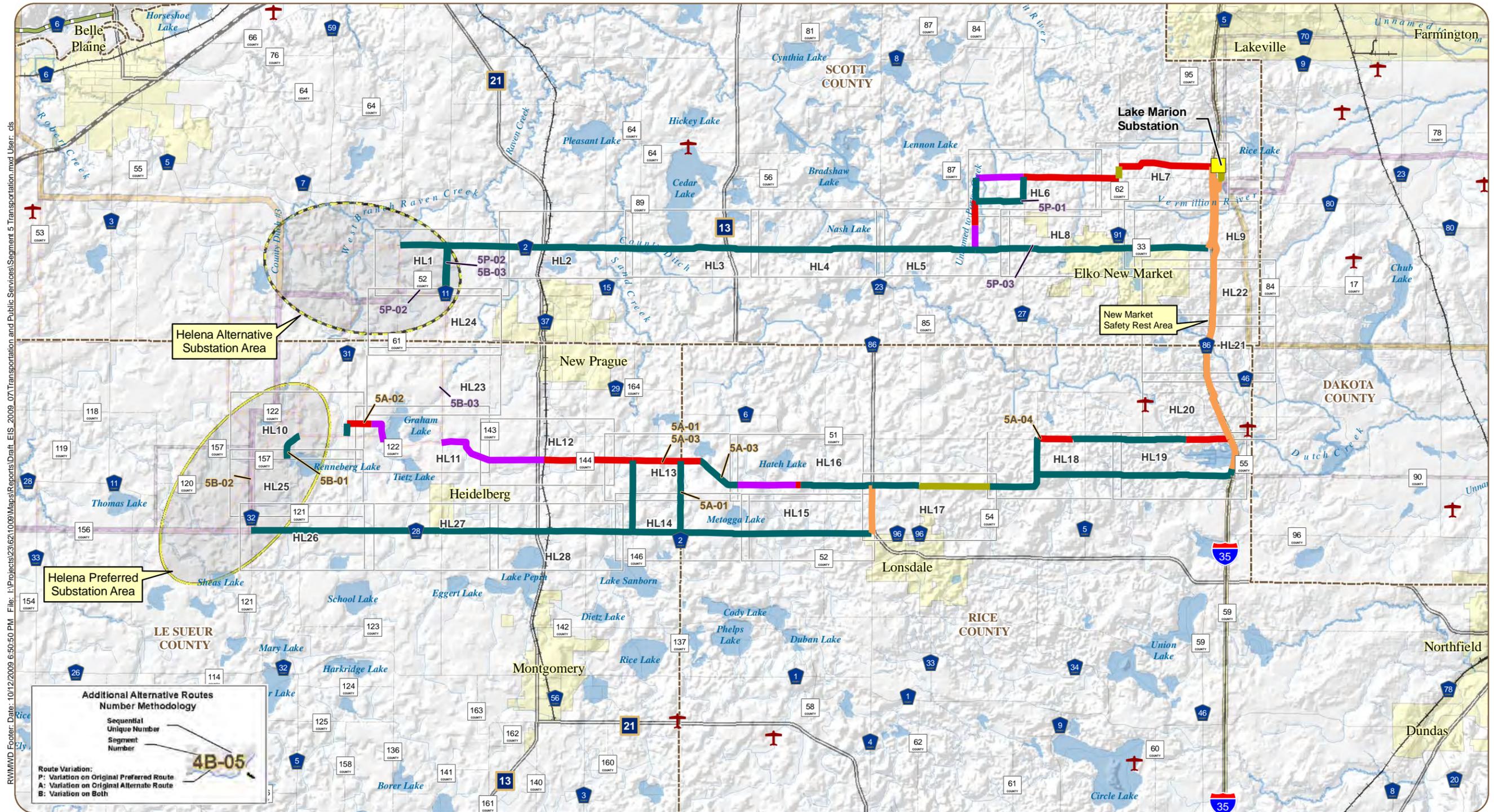
Mitigation

General mitigation measures to minimize impacts to Transportation and Public Services are discussed in Section 6.9. Within this route impacts

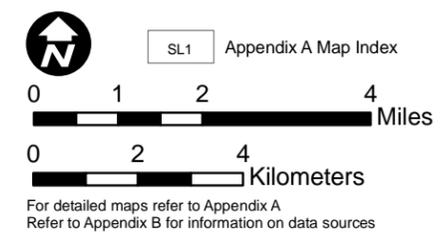
to transportation are expected to be limited to airports and a single rest area. The only airport within this route segment where potential impacts exist is the Sky Harbor Residential Air Park. The single runway is approximately 3,031 feet from the new 5A-04 proposed route alternative. The section of the new proposed route alternative would be within a distance of 5,000 feet from the runway. Impacts to this airport could be avoided by using pole structures in this area with a height limited to less than 150 feet.

The single rest area within this route segment is the New Market Safety Rest Area located on Interstate 35 southbound (west side). The proposed alignment in on the northbound (east side) of Interstate 35 and would have little or no impact to the rest area.

If an alignment on the west side of Interstate 35 was chosen mitigation would include selective pole placement to limit the need for



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- | | | |
|---------------------------|-------------------------|----------------------------|
| Project Substations | Pipeline | Non-ROW Sharing Field Line |
| Proposed Substation Areas | County or Township Road | Cross-Country |
| Preferred | Major Highway | |
| Alternate | Municipal Street | |
| County Boundaries | Railroad | |
| Airport | Transmission | |
| Scenic Byway | | |

Map 7.5-16
Transportation Map
Segment 5, Helena Substation Area to
Lake Marion Substation



Source: Refer to Appendix B for information on data sources

tree removal/pruning. Using the greatest span between poles as possible would also limit the number a poles that would impact the viewshed and future rest area expansion. There are also five proposed route alternatives (5P-01, 5P-02, 5P-03, 5B-03 and the Preferred Route) that do not encroach upon the rest area and would cause no impact.

It should also be noted that by choosing routes that maximize the amount of shared ROW with existing roads, transmission lines, pipeline or railroad can mitigate impacts to surrounding land. Within this segment route alternative 5P-03 has the greatest amount of shared ROW.

7.5.4.10 Recreation—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

The proposed Project has the potential to impact recreational resources in areas where pole placement may result in temporary construction related disturbances or even permanent impacts. In some areas, viewshed impacts from the transmission line may affect recreators. In order to capture the range of potential impacts to recreation in the region, recreational features within various distances of the line have been evaluated.

Within this segment, no impacts to SNAs and state and federal parks are expected. SNAs and state and federal parks are beyond the range where any direct impacts may occur and all of these features are outside the range where viewshed effects are possible.

One notable feature within this segment is Cedar Lake. This lake is one of the largest lakes in Scott County and provides several recreational opportunities, including fishing, boating,

swimming, and camping. According to the Scott County 2030 Comprehensive Plan, the county has plans to expand the Cedar Lake Regional Park to include another 172 acres on the southwest side of the lake, north of Highway 2 (Scott County 2030 Comprehensive Plan). The Cedar Lake Regional Park is located north of County Road 2 in Scott County. Along the Preferred Route and associated route alternatives, the proposed centerline is located on the south side of County Road 2. Although there may be visual impacts, no direct impacts are anticipated in Cedar Lake Regional Park.

Potential recreational resource impacts for each of the proposed alternatives for the route segment from Helena Substation to Lake Marion Substation (shown in Map 7.5-17 and Appendix A) are summarized in Figures 7.5.4.10-1 to 7.5.4.10-3.

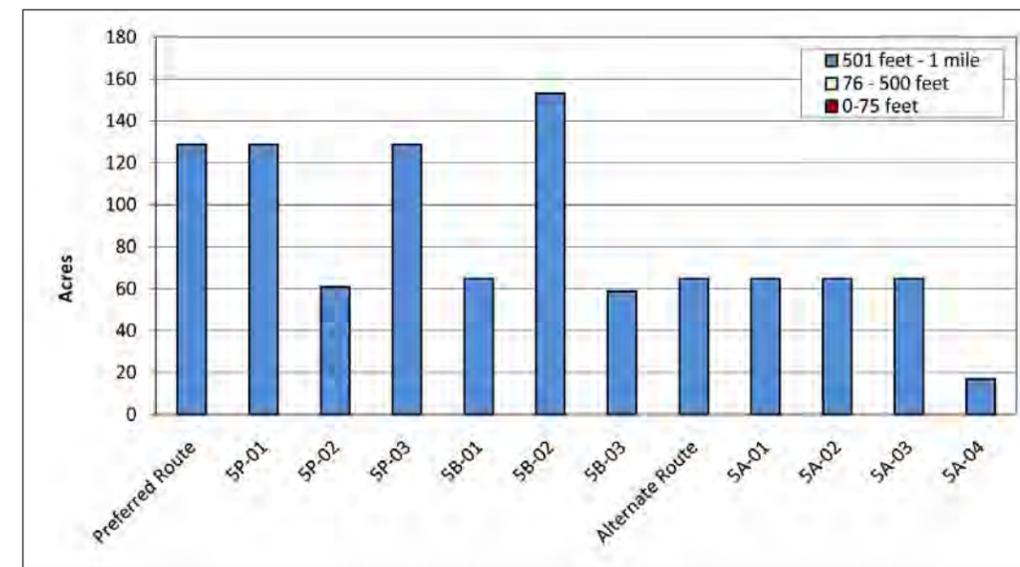
Figure 7.5.4.10-1 compares the proximity to WMAs under each route alternative in this segment. WMAs play a large role in Minnesota’s outdoor recreation system as they offer opportunities for hunting.

Impacts to WMAs under the various route alternatives are discussed further in Section 7.5.4.12.

Figure 7.5.4.10-2 compares the proximity to a variety of recreational resources including local parks and recreation areas and areas used for sporting activities under each route alternative in this segment.

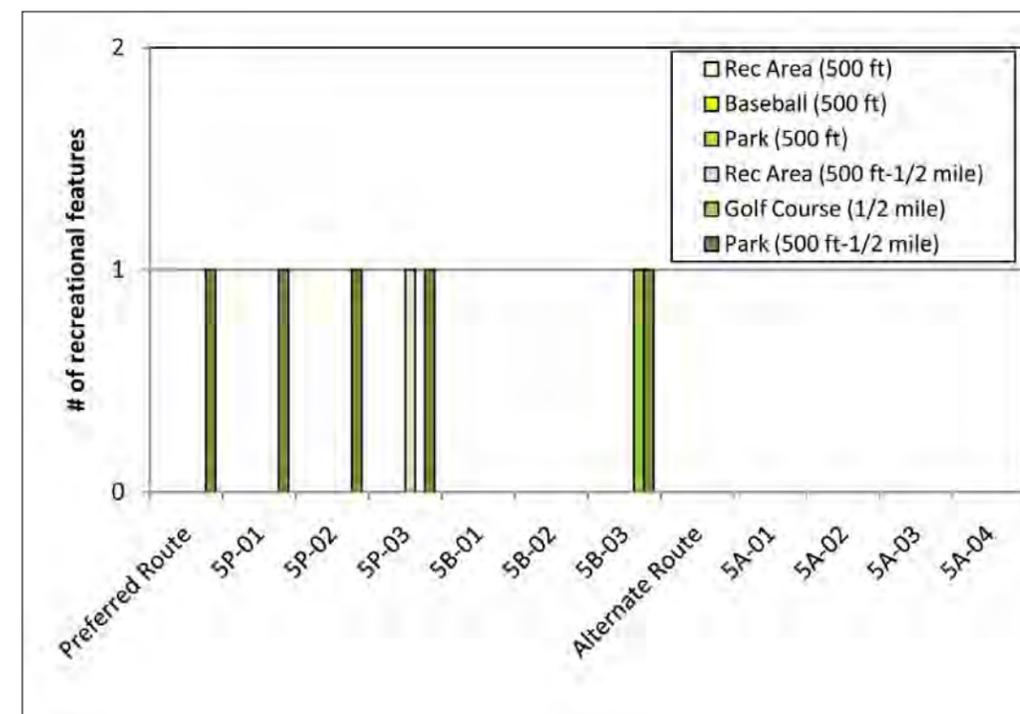
Impacts to recreational areas and parks are minimal across all route alternatives in this segment. Route alternative 5P-03 has the greatest

Figure 7.5.4.10-1. WMAs along each route alternative



Source: DNR, Division of Fish and Wildlife 02/14/2006

Figure 7.5.4.10-2. Recreational resource areas along each route alternative



Source: Field survey observations, comments from project public meetings and aerial photograph interpretation by HDR. 12/29/08

Environmental Impacts

number of recreational features nearby with one park, one recreational area and one golf course within one-half mile of the proposed centerline.

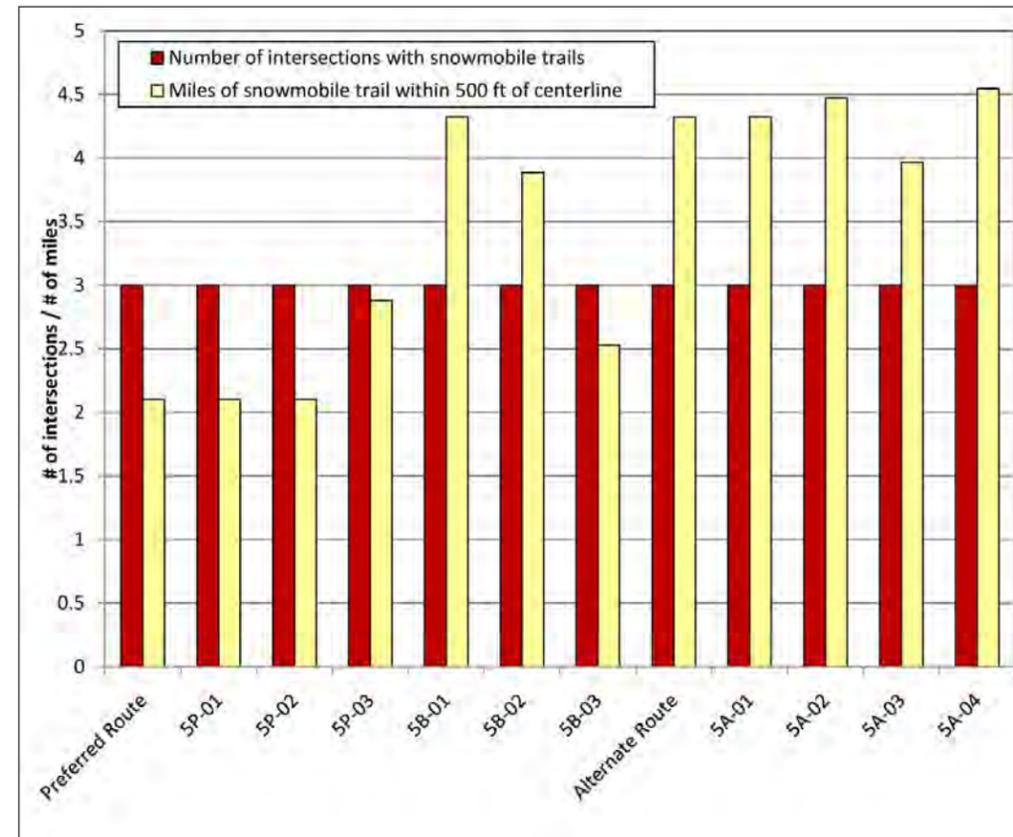
Minnesota's state, county and local trail systems offer recreational opportunities ranging from snowmobiling to cycling. Figure 7.5.4.10-3 compares potential snowmobile trail impacts across the various route alternatives in this route segment. Project impacts to trail systems may range from temporary construction impacts on trails immediately adjacent to the line to visual impacts for recreators in areas where the line is visible from the trail.

Impacts to snowmobile trails are roughly similar across all proposed route alternatives. The Preferred Route and route alternatives 5P-01 and 5P-02 have the fewest miles of trail within 500 feet of their route centerlines.

Mitigation

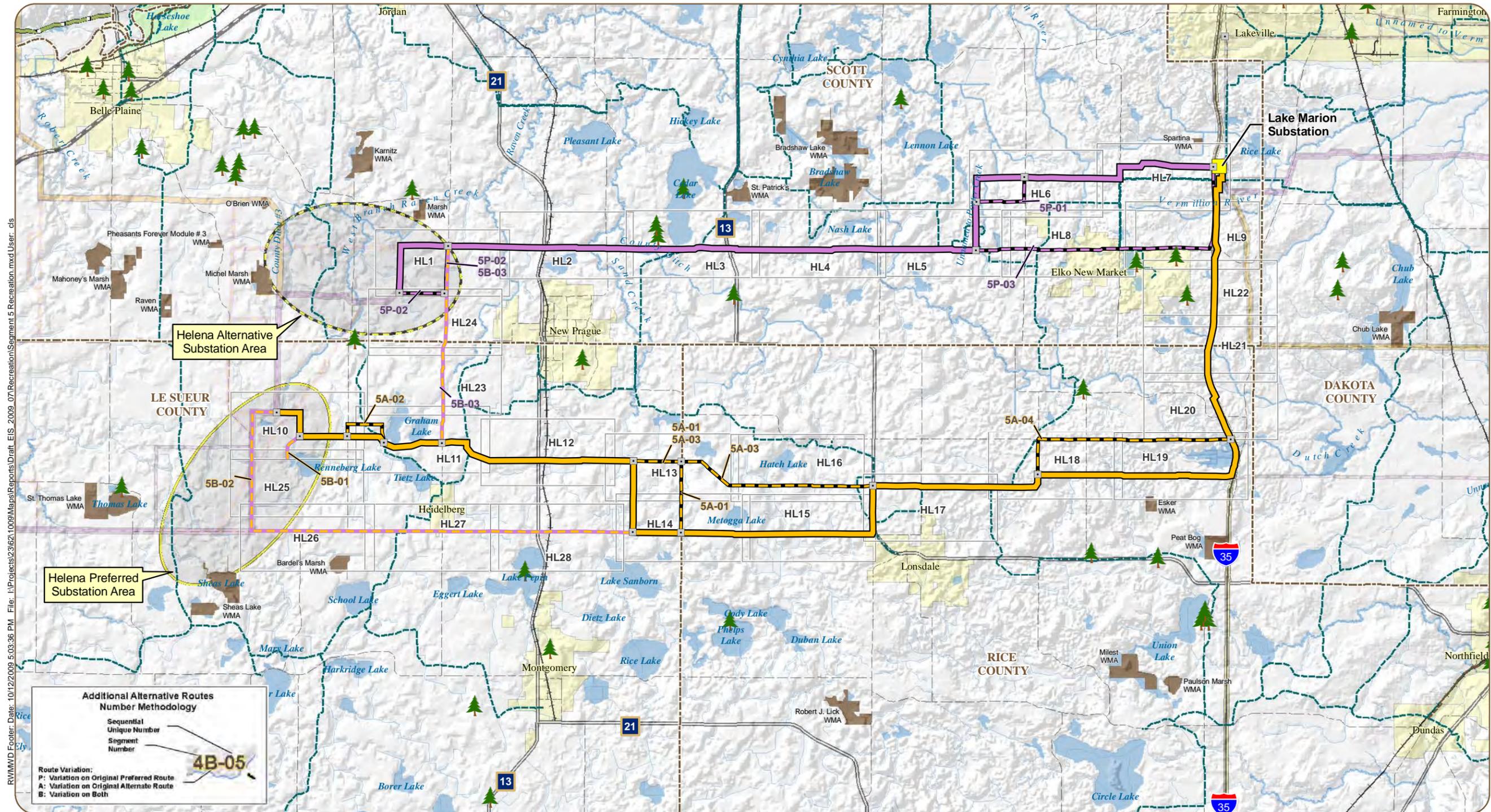
General mitigation measures to minimize impacts to recreation are discussed in Section 6.10. Because the impacts to recreational areas are primarily visual, impacts to recreational resources can be managed through choosing a route that minimizes the proximity of the line to recreational resources. Each proposed route impacts different recreational resources to a different degree, so minimizing impacts to certain resources may involve a tradeoff that results in greater impacts to other recreational resources. Within this route segment, route alternative 6P-08 has no WMA areas within the 1,000-foot route width. It should be noted that for WMAs that are directly adjacent to the proposed route alternatives, placing poles so that they span WMA areas can help to reduce temporary and permanent impacts related to construction and

Figure 7.5.4.10-3. Snowmobile trails along each route alternative



Source: DNR, Division of Trails and Waterways 06/01/2003

pole placement. Route alternatives 6P-02, 6P-03, 6P-06, 6P-07 and 6P-08 have no apparent impacts to parks and sporting areas. Route alternatives 6A-01, 6P-02 and the Preferred Route appear to have the fewest potential impacts to snowmobile trails.



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Helena Substation to Lake Marion Substation Segment
Section 7.5

Map 7.5-17
Recreation Map
Segment 5, Helena Substation Area to
Lake Marion Substation

Source: Refer to Appendix B for information on data sources

7.5.4.11 Water Resources—Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

A variety of data sources (see Appendix B) were used to identify water resources within the 150-foot ROW and 1,000-foot route width of each route alternative within the Helena Substation to Lake Marion Substation segment. Map 7.5-18 and Appendix A identify the water resources within the vicinity of each route alternative; see Map 7.5-19 for wetlands present beyond the 150-foot ROW of each route alternative. Several rivers, streams, and ditches (collectively referred to “watercourses” below) would be crossed by the route alternatives within this segment. There are no major rivers running through this segment (Map 7.5-18).

Figure 7.5.4.11-1 summarizes the number of watercourse and PWI crossings that would occur within each route alternative within this segment. The Preferred Route and associated route alternatives have the fewest watercourse crossings within their 150-foot ROW relative to the other eight route alternatives (Figure 7.5.4.11-1). With the exception of route alternative 5B-03, which has 12 PWI watercourse crossings, there are between eight and ten PWI watercourse crossings within the 150-foot ROW of the route alternatives within this segment (Figure 7.5.4.11-1). The segment 5 Preferred Route and the 5P-01, 5P-02, and 5B-03 route alternatives do not have any PWI wetlands within their 150-foot ROW, while the remaining eight route alternatives have at least one PWI wetland within their 150-foot ROW (Figure 7.5.4.11-1). The only route alternative with a PWI basin within the 150-foot ROW is 5A-02 (Figure 7.5.4.11-1). There are no designated trout streams or Wild and Scenic Rivers located within the 150-foot ROW or

the 1,000-foot route width of any of the route alternatives within this segment.

Watercourse data includes all rivers, streams, ditches, and other linear water. On maps PWI basins and PWI wetlands are referred to collectively as PWI Basins.

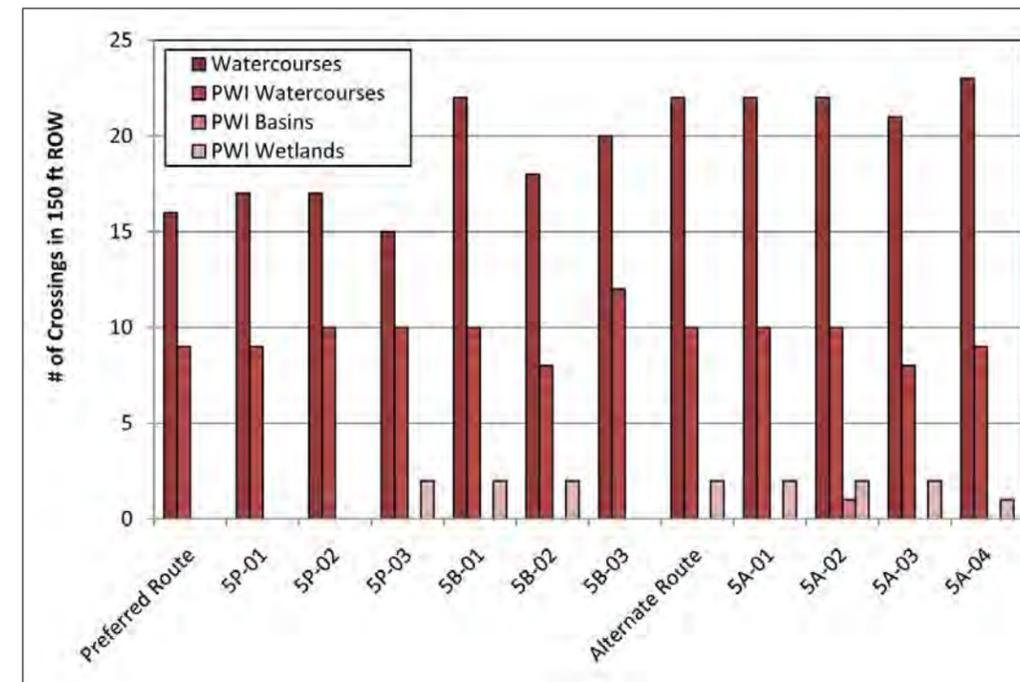
Wetlands within the vicinity of the route alternatives within this segment consist mostly of small scattered freshwater emergent wetlands, with a few freshwater ponds, riverine wetlands, and forested and shrub dominated wetlands also present. Figure 7.5.4.11-2 summarizes the total acres of wetland and forested wetland that are located within the 150-foot ROW of each route alternative within this segment. The 5P-03 and 5B-02 route alternatives have the fewest acres of wetland within their 150-foot ROW and 1,000-foot route width (Figure 7.5.4.11-2, Table 7.5.4.11-1). The 150-foot ROW of each route alternative within this segment contains less than one-half acre of forested wetland, with no forested wetlands located within the 150-foot ROW of route alternatives 5B-02 and 5A-01 (Figure 7.5.4.11-2).

Although wetlands would be spanned to the extent possible, there are wetlands within each of the route alternatives within this segment that are wider than 1,000 (Table 7.5.4.11-1) and may require placement of one or more poles within them. However, following detailed route planning, it is possible that some of these wetlands could be spanned or avoided.

Mitigation

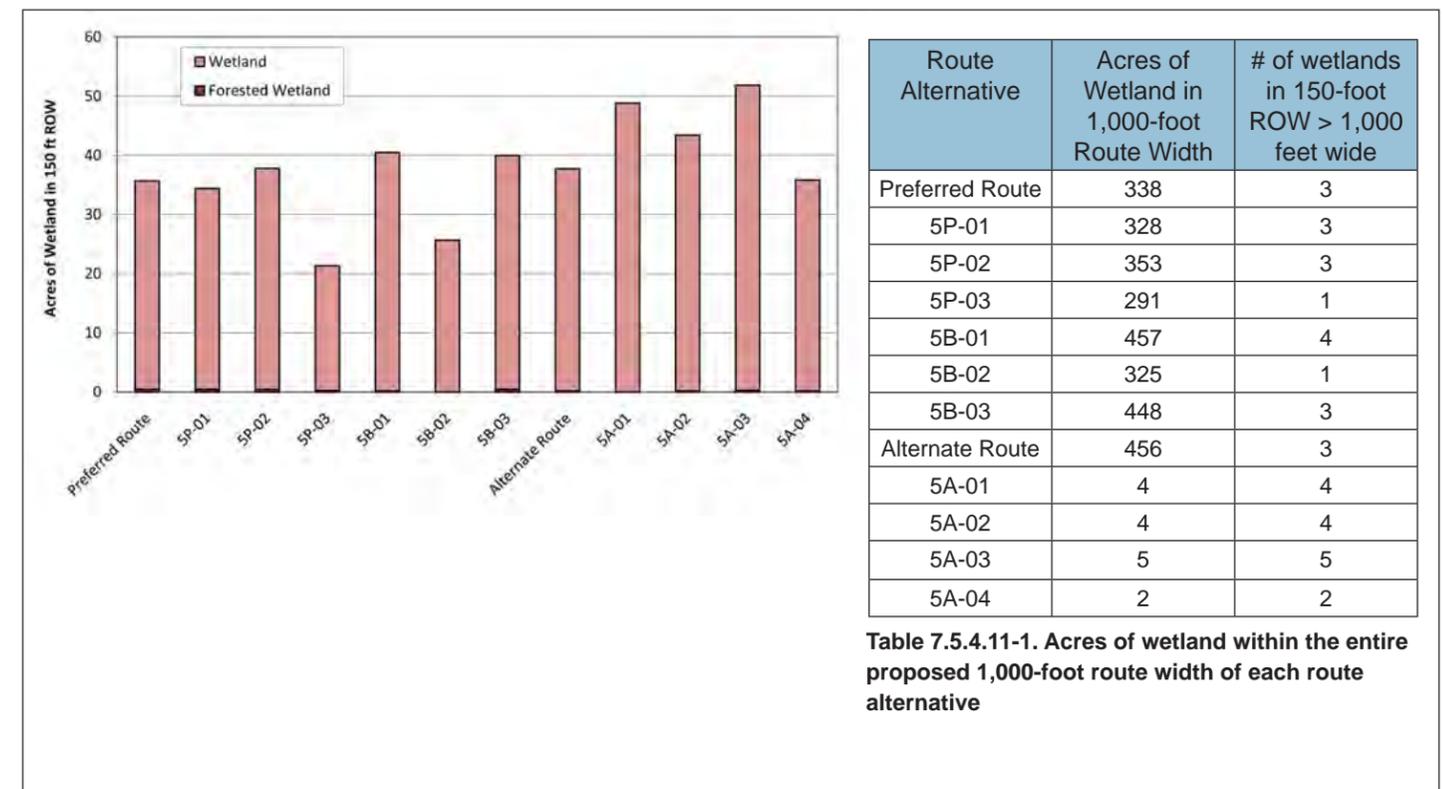
General mitigation measures that would be employed to minimize impacts to water resources are discussed in Section 6.11. Within this route segment, impacts to water resources

Figure 7.5.4.11-1. Number of watercourse and PWI crossings within the proposed 150-foot ROW of each route alternative



Source: DNR, Division of Waters
07/31/2008

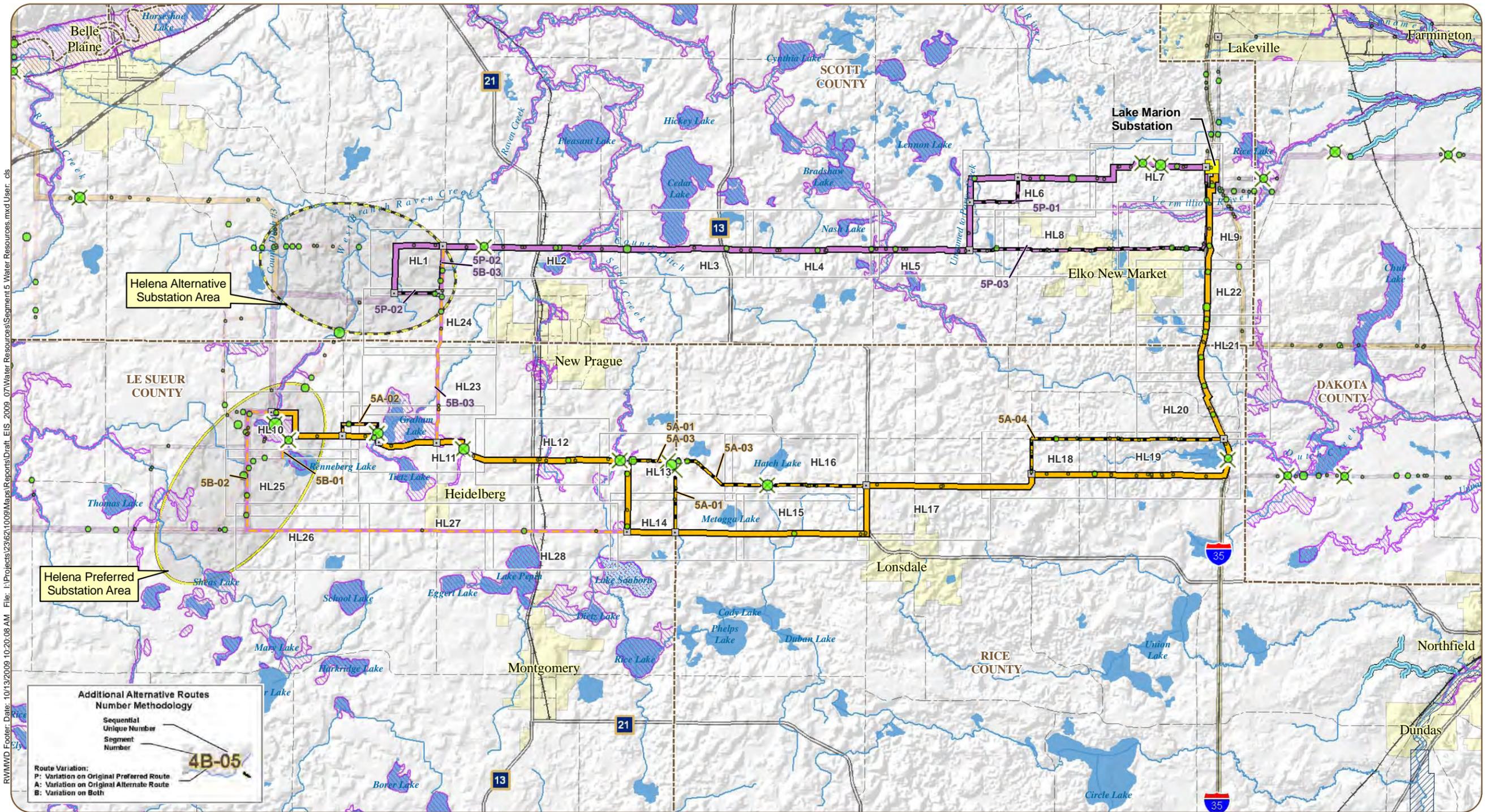
Figure 7.5.4.11-2. Acres of wetland and forested wetland within the proposed 150-foot ROW of each route alternative



Route Alternative	Acres of Wetland in 1,000-foot Route Width	# of wetlands in 150-foot ROW > 1,000 feet wide
Preferred Route	338	3
5P-01	328	3
5P-02	353	3
5P-03	291	1
5B-01	457	4
5B-02	325	1
5B-03	448	3
Alternate Route	456	3
5A-01	4	4
5A-02	4	4
5A-03	5	5
5A-04	2	2

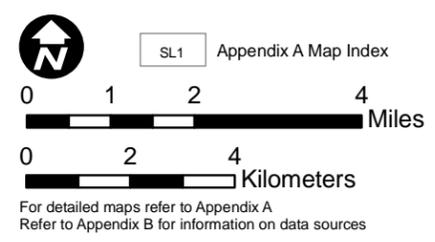
Table 7.5.4.11-1. Acres of wetland within the entire proposed 1,000-foot route width of each route alternative

Source: U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation



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Helena Substation to Lake Marion Substation Segment
Section 7.5



- | | | | |
|-------------------------------|---------------------------|--|------------------------------------|
| Original Alignments | Project Substations | Wetland Crossings > 1,000 Feet | Designated Wildlife Lakes |
| Preferred Route | Proposed Substation Areas | Wetland Area (acres) within 150-foot ROW | Public Waters Inventory Basins |
| Alternate Route | Preferred | 0.0 - 0.5 | Public Water Inventory Watercourse |
| Additional Alternative Routes | Alternate | 0.6 - 2.5 | |
| Variation on Preferred Route | County Boundaries | 2.6 - 5.0 | |
| Variation on Alternate Route | Q3 FEMA Floodplain | 5.1 - 10.0 | |
| Variation on Both | Trout Streams | 10.1 - 20.4 | |
| | Wild and Scenic Rivers | | |

Map 7.5-18
Water Resources Map
Segment 5, Helena Substation Area to
Lake Marion Substation

Source: Refer to Appendix B for information on data sources

can be managed by choosing a route alternative that minimizes the proximity of the line to watercourses, lakes, and wetlands. Because all watercourses and lakes would be spanned, no structures would be placed within these features and no direct impacts to watercourses and lakes are anticipated. Potential indirect impacts to these resources, such as increases in turbidity, may be minimized through use of BMPs and by choosing the Preferred Route or one of the associated route alternatives to the Preferred route; these route alternatives have the fewest number of watercourse crossings, a similar number of PWI water course crossing to the other route alternatives, and no PWI basin or PWI wetland crossings.

Temporary impacts to wetlands may occur if they need to be crossed during construction. Utilizing BMPs and choosing route alternative 5P-03, which has the least acres of wetland within the 150-foot ROW and 1,000-foot route width would minimize temporary impacts to wetlands. Permanent impacts to wetlands may occur if structures need to be placed within wetland boundaries; choosing route alternative 5P-03 or 5B-02, each of which only have one wetland wider than 1,000 feet within the 150-foot ROW, would minimize these impacts. Permanent impacts to wetlands may also occur if the wetlands within the 150-foot ROW are currently forested. Forested wetlands may undergo a conversion to non-forested wetlands because vegetation maintenance procedures under transmission lines may prohibit trees from establishing. Choosing route alternative 5B-02 or 5A-01, neither of which have any forested wetland within the 150-foot ROW, would minimize these impacts.

7.5.4.12 Flora and Fauna—Analysis of Segment Alternatives for the Cedar Mountain Substation to Helena Substation

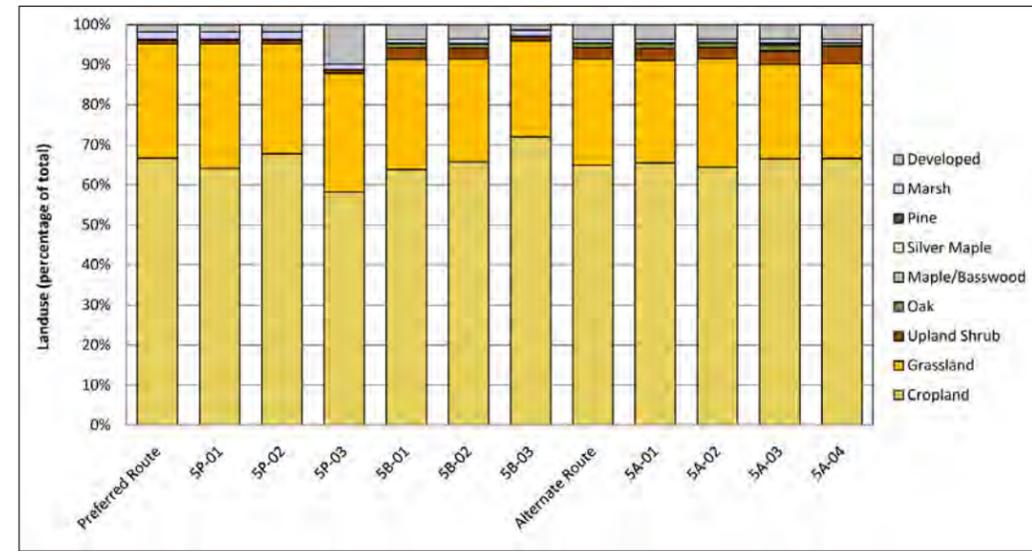
Flora

Vegetation communities on this segment were evaluated using GAP Level 3 data and DNR NHIS data (Maps 7.5-15 and 7.5-20 and Appendix A). The GAP database provides information on general vegetative cover; details on GAP data are provided in Section 6.12. The NHIS database identifies unique and/or native plant community types. Native plant community types are discussed in detail in Section 6.13.

Figure 7.5.4.12-1 and Map 7.5-15 summarize the GAP vegetation data within the 150-foot ROW of each route alternative within this segment. There is little variation in vegetation cover between the route alternatives. Cropland is the dominant vegetation type across all of the route alternatives within this segment, with grasslands representing most of the remaining vegetation cover within each route alternative (Figure 7.5.4.12-1). Grasslands comprise most of the remaining vegetation cover within each route alternative. Other types present include upland shrublands, oak and cottonwood woods, marshes and wet forested areas.

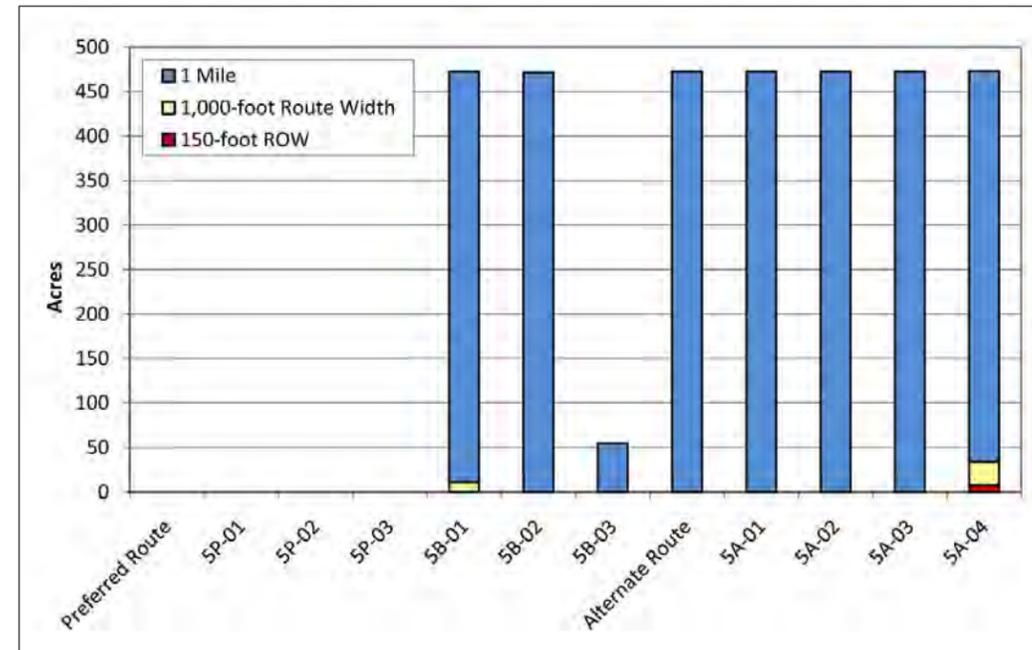
Several DNR-designated unique native plant community types are located within the route alternatives within this segment; these include southern dry hill prairies, southern mesic prairies, and southwestern calcareous fens. The Alternate Route and 1A-01 route alternatives have a southern dry hill prairie community and two calcareous fens within one mile of their centerline. All route alternatives within this segment except 1P-02 have at least one southern

Figure 7.5.4.12-1. Summary of GAP vegetation data within 150-foot ROW for each route alternative



Source: DNR, Department of Forestry 06/06/2002

Figure 7.5.4.12-2. Acres of WPAs within one mile, the 1000-foot route width, and within 150-foot ROW of each route alternative



Source: United States Fish and Wildlife Service 05/11/2009

mesic prairie within one mile of their centerline. See Appendix D for details on the number of occurrences of these communities within one mile of the centerline and within the 150-foot ROW of each route alternative.

Fauna

The presence of wildlife species and wildlife habitat on this segment was evaluated using GAP Level 3 data and information on WMAs, WPAs, and USFWS National Wildlife Refuges (Map 7.5-19 and Appendix A). GAP information provides an overview of the vegetation communities present, and hence the availability of forage, cover and reproductive habitats for various wildlife species (see Section 6.12 for further details on GAP data). WMA, WPA, and wildlife refuge data pinpoint locations where wildlife species may be more prevalent and/or diverse. WMAs, WPAs, and wildlife refuges within the 150-foot ROW, the 1,000-foot route width, and within one mile of the route alternatives in this segment were included in the evaluation. WMAs within or adjacent to the ROW are discussed in Section 7.5.4.10.

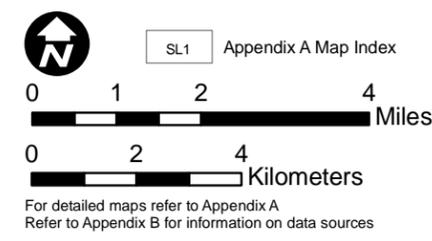
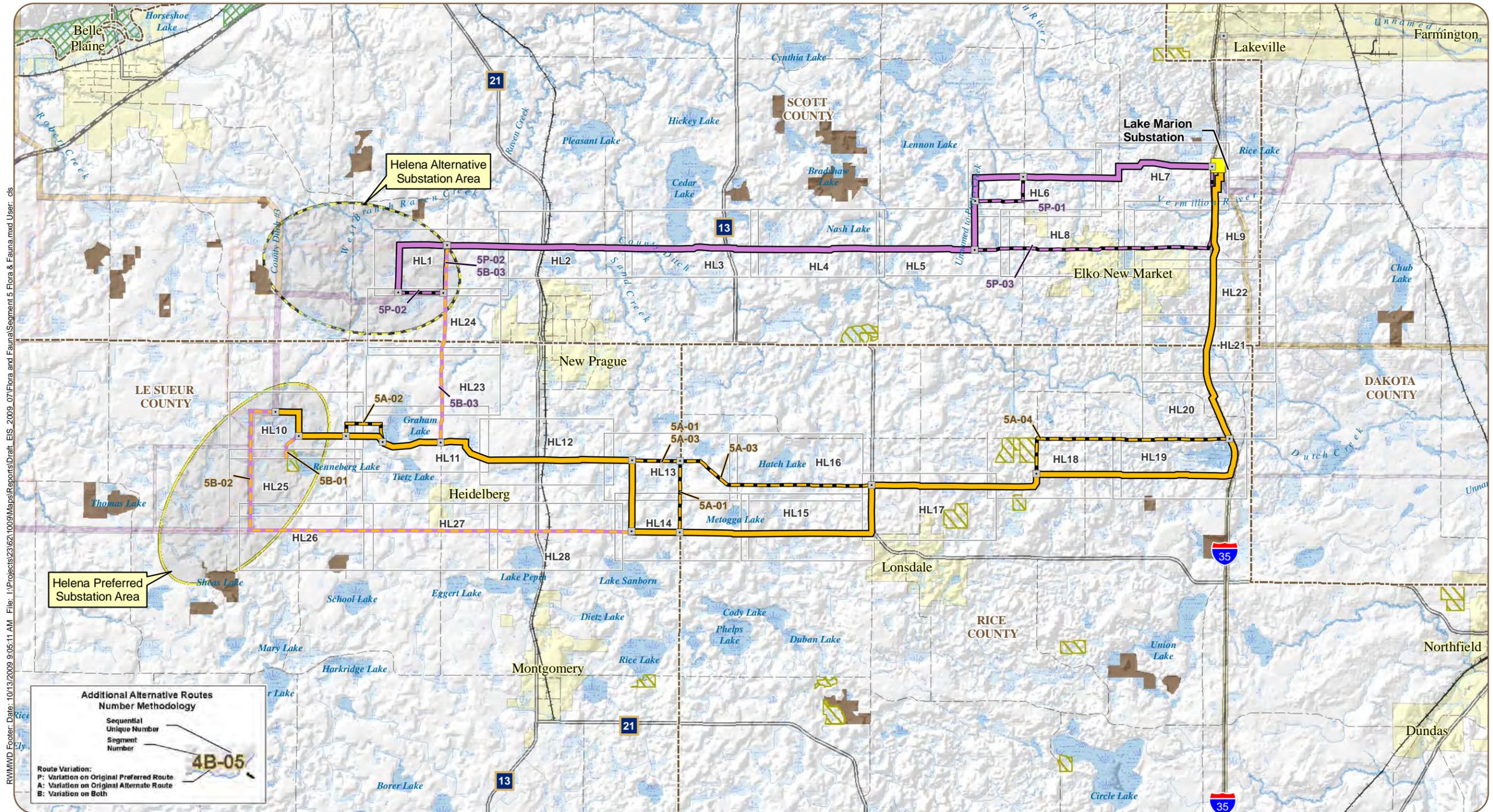
There are no wildlife refuges within one mile of any route alternative within this segment. The Alternate Route and route alternatives 5B-01, 5B-02, 5A-01, 5A-02, 5A-03 and 5A-04 have significantly more acres of WPAs nearby than the Preferred Route and other route alternatives within this segment. There are no WMAs within the 150-foot ROW or 1,000-foot route for any route alternatives in this segment. Therefore, habitat availability for waterfowl and wildlife species that utilize wet habitats is much lower along the Preferred Route and associated route alternatives relative to the other route alternatives within this segment.

Mitigation

General temporary and permanent impacts to vegetation and wildlife resources for this segment are described in Section 6.12. Habitats where native prairie remnants, other unique plant communities, and rock outcrops have been recorded or are likely to occur would be spanned as feasible.

Construction impacts to most vegetation cover types would be mitigated with seeding of disturbed areas with native plant species, unless the area is to be returned to agricultural use. Removal of trees would be minimized; however, in order to safely operate the transmission line, trees removed from beneath or immediately adjacent to the line cannot be replaced.

Avian collisions with the transmission line may also occur in this segment. The applicant would work with DNR and USFWS to identify areas that may require marking transmission line shield wires, bird flight diverters, or using alternate structures to reduce the likelihood of collisions.



- Original Alignments
- Project Substations
- Fish Technology Center
- Scientific and Natural Area
- Preferred Route
- Proposed Substation Areas
- Fisheries Research Station
- Wildlife Management Area
- Alternate Route
- Preferred
- National Fish Hatchery
- Wildlife Refuge
- Alternate
- National Wildlife Refuge
- Wetland (NWI)
- Variation on Preferred Route
- County Boundaries
- Waterfowl Production Area
- Variation on Alternate Route
- Variation on Both

Map 7.5-19
Flora & Fauna Map
Segment 5, Helena Substation Area to
Lake Marion Substation



Source: Refer to Appendix B for information on data sources

7.5.4.13 Rare and Unique Resources— Analysis of Segment Alternatives for the Helena Substation to Lake Marion Substation

Rare and unique resources were identified within one mile of each route alternative within the Helena Substation to Lake Marion Substation segment using the DNR NHIS, DNR state-designated railroad prairies, and MCBS databases (see Appendix B). The following discussions focus on federal and state protected species and rare and unique communities located within one mile of each route alternative. Data on rare communities, animal assemblages, and MCBS sites are summarized in this section; however, complete data sets for each route alternative are available in Appendix D. There is no legal protection for state special concern and non-status species within the State of Minnesota. These data are outside the focus of this discussion and are available in Appendix D. In addition, water bodies and watercourses would be spanned; therefore it is anticipated that impacts to threatened and endangered aquatic species would be avoided. Because of this, aquatic species are mentioned but are not the focus of discussion.

Table 7.5.4.13-1 and Map 7.5-20 summarize the rare and unique resources documented within one mile of the route alternatives within this segment (see Appendix A for more detailed maps). However, in order to protect rare resources from exploitation or destruction, Map 7.5-20 and Appendix A do not indicate the names of species or communities identified within the NHIS database.

Two state-threatened species have been documented within one mile of various route alternatives within this segment; these include

kitten-tails (*Besseyia bullii*) and the Blanding’s turtle (*Emydoidea blandingii*). Both of these species have been documented within one mile of the following route alternatives: segment 5 Preferred Route, 5P-01, 5P-02, and 5B-03 (Table 7.5.4.13-1). Kitten-tails has also been documented within one mile of the 5P-03 route alternative (Table 7.5.4.13-1). There have not been any documentations of threatened or endangered species within one mile of any of the alternatives to the Alternate Route.

Kitten-tails is a vascular plant that inhabits oak savannas and dry prairies along bluffs and terraces of the Minnesota River valley (DNR 2009). Blanding’s turtles generally inhabit wetland complexes where there are adjacent sandy uplands for nesting (DNR 2009).

Rare communities and MCBS sites have been documented within one mile of each route alternative within this segment (Table 7.5.4.13-1, Map 7.5-20; see Appendix D for community types). However, there are more rare communities and MCBS sites located within one mile of the five alternatives to the Alternate Route

and the 5B-01 and 5B-02 route alternatives (Table 7.5.4.13-1, Map 7.5-20), relative to the other route alternatives. In addition, each of these seven route alternatives has a rare community located within their 150-foot ROWs. There is also a colonial waterbird nesting area associated with Metogga Lake that is located less than one mile from these seven route alternatives (Table 7.5.4.13-1). There are no state-designated railroad prairies within one mile of any route alternatives within this segment.

Mitigation

General mitigation measures that would be employed to minimize impacts to rare and unique resources are discussed in Section 6.13. See Section 6.12 for a discussion of the measures that would be utilized to minimize the impacts of avian collisions with transmission lines. Within this route segment, threatened and endangered species are found within one mile of the Preferred Route and the 5B-03 route alternative. Impacts to kitten-tails would be minimized by spanning or avoiding oak savannas and dry prairies or by choosing the Alternate Route, one of the route

alternatives associated with the Alternate Route, or the 5B-01 or 5B-02 route alternatives. Impacts to Blanding’s turtles would be minimized by spanning or avoiding wetlands and wetland complexes, especially those with adjacent sandy uplands or by choosing the Alternate Route, one of the route alternatives associated with the Alternate Route, or the 5P-03, 5B-01, or 5B-02 route alternatives. If the rare species is unavoidable, a Takings Permit from the DNR may be required along with other conditions.

There are MCBS sites and DNR-listed rare natural communities within one mile of each route alternative within this segment. The placement of structures within MCBS and DNR-listed rare natural communities would be avoided or minimized by spanning them to the extent possible. Where structure placement cannot be avoided in these sensitive communities, rare species associated with these habitats could be affected. The Alternate Route and associated route alternatives and the 5B-01 and 5B-02 route alternatives all have MCBS sites within the 150-foot ROW; choosing a route alternative other than these seven would minimize impacts to these rare resources.

Table 7.5.4.13-1. Summary of rare and unique resources within one mile of each route alternative

Common Name	Scientific Name	Type	MN Status	U.S. Status	Route Alternatives											
					Preferred	5P-01	5P-02	5P-03	5B-01	5B-02	5B-03	Alternate	5A-01	5A-02	5A-03	5A-04
Kitten-tails	<i>Besseyia bullii</i>	Botanical	THR	NONE	X	X	X	X			X					
Blanding’s Turtle	<i>Emydoidea blandingii</i>	Zoological	THR	NONE	X	X	X				X					
Rare Communities		Ecological	na	na	1	1	1	1	1/6	1/6	1	1/6	1/6	1/6	1/6	1/6
Animal Assemblages		Zoological	na	na					1	1		1	1	1	1	1
State-Designated Railroad Prairies			na	na												
MCBS Sites			na	na	1	1	1	1	5	6	1	5	5	5	5	3

Source: Natural Heritage Information System Rare Features Data Copyright 2009 State of Minnesota, Department of Natural Resources

An “X” indicates the presence of that particular species within 1 mile of centerline, while a blank cell indicates that a particular species, community, or site is not within 1 mile of the centerline.

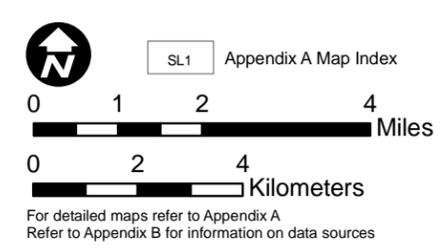
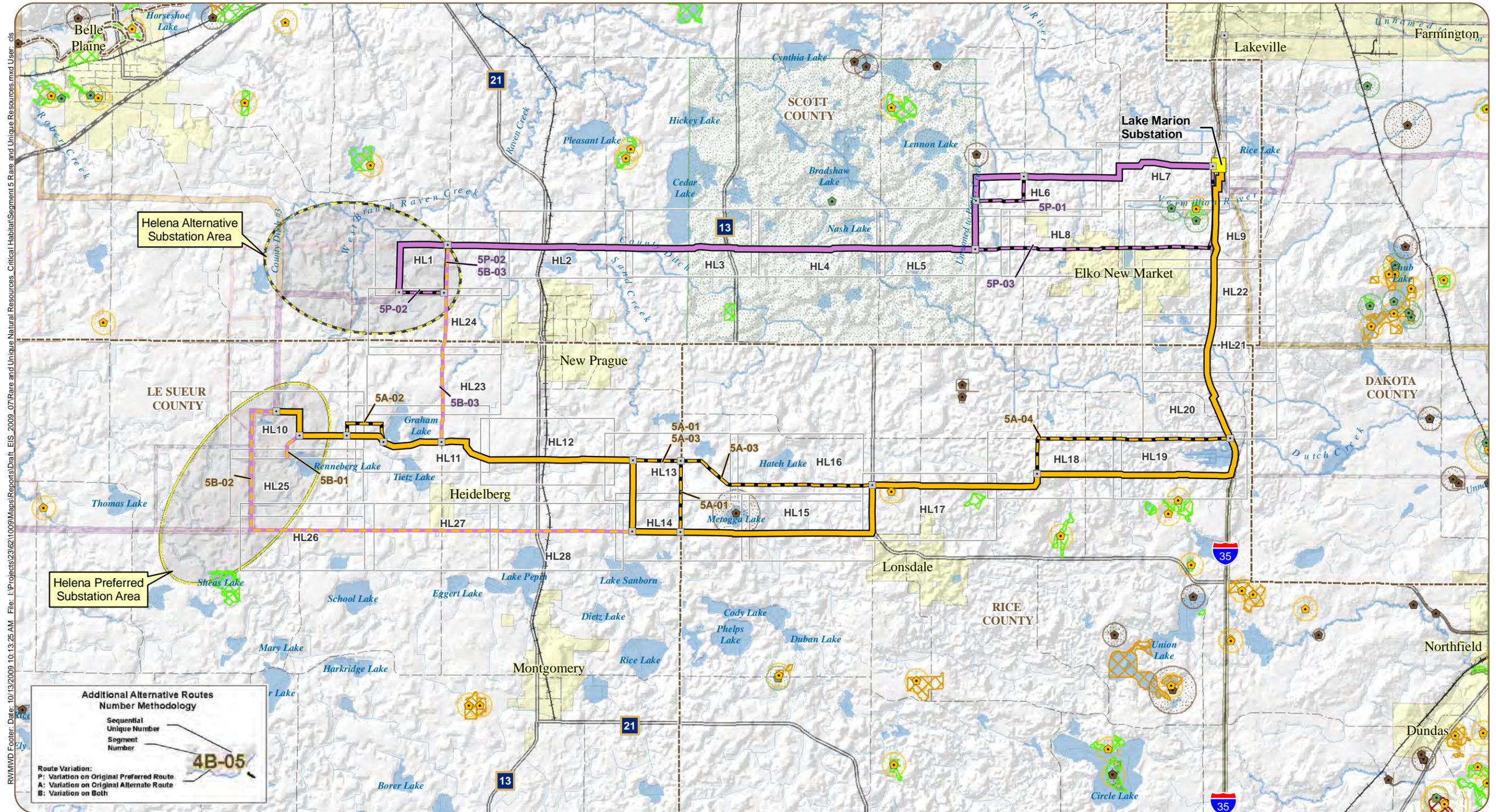
Rows in tan indicate non-aquatic state and/or federally-threatened or endangered species and rows in blue indicate aquatic state and/or federally-threatened or endangered species.

Cells in red indicate if and how many of the sites are located within the 150-foot ROW (e.g. 1/2 means that one of two total sites is located in the ROW).

“MCBS” = Minnesota County Biological Survey - data includes sites classified as outstanding, high, and moderate biodiversity significance.

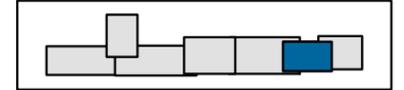
Animal Assemblages includes colonial waterbird nesting sites and/or mussel sampling sites.

“END” = Endangered, “THR” = threatened, “None” = no federal status, “na” = not applicable.



- | | | | |
|-------------------------------|---------------------------|-------------------------|--------------------------------|
| Original Alignments | Project Substations | MN DNR Natural Heritage | State-Designated RR Prairie |
| Preferred Route | Proposed Substation Areas | Botanical | MCBS Biodiversity Significance |
| Alternate Route | Preferred | Ecological | Moderate Significance |
| Additional Alternative Routes | Alternate | Zoological | High Significance |
| Variation on Preferred Route | County Boundaries | Botanical | Outstanding Significance |
| Variation on Alternate Route | | Ecological | |
| Variation on Both | | Zoological | |

Map 7.5-20
Rare & Unique Resources/Critical Habitat Map
Segment 5, Helena Substation Area to
Lake Marion Substation



Source: Refer to Appendix B for information on data sources