

9.0 ROUTES 4 AND 4A ENVIRONMENTAL EVALUATION

This chapter describes the existing conditions of the natural and built environments, the potential effects to these environments and recommended mitigation for the proposed Project. Section 9.1 discusses the existing environmental conditions within *Study Area 4*, as depicted on Map 9-1. Section 9.2 and following discuss *Route* specific issues (Map 9-2), including potential direct/indirect effects and mitigation.

Detailed Route maps are included in Appendix A.

9.1 Environmental Setting

Study Area 4 includes Route 4 and Route 4A for the 230 kV Essar Mine Substation to Essar Steel Plant Substation transmission line. This area generally encompasses the area between Section 4 of Township 56, Range 23 to the south and Itasca CSAH 58 to the north. This Study Area is approximately one mile wide between these features.

Study Area 4 is situated within the Nashwauk Uplands DNR Ecological Subregion. See Section 6.1 for more landscape information.

Within the Study Area, there are two PWI lakes and one reach of a PWI stream. The most numerous NWI wetland types in Study Area 4 are forested and scrub shrub.

The Study Area is situated in the Mississippi – Grand Rapids watershed (Huc#7010103). See Section 6.1 for more watershed information.

Pre-settlement vegetation in the Study Area generally consisted of mixed hardwood and coniferous forests. Today, the dominant vegetation is quaking aspen (DNR ECS, 2008). According to GAP data, approximately 46 percent of the Study Area is forested, with forestry being a common land use in this region. About 34 percent is shrubland while less than one percent is in agriculture use (crop/grasslands). The southeast corner of the Study Area, near the City of Nashwauk, consists of Mesabi Iron Range minelands. These minelands are largely comprised of stockpiles, ore pits, and tailing basins. Many of the mineland areas that are not being actively mined are associated with forest and shrubby landcover.

Human settlement in this Study Area is generally limited to the area between Big and Little Sucker Lakes. The scattered upland clearings within the Study Area are typically associated with these residential developments.

See Section 6.1 for more information on conservation efforts within the Study Area.

9.2 Human Settlement

9.2.1 Public Health and Safety

Public health and safety issues are the same as those discussed for Routes 1 and 1A. See Section 6.2.1 for a discussion of public health and safety.

9.2.2 Airports, Landing Strips, and Airplane Safety

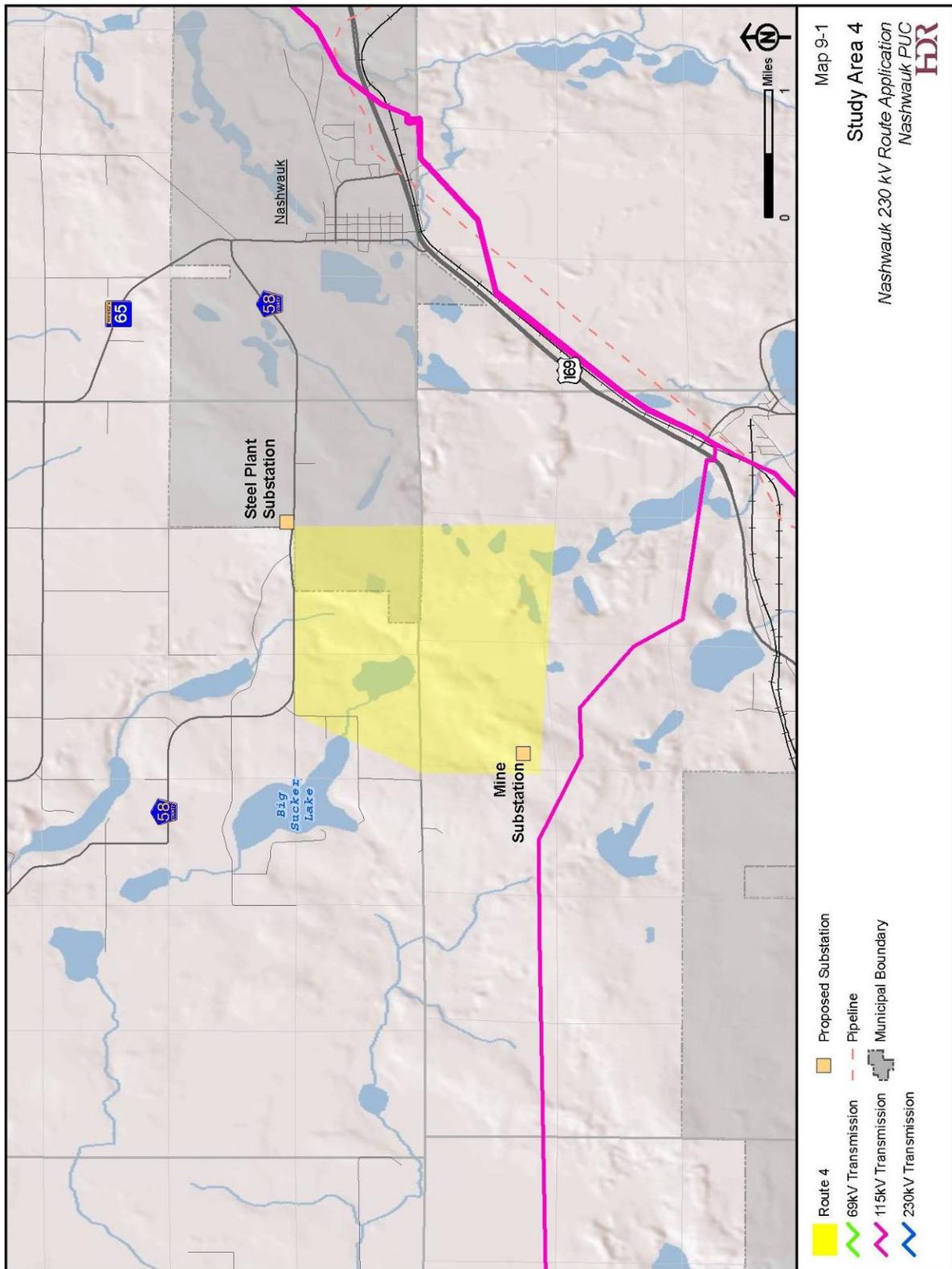
Introduction

There are no airports or airstrips within one mile of Route 4 or Route 4A. See Section 6.2.2 for an additional discussion of airports, landing strips, and airplane safety.

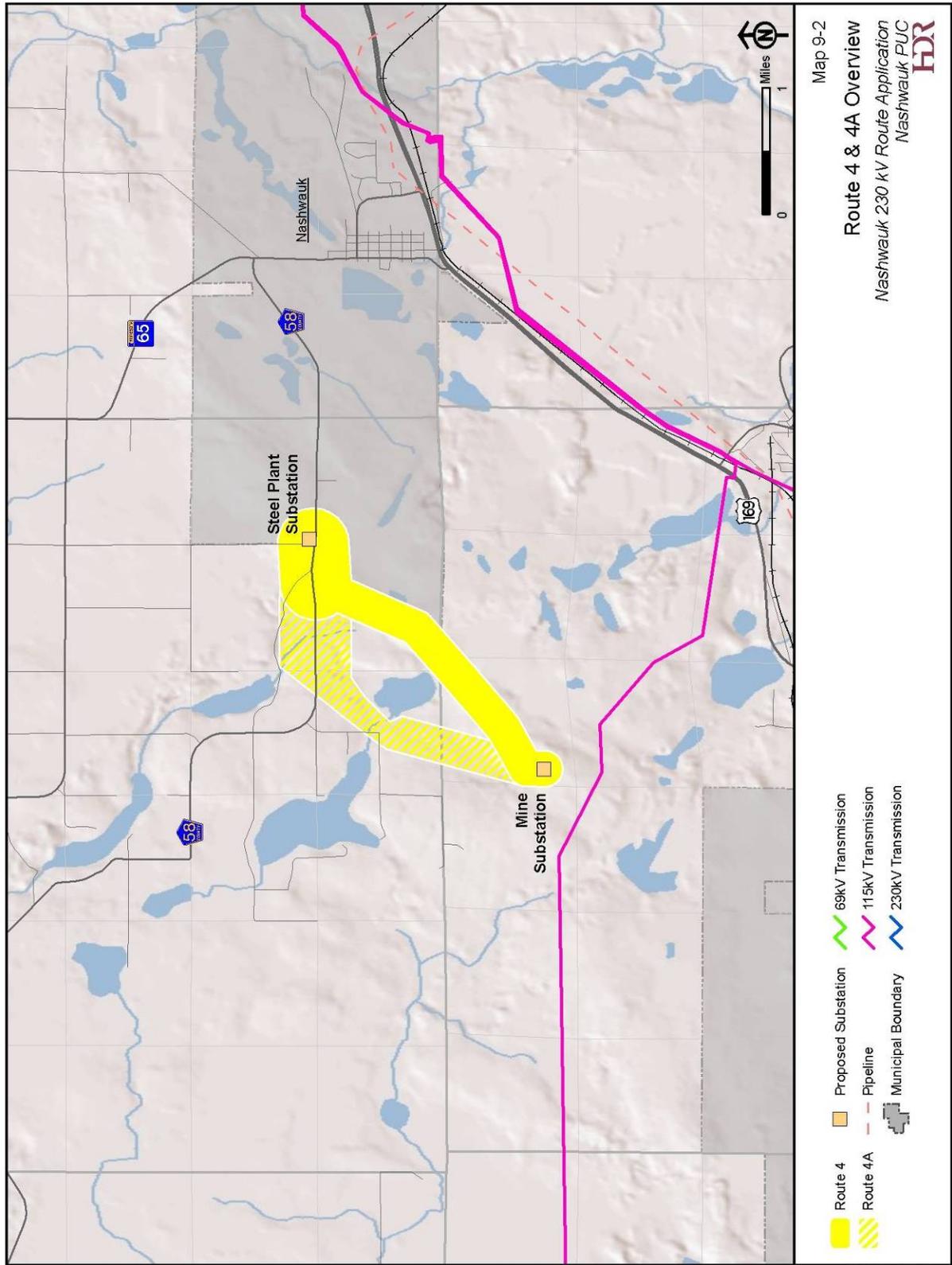
Direct/Indirect Effects

Construction of Route 4 or Route 4A would not affect airports, landing strips or airplane safety.

Map 9-1: Study Area 4



Map 9-2: Routes 4 & 4A Overview



Mitigation

Since no airports or airstrips would be affected, no mitigation is required.

9.2.3 Land Use

Introduction

This section discusses the existing and future land use, major development activities, and zoning controls within the Route 4. Land uses were identified using Minnesota GAP data provided by the DNR, and zoning ordinances for Itasca County.

Landcover

Route 4 consists primarily of forests and shrublands, with fewer areas of developed, agriculture and aquatic environment. Route 4A contains more forestland and aquatic environment, slightly less shrubland, and substantially less developed land than Route 4. The following table summarizes the GAP landuses that are crosses by Route 4 and Route 4A. Figure 2 identifies landcover along Route 4 and Route 4A.

Table 9-1: GAP Landcover Types and Subtypes for Routes 4 and 4A

GAP Land Cover Type	Route 4		Route 4A	
	Area (Acres)	% of Route 4	Area (Acres)	% of Route 4A
Aquatic Environment	7	0.9	26	3.2
Aquatic	7	0.9	22	2.7
Agriculture	16	2.3	16	2.0
Grassland	16	2.3	16	2.0
Forest	373	53.9	512	62.5
Upland Conifer	14	2.0	74	8.9
Lowland Deciduous	5	0.7	36	4.4
Upland Deciduous	354	51.2	401	49.0
Shrubland	241	34.9	263	32.1
Lowland Shrub	12	1.7	55	6.7
Upland Shrub	230	33.1	208	25.4
Developed	55	8.0	1	0.1
Total	691	100	819	100

Zoning

Route 4 has been zoned a mixture farm residential, industrial, and municipal by Itasca County (ICESD, 2009). Route 4A has been zone a mixture of industrial and municipal.

State Lands

Itasca County parcel data indicates that there are no State of Minnesota owned lands within Route 4 or Route 4A

County Lands

Blocks of county owned land are crossed throughout Route 4 and a corner of a county parcel is crossed by Route 4A. These lands compose approximately 30 percent of Route 4 and less than 5 percent of Route 4A.

Direct/Indirect Effects

Land Cover

Based on GAP data, the primary permanent impact within the rights-of-way of Route 4 and Route 4A would be a conversion of forest lands to a non-forest used, with the Route 4A right-of-way likely requiring greater forest clearing. Permanent impacts to agricultural lands, forests lands, and shrublands would occur where transmission line structures fall within these cover types. Temporary impacts to agricultural lands may also occur within right-of-way areas during transmission line construction. No impacts to aquatic environments (i.e. lakes) are anticipated by the rights-of-way of Route 4 and Route 4A.

See Section 6.3.1, 6.3.2 and 6.5.6 for a full discussion of agriculture, forestry, and flora, and Section 6.5.2-6.5.4 for a full discussion of water resources.

With the exception of the permanent land impacts resulting for transmission line structure placement, agricultural lands under or adjacent to the transmission line could still be used for agricultural practices following construction.

Zoning

Transmission lines are considered an essential service as defined in Section 24.2.100 of the 2009 Itasca County Zoning Ordinance. Essential services are typically not regulated under Itasca County zoning ordinances.

Public Lands

About 26 acres of Itasca County owned lands would be crossed by the potential Route 4 right-of-way. No state of Minnesota lands would be crossed by the potential Route 4 or 4A rights-of-way.

Mitigation

Mitigation requirements for Routes 4 and 4A would be the same as those discussed for Routes 1 and 1A. See Section 6.2.3 for a discussion of land use mitigation.

9.2.4 Displacement

Introduction

See Section 6.2.4 for a discussion of displacement.

Direct/Indirect Effects

Table 9-2 provides an estimate of the number of residences located within 500 feet of the proposed centerline for Route 4 and Route 4A. Appendixes A.2 to A.11 contain detailed figures illustrating location of homes near these routes.

Table 9-2: Number of Residences Proximate to Proposed Alignment

Route	Within ROW	ROW edge to 150 ft	150 to 300 ft	300 to 500 ft	Total Residences w/in 500 ft	Density (homes/mile)
Route 4	0	0	0	0	0	0
Route 4A	0	1	3	1	5	1.06

Mitigation

No displacement of residences or businesses is anticipated due to construction of the Route 4 or Route 4A proposed transmission line alignment. Final right-of-way alignment and structure location decisions would strive to maximize the distance from homes and commercial buildings.

9.2.5 Aesthetics***Introduction***

See Section 6.2.6 for general aesthetics information.

Direct/Indirect Effects***Route 4***

No homes are located within 1,000 feet of the proposed Route 4 transmission line centerline.

Route 4A

Five homes are located within 500 feet of the proposed Route 4A transmission line centerline. Route 4A may introduce a new visual impact to these residences.

No homes are located 500 to 1,000 feet from the proposed Route 4A transmission line centerline that would view the transmission line through a forest opening.

Mitigation

Mitigation requirements for Routes 4 and 4A would be the same as those discussed for Routes 1 and 1A. See Section 6.2.6 for aesthetics mitigation.

9.2.6 Socioeconomic Factors

Socioeconomic evaluation for Routes 4 and 4A would be the same as discussed for Routes 1 and 1A. See Section 6.2.7 for a discussion of socioeconomic information and effects.

9.2.7 Cultural Values

The cultural values evaluation for Routes 4 and 4A would be the same as discussed for Routes 1 and 1A. See Section 6.2.8 for a discussion of cultural values information and effects.

9.2.8 Recreation***Introduction***

No recreational facilities have been identified in proximity to Routes 4 and 4A.

Direct/Indirect Effects

No negative effects are anticipated from the construction of Route 4 or 4A.

Mitigation

Since no recreational resources would be affected, no mitigation is required.

9.2.9 Public Services

Introduction

There are no local public services facilities within one mile of Route 4 or Route 4A.

Direct/Indirect Effects

No negative effects are anticipated from the construction of Route 4 or 4A.

Mitigation

No mitigation would be necessary.

9.2.10 Environmental Justice

Introduction

See Section 6.2.11 for general environmental justice information. For this discussion, the Project Area represents the block groups that are included in Routes 4 and 4A.

Direct/Indirect Effects

Minority Concentrations

Less than three percent the Project Area’s residents are members of a racial minority, which is less than the ROC and the state of Minnesota (Table 9-3).

Table 9-3: Racial Characteristics within the Project Area, ROC, and Minnesota

		White	Native American	Asian	Other Races	Total
Project Area	Total	2,866	32	4	50	2,952
	Percent	97.1	1.1	0.1	1.7	100
ROC	Total	41,632	1,497	120	743	43,992
	Percent	94.6	3.4	0.3	1.7	100
State of Minnesota	Total	4,400,282	54,967	141,968	322,262	4,919,479
	Percent	89.4	1.1	2.9	6.6	100

Source: USCB, 2000.

In addition of the races listed above, Hispanic which is classified as an ethnicity rather than a distinct race, account for less than one percent of the total population in the affected area, 0.8 percent in the ROC, and 2.9 percent in the state (USCB, 2000). Based on this analysis, the Project would not have a disproportionate effect on minority populations.

Poverty and Low-Income Concentrations

Based on the 2000 U.S. Census, approximately 10.5 percent of the Project Area is comprised of low-income individuals (Table 9-4). This is similar to the ROC and higher than the State of Minnesota

poverty level (USCB, 2000). Median household income in the Study area is slightly lower than the ROC and much lower than the State of Minnesota. Based on this analysis, the Project would not have a disproportionate effect on low-income populations.

Table 9-4: Poverty Level and Income in 2000

Characteristic	Project Area	ROC	State of Minnesota
Individuals			
Number of Persons Below Poverty Level (1999)	382	4,576	380,476
Percent of Persons Below Poverty Level (1999)	12.9	10.4	7.9
Households			
Median Household Income (1999)	\$36,973*	\$36,234	\$47,111

Source: USCB, 2000.

* Average of 3 census block group median household income. Values ranged from \$31,979 to \$40,192.

Mitigation

Since disproportional impacts are not expected to occur, no mitigation is required.

9.2.11 Transportation

Introduction

Roadways, railways and pipelines are discussed in this section.

Route 4

Roadways

Route 4 crosses one road, CSAH 58.

MnDOT has recorded the AADT for county and trunk highways in Itasca County. The AADTs that have been recorded within Route 4 are listed in Table 9-5.

Table 9-5: AADTs at the Route 4 Transmission Line Centerline Crossings

Location	AADT	Parallel Length (Miles)	Year Surveyed
CSAH 58	90	0.34	2005

Source: MNDOT, <http://www.dot.state.mn.us/traffic/data/html/volumes.html>, accessed March 24, 2009

Railways

Route 4 would follow an extensive new utility right-of-way on the ESM property for approximately 1.5 miles, which includes the ESM Project's railroad, which is under construction.

Crude Oil and Natural Gas Pipelines

Route 4 would parallel the NPUC state approved pipeline, which has not been constructed.

Route 4A

Roadways

Route 4A crosses one road, CSAH 58, and parallels it for about 1.05 miles.

MnDOT has recorded the AADT for county and trunk highways in Itasca County. The AADTs that have been recorded within Route 4A are listed in Table 9-6.

Table 9-6: AADTs at the Route 4 Transmission Line Centerline Crossings

Location	AADT	Parallel Length (Miles)	Year Surveyed
CSAH 58	90	1.05	2005

Source: MNDOT, <http://www.dot.state.mn.us/traffic/data/html/volumes.html>, accessed March 24, 2009

Railways

Route 4A does not cross any existing railways.

Crude Oil and Natural Gas Pipelines

Route 4A would parallel the NPUC state approved pipeline, which has not been constructed for about 1.5 miles.

Direct/Indirect Effects

Roadways

Direct and indirect effects on roads would be similar to those discussed for Routes 1 and 1A. See Section 6.2.12 for additional information.

Railways

Direct and indirect effects on railways would be similar to those discussed for Routes 3 and 3A. See Section 8.2.12 for additional information.

Crude Oil and Natural Gas Pipelines

See Section 7.1.12 for pipeline effects.

Mitigation

Roadways

Mitigation for roadway impacts would be the same as that discussed for Routes 1 and 1A. See Section 6.2.12.

Railways

The NPUC has indicated that if the proposed transmission line is collocated with the ESM Project's railroad (under construction), the railroad's design would include an analysis of AC interference levels and installation of any required AC mitigation. See Section 8.2.12 for additional information.

Crude Oil and Natural Gas Pipelines

The Applicants would work with the NPUC to identify final transmission line structure locations and mitigation measures related to possible AC interference along the proposed pipeline.

9.3 Land-Based Economics

9.3.1 Agricultural Production

Introduction

See Section 6.3.1 for agricultural statistics in Itasca County and for a definition of prime farmland.

There are 304 acres of prime farmland mapped within the Route 4 and 368 acres of prime farmland mapped within Route 4A. The majority of these mapped prime farmland areas are currently forested. Figure 4 displays agricultural resources in the Project vicinity.

Direct/Indirect Effects

In areas where cropland is crossed, temporary impacts such as soil compaction and crop damages with the rights-of-way may occur during construction, depending on the time of construction. Permanent impacts would occur where transmission line structures are placed on agricultural land.

Route 4

Route 4 is not anticipated to temporarily or permanently affect agricultural land (GAP crop/grassland) within the right-of-way. About 12 structures would be placed in areas mapped as prime farmland. The impacts to prime farmland area would be small relative to the 304 acres of prime farmland within Route 4.

Route 4A

Route 4A is not anticipated to temporarily or permanently affect agricultural land (GAP crop/grassland) within the right-of-way. About nine structures would be placed in areas mapped as prime farmland. The impacts to prime farmland area would be small relative to the 368 acres of prime farmland within Route 4A.

Mitigation

Mitigation for agricultural impacts would be the same as that discussed for Routes 1 and 1A. See Section 6.3.1 for agriculture production mitigation.

9.3.2 Forestry

Introduction

According to GAP data (Table 9-1) about 54 percent of Route 4 is forested and about 63 percent of Route 4A is forested. Although quantitative information on private forest harvest trends within Route 4 and Route 4A are not readily available, Blandin Paper, which is known to manage much of its land for forestry resources, owns about 40 percent of the land within Route 4 and about 60 percent within Route 4A. Figure 5 displays the forest resources in the vicinity of Route 4 and Route 4A. Itasca County also owns lands within Route 4 and Route 4A.

Direct/Indirect Effects

Route 4

It is estimated that the proposed Route 4 right-of-way would convert approximately 24 acres of forest land into a non-forest use. It is possible that some of this forest clearing would permanently impact land that is currently being managed for forestry resources. This impact is small in relation to the forest resources available, and is not expected to affect the local forestry economy.

Route 4A

It is estimated that the proposed Route 4A right-of-way would convert approximately 29 acres of forest land into a non-forest use. It is possible that some of this forest clearing would permanently impact land that is currently being managed for forestry resources. This impact is small in relation to the forest resources available, and is not expected to affect the local forestry economy.

Mitigation

Mitigation for forestry impacts would be the same as that discussed for Routes 1 and 1A. See Section 6.3.2 for forestry mitigation.

9.3.3 Tourism

Introduction

Tourism within the vicinity of Route 4 and Route 4A is generally associated with the recreational activities and cultural values discussed in Section 6.2.8.

Direct/Indirect Effects

Most of the land within the vicinity of the proposed Route 4 and Route 4A rights-of-way are privately held and are not readily accessible by the public from roadways or waterways. Tourism in the area is not expected to be affected by the construction of the proposed Route 4 or Route 4A transmission line.

Mitigation

No impacts to area tourism are anticipated due to the presence of the transmission line; therefore, no mitigation is necessary.

9.3.4 Mining

Introduction

See Section 6.3.4 for a description of mining resources. See Figure 5 for the locations of mining resources within the vicinity of Route 4 and Route 4A.

Direct/Indirect Effects

ESM owns mining rights within all of Route 4 and 4A, within the exception of a half-mile wide stretch in Route 4A, between Big and Little Sucker lakes. Construction of the Project is required for the mining operation to move forward. The route locations have been designed so that they would not negatively affect the ability of ESM to mine the available ore resources.

Mitigation

The Applicants are working, and would continue to work, with mine operators to site the transmission line in a location that limits local impacts to current and planned mining operations. The Applicants would work with mine operators to develop appropriate mitigation measures, if necessary.

9.4 Archaeological and Historic Resources

Introduction

See Section 6.4 for general archaeological and historic resources information.

Routes 4 and 4A

There are no previously recorded archaeological resources within one mile of Route 4 and Route 4A in the SHPO database. There is an unconfirmed report of burial mounds within one mile of Route 4 and Route 4A, near Little Sucker Lake. A landowner reported two Native American burial sites to the Deputy County Surveyor that were shown to him years ago in the Little Sucker Lake area along CSAH 58. The exact location has not been verified.

Direct/Indirect Effects*Routes 4 and 4A*

No previously recorded cultural resources within one mile of the proposed Route 4 or Route 4A centerlines would be impacted by construction or operation of the Project. The potential existence of the burial mounds in the vicinity of Little Sucker Lake needs to be further investigated prior to construction to ensure there would not be any disturbance in accordance with Minnesota Statute 307.08.

Mitigation

See Section 6.4 for archaeological and historic resources mitigation.

9.5 Natural Resources**9.5.1 Air Quality**

Air quality evaluation would be the same as that discussed for Routes 1 and 1A. See Section 6.5.1 for the air quality discussion.

9.5.2 Rivers and Streams***Introduction***

See Section 6.5.2 for more general surface water information.

Figure 5 illustrates the locations of water resources identified within the vicinity of Route 4 and Route 4A.

Direct/Indirect Effects*Route 4*

There are three non-PWI intermittent streams potentially crossed by the proposed Route 4 transmission line centerline. A list of these watercourses and crossing locations are provided in Table 9-7.

Table 9-7: Streams and Rivers Crossed by Proposed Route 4

Stream/River Name	Type	PWI	Designated Trout Stream	Proposed Transmission Line Crossing
Unnamed tributary to Little McCarthy Lake	Intermittent	No	No	Sec 35, T57N, R23W
Unnamed tributary to Little Sucker Lake	Intermittent	No	No	Sec 35, T57N, R23W
Unnamed tributary to Little Sucker Lake	Intermittent	No	No	Sec 3, T56N, R23W

Route 4A

There is one perennial PWI stream and three non-PWI intermittent streams potentially crossed by the proposed Route 4 transmission line centerline. A list of these watercourses and crossing locations are provided in Table 9-8.

Table 9-8: Streams and Rivers Crossed by Proposed Route 4A

Stream/River Name	Type	PWI	Designated Trout Stream	Proposed Transmission Line Crossing
Unnamed tributary to Little McCarthy Lake	Intermittent	No	No	Sec 26, T57N, R23W
Unnamed tributary to Little McCarthy Lake	Intermittent	No	No	Sec 26, T57N, R23W
Unnamed stream between Little and Big Sucker Lake	Perennial	Yes	No	Sec 34, T57N, R23W
Unnamed tributary to Little Sucker Lake	Intermittent	No	No	Sec 3, T56N, R23W

Since all rivers, streams, and ditches would be spanned by transmission structures, no structures would be located within these features and no direct impacts are anticipated for Routes 4 or 4A. Indirect impacts could include sedimentation reaching surface waters during construction due to ground disturbance by excavation, grading, construction traffic, and dewatering of holes drilled for transmission structures. This could temporarily degrade water quality due to turbidity.

Mitigation

Best management practices would be installed and maintained to prevent soil erosion from entering surface water. The Project would develop a SWPPP as part of the NPDES permit required by the MPCA.

9.5.3 Lakes and Wetlands

Introduction

Lakes and wetlands were identified using NWI mapping (USFWS, 2007) and PWI mapping (DNR, 2008). Figure 5 illustrates the locations of NWI and PWI wetlands near Route 4 and Route 4A.

Route 4

There are about 26 acres of NWI wetlands within Route 4, which represents about 4 percent of the route. Table 9-9 lists the area and type of NWI mapped wetlands within the route.

Table 9-9: NWI Wetlands within Route 4

NWI Type	Acres	Percent of Route
Freshwater Emergent	1	0.1
Freshwater Forested	16	2.3
Scrub Shrub	2	0.2
Freshwater Lake or Pond	7	1.0
Total	26	3.6

Route 4A

There are about 111 acres of NWI wetlands within Route 4A, which represents about 14 percent of the route. Table 9-10 lists the area and type of NWI mapped wetlands within the route. There are no PWI wetlands crossed by the proposed Route 4A transmission line centerline.

Table 9-10: NWI Wetlands within Route 4A

NWI Type	Acres	Percent of Route
Freshwater Emergent	3	0.4
Freshwater Forested	93	11.4
Scrub Shrub	15	1.8
Total	111	13.6

Direct/Indirect Effects*Route 4*

No NWI wetland complexes would be crossed or impacted by the proposed Route 4 transmission line.

There are no PWI lakes or wetlands crossed by the proposed Route 4 transmission line centerline.

Route 4A

Approximately two proposed NWI wetland crossings would be wider than the typical 800-foot transmission line span. Based on an 800-foot transmission line span, the Applicants calculate that three transmission line structures would be located within an NWI wetland area, representing 60 square-feet of permanent wetland impacts. See Table 9-11 for wetland forest conversion and temporary wetland impacts within the Route 4A proposed right-of-way.

Table 9-11: NWI Wetland Forest Conversion and Temporary Impacts Within Route 4A

NWI Wetland Impact Type	Acres
Forest conversion	8
Temporary	3

There are no PWI lakes or wetlands crossed by the proposed Route 4A transmission line centerline.

Mitigation

Mitigation for lake and wetland impacts would be the same as that discussed for Routes 1 and 1A. See Section 6.5.3 for more information.

9.5.4 Water Quality***Introduction***

In Minnesota, the MPCA publishes and updates a list of waters that are not meeting one or more water-quality standards listed in Section 303(d) of the Clean Water Act. These impaired waters are managed to meet TMDL goals.

There are no impaired watercourses or waterbodies crossed by Route 4 or Route 4A.

Direct/Indirect Effects

No impacts to impaired watercourses or waterbodies are anticipated due to the construction of Route 4 or Route 4A.

Mitigation

Best management practices would be installed and maintained to prevent soil erosion from entering surface water. The Project would develop a SWPPP as part of the NPDES permit required by the MPCA.

9.5.5 Floodplains***Introduction***

There are no FEMA floodplains that have been mapped within Route 4 or Route 4A. However, FEMA floodplain data has not been fully developed for Itasca County and other floodplain areas are likely present, but have not been included in the FEMA GIS dataset. These areas include riparian areas adjacent to the watercourses mentioned in Section 9.1.5 surface water. See Section 6.5.5 for additional general floodplain information.

Direct/Indirect Effects

No transmission structures are anticipated to be placed within 100-year floodplain areas.

Mitigation

No mitigation is required.

9.5.6 Flora***Introduction***

See Section 6.5.6 for general flora information

Direct/Indirect Effects***Route 4***

Approximately 24 acres of forest clearing, would take place within the proposed right-of-way of Route 4. No impacts to lowland deciduous or lowland coniferous forests are anticipated.

Construction equipment has the potential to spread noxious weed-propagating material to new locations. The Applicants would comply with Minnesota noxious weed laws as described in Minnesota Rules Chapter 1505 and would observe county weed lists where they occur.

Route 4A

Approximately 29 acres of forest clearing, would take place within the proposed right-of-way of Route 4A. About two acres of this forest clearing may include lowland black ash. No measurable impacts to lowland coniferous forests are anticipated. See Route 4 effects for additional information.

Mitigation

Mitigation for impacts to flora would be the same as that discussed for Routes 1 and 1A. See Section 6.5.6 for flora mitigation.

9.5.7 Fauna

Introduction

See Section 6.5.7 for additional general fauna information

Direct/Indirect Effects

Route 4 and Route 4A are both located in the Nashwauck Uplands. Based on GAP data, Route 4 could contain habitat for 51 SGCN and Route 4A habitat for 45 SGCN. The full list of Nashwauck Uplands listed SGCN that have potential habitat within the two routes is included in Appendix G.

See also Section 6.5.7 for additional discussion of direct and indirect effects on wildlife.

Mitigation

Mitigation of potential effects would be the same as those described for Routes 1 and 1A. See Section 6.5.7 for mitigation.

9.6 Rare and Unique Natural Resources

Introduction

Federal

The Project area is within the overall range of the Canada lynx (listed as a federal threatened species in March 2000) and the gray wolf (listed as a federal threatened species in the mid-1970s and as a state special concern). On May 4, 2009, the gray wolf was de-listed by the USFWS in the western Great Lakes states, including Minnesota. The USFWS determined that gray wolves in the Western Great Lakes had recovered and no longer require the protection of the Endangered Species Act. The USFWS will continue to work with states and tribes to monitor wolf populations for at least five years to ensure ongoing survival.

According to the DNR's NHIS data, there are no records of bald eagle nests within two miles of the edge of Route 4 or Route 4A. Bald eagles, however, are known to reside near waterbodies in the surrounding area.

State

Route 4

There are no SNAs within one mile of Route 4.

There are no NHIS records of state endangered, threatened, or special concern species within Route 4. There are six NHIS records representing five *Botrychium* species within one mile of the edge of Route 4. This includes two endangered, one threatened, and two special concern species.

Table 9-11: NHIS Records Located Within One Mile of Edge of Route 4

Scientific Name	Common Name	Type	State Status	Last Observed	NHIS Records
<i>Botrychium oneidense</i>	Blunt-lobed Grapefern	Plant	E	2005	1
<i>Botrychium pallidum</i>	Pale Moonwort	Plant	E	1999	1
<i>Botrychium rugulosum</i>	St. Lawrence Grapefern	Plant	T	1999	1
<i>Botrychium minganense</i>	Mingan Moonwort	Plant	SPC	2005	1
<i>Botrychium simplex</i>	Least Moonwort	Plant	SPC	1999	2

Route 4A

There are no SNAs within one mile of Route 4A.

There are no NHIS records of state endangered, threatened, or special concern species within Route 4A. There are six NHIS records representing five *Botrychium* species within one mile of the edge of Route 4A. This includes two endangered, one threatened, and two special concern species.

Table 9-12: NHIS Records Located Within One Mile of Edge of Route 4A

Scientific Name	Common Name	Type	State Status	Last Observed	NHIS Records
<i>Botrychium oneidense</i>	Blunt-lobed Grapefern	Plant	E	2005	1
<i>Botrychium pallidum</i>	Pale Moonwort	Plant	E	1999	1
<i>Botrychium rugulosum</i>	St. Lawrence Grapefern	Plant	T	1999	1
<i>Botrychium minganense</i>	Mingan Moonwort	Plant	SPC	2005	1
<i>Botrychium simplex</i>	Least Moonwort	Plant	SPC	1999	2

Direct/Indirect Effects

No impacts are anticipated to threatened, endangered or species concern species documented in the NHIS database for either Route 4 or 4A.

Mitigation

Mitigation for sensitive species impacts would be the same as those discussed for Routes 1 and 1A. See Section 6.6 for mitigation.

9.7 Summary of Impacts

Table 9-13 below provides a comparison summary of impacts for Routes 4 and 4A. Route 4 was selected as the Preferred Alternative because it would impact less forest and wetland, there are 5 fewer homes within 500 feet of the route, the route is approximately 0.2 mile shorter than Route 4A and Route 4 would require two fewer transmission line structures to be constructed. Neither of the routes would follow existing transmission lines, however, Route 4 would follow an extensive new utility right-of-way (water and slurry pipeline, truck haul road, gas pipeline, railroad) on the ESM property for approximately 1.5 miles.

Tables 9-13: Route 4 and 4A Summary of Impacts and Factors Considered

Factor	Route 4 (Preferred Route) and Associated Facilities	Route 4A (Alternate Route) and Associated Facilities	Summary
Effects on Human Settlement			
Public Health and Safety	The Applicants would ensure that all safety requirements are met during the construction and operation of the proposed transmission line and associated facilities.		
Land Use	Approximately 24 acres of forest would be converted to a non-forest use. About 26 acres of county owned lands would be crossed by the right-of-way.	Approximately 29 acres of forest would be converted to a non-forest use.	Route 4 is expected to permanently impact approximately five fewer acres of forest area than Route 4A. Route 4 would also affect 26 acres of county own lands.
Displacement	No displacement is anticipated.		
Noise	Transmission line and substation noise levels are not predicted to exceed MPCA noise limits.		
Aesthetics	Would introduce a new landscape use, but would not likely be visible from any public viewshed, except for a 0.34 mile stretch along CSAH 58, which has an AADT of 90. There are zero homes within 500 feet of the proposed route centerline.	Would introduce a new landscape use, but would not likely be visible from any public viewshed, except for a 1.05 mile stretch along CSAH 58, which has an AADT of 90. There are five homes within 500 feet of the proposed route centerline.	The proposed Route 4A centerline would likely be visible within the foreground of five residences. Route 4 would not affect the viewshed of any existing residences. Both routes would be visible from portions of CSAH, which experiences low traffic volumes (AADT is 90).
Socioeconomic Factors	Effects would generally be short-term or beneficial. Forestry resources would be removed from production.		
Cultural Values	No impacts to cultural values are anticipated.		
Recreation	No impacts to recreational resources are anticipated.		
Public Services	No impacts to Public Services are anticipated.		
Environmental Justice	No disproportional impacts to minority or low-income populations would occur.		
Transportation	One CSAH and one local street would be crossed.	One CSAH, one CR, and one local street would be crossed. The approved Nashwauk Public Utilities Commission pipeline right-of-way would be paralleled.	Route 4A would cross one more roadway that Route 4. Route 4A would parallel a proposed Mesaba Energy pipeline.
Radio, Television, and Cellular Phone	No impacts to radio, television, or cellular phone are anticipated.		
Effects on Land-based Economies			

Factor	Route 4 (Preferred Route) and Associated Facilities	Route 4A (Alternate Route) and Associated Facilities	Summary
Agriculture	No temporary or permanent impacts to agricultural land are anticipated. About 12 structures would be placed on soils mapped as prime farmland, most of which is currently forested.	No temporary or permanent impacts to agricultural land are anticipated. About nine structures would be placed on soils mapped as prime farmland, most of which is currently forested.	No temporary or permanent impacts to agricultural land are anticipated. Route 4A would impact less soils mapped as prime farmland, much of which is currently forested.
Forestry	Route 4 would impact 24 acres of forest resources.	Route 4A would impact 29 acres of forest resources.	Route 4 would permanently impact five fewer acres of forest resources.
Tourism	No impacts to tourism are anticipated.		
Mining	Essar Steel owns mining rights to all of the land within Route 4. Much of this area has already been mined for iron ore resources. The Applicants are working closely with ESM to ensure that the proposed line does not inhibit existing or proposed mining activities.	Essar Steel owns the mining right to most of the land within Route 4A, except for a stretch of approximately 0.6 mile between Big Sucker and Little Sucker Lake. The Applicants are working closely with ESM to ensure that the proposed line does not inhibit existing or proposed mining activities.	Route 4 and 4A would likely have the same impacts to known proposed mining operations.
Effects on Archaeological and Historic Resources			
Archaeological Resources	The potential existence of Native American burial mounds in the vicinity of Little Sucker Lake needs to be further investigated prior to construction.	The potential existence of Native American burial mounds in the vicinity of Little Sucker Lake needs to be further investigated prior to construction.	The potential existence of Native American burial mounds in the vicinity of Little Sucker Lake needs to be further investigated prior to construction.
Historic Resources	No previously recorded historic resources within one mile of the proposed Route 4 centerline would be impacted by the proposed transmission line.	No previously recorded historic resources within one mile of the proposed Route 4A centerline would be impacted by the proposed transmission line.	No previously recorded historic resources within one mile of the proposed Route 4 or Route 4A centerline would be impacted by the proposed transmission line.
Effects on the Natural Environment			
Air Quality	The maximum one-hour concentration of ozone during worst-case weather is estimated at 0.0007 ppm. This is well below both federal and state standards. No air quality impacts due to the operation of the transmission line are anticipated. Temporary air quality impacts caused by construction vehicle emissions and fugitive dust from right-of-way clearing are expected to occur.		

Factor	Route 4 (Preferred Route) and Associated Facilities	Route 4A (Alternate Route) and Associated Facilities	Summary
Water Resources	No transmission line structures are anticipated to be placed within wetlands. No wetland forest conversion or temporary wetland impacts are anticipated. The proposed route centerline crosses two intermittent non-PWI streams.	Approximately three transmission line structures would be placed within wetlands, representing 60 sq-ft of permanent impacts. About eight acres of wetland forest conversion and three acres of temporary wetland impacts would occur. The proposed route centerline crosses one PWI stream of which one stream, one perennial non-PWI stream, and two intermittent non-PWI streams.	Route 4 is not anticipated to cause wetland impacts, whereas Route 4A may place three transmission structures in wetlands, convert eight acres of forested wetlands and temporary impact three acres of wetlands. Also, Route 4 would not cross a PWI stream or a perennial non-PWI stream.
Flora	Approximately 24 acres of impacts would occur to forests, primarily quaking aspen. No impacts to lowland deciduous or lowland coniferous forests are anticipated.	Approximately 29 acres of impacts would occur to forests, primarily quaking aspen. Lesser impacts to a lowland deciduous (two acres) may also occur. No measurable impacts to lowland coniferous forests are anticipated.	Due to its slightly shorter distance and its crossing of disturbed mine lands, Route 4 would have less impact on local flora, which includes forested areas. Route 4 would also likely have fewer impacts on lowland coniferous forests.
Fauna	No impacts are anticipated.	Route 4A could potentially impact avian species that may be using a potential local flyway.	Route 4A has the potential for avian collisions where the Route crosses between a potential local flyway.
Effects on Rare and Unique Natural Resources			
Rare and Unique Natural Resources	No NHIS records are located within Route 4. There are six NHIS records representing five <i>Botrychium</i> species within one mile of the edge of Route 4. This includes two endangered, one threatened, and two special concern species. Additionally, NHIS data records no bald eagle nests within two miles of the edge of Route 4.	No NHIS records are located within Route 4A. There are six NHIS records representing five <i>Botrychium</i> species within one mile of the edge of Route 4A. This includes two endangered, one threatened, and two special concern species. Additionally, NHIS data records no bald eagle nests within two miles of the edge of Route 4A.	Neither Route is expected to impact any species recorded in the 2008 NHIS database. Areas that have not been surveyed within the right-of-way, particularly in the vicinity of forested wetlands, may have the potential to harbor sensitive plant species. There is the potential for bald eagles to pass through the route areas.

Factor	Route 4 (Preferred Route) and Associated Facilities	Route 4A (Alternate Route) and Associated Facilities	Summary
Application of Design Options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity			
General	The design options of the facilities along both the Preferred Route and Alternate Route maximize energy efficiencies and mitigate adverse environmental effects. The new substations are designed to accommodate facility additions in the future.		
Use of Existing Transportation, Pipeline and Electrical Transmission Systems or ROWs			
Existing Transportation, Pipeline and Electrical Transmission systems or ROWs	Approximately 49% of the route follows the rights-of-way of existing transportation, pipeline, and electrical transmission systems.	Approximately 34% of the route follows the rights-of-way of existing transportation, pipeline, and electrical transmission systems.	The Preferred Route 4 follows a greater percentage of existing transportation, pipeline, and electrical transmission systems rights-of-way.
Electrical System Reliability			
Electrical System Reliability	Both routes would support the reliable operation of the transmission system.		
Costs of Constructing, Operating and Maintaining the Facility which are Dependent on Design and Route			
Costs	The distance of the Preferred Route is 2.8 miles and has an estimated cost of \$2.4 million.	The distance of the Alternate Route is 3.1 miles and has an estimated cost of \$2.7 million.	The shorter distance of the Preferred Route 4 contributes to a lower overall cost of the Project.
Irreversible and Irretrievable Commitments of Resources			
General	Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. Irreversible effects result primarily from use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. There are few commitments of resources associated with this Project that are irreversible and irretrievable, but those few are resources primarily related to construction. Construction resources that would be used to construct the Project include aggregate resources, concrete, steel, and hydrocarbon fuel. During construction, vehicles would be traveling to and from the site, utilizing hydrocarbon fuels. These commitments of resources are similar for both routes proposed.		The Preferred Route 4 has approximately two fewer structures and a shorter length, resulting in fewer commitments of resources.

Factor	Route 4 (Preferred Route) and Associated Facilities	Route 4A (Alternate Route) and Associated Facilities	Summary
Route specific	The overall length of the Preferred Route is 2.8 miles, which would require approximately 18 structures.	The overall length of the Alternate Route is three miles, which would require approximately 20 structures.	

Note: Area impacts are based upon proposed 130-foot wide new rights-of-way located within Route 4 and Route 4A.