

Appendix B

Route Comparison Table

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Appendix B Comparison of Minn. Admin. Rule 7850.4100 Routing Factors Considered for the Plum Creek HVTL Project		
Factor	Route Options	
	Green/Blue Route	Yellow/Red Route
Factor A - Effects on Human Settlement		
Displacement (Section 6.2.3)	No displacement of residences or businesses would occur as a result of the Project.	
Noise (Section 6.2.4)	Construction of the HVTL Project would result in minimal, temporary, and localized increases in noise; increases in noise would resolve with the completion of construction. Operation of the HVTL Project would not exceed noise limits set by the MPCA.	
Aesthetics (Section 6.2.5)	Either route option would result in minimal to moderate aesthetic impacts from alteration of the current landscape due to the visibility of the transmission line poles and switching station. A route comprised of the Yellow and Red segments would have slightly greater aesthetic impacts due its proximity to the town of Walnut Grove.	
Cultural Values (Section 6.2.7)	Neither route option would impact cultural values within the HVTL Project Study Area.	
Recreation (Section 6.2.8)	The route options presented for the HVTL Project avoid designated federal, state, or local recreation areas. Temporary increase in dust and noise during construction could disrupt public use of nearby recreation areas, but these effects would be minimal and temporary and would resolve with the completion of construction. Operation of the HVTL Project would not impact public use and enjoyment of recreation areas.	
Snowmobile Trails Crossed by the Application Alignments	4	1
Land Use (Section 6.2.9)	Within 150-foot Right-of-way and Total Percentage of Route.	
Cultivated Cropland	314.9 acres 55.0% of route	300.4 acres 52.1% of route
Hay/Pasture Land	3.9 acres 0.7% of route	5.3 acres 0.9% of route
Emergent Herbaceous Wetlands	11.9 acres 2.1% of route	10.4 acres 1.8% of route
Woody Wetlands	0.0 acres 0.0% of route	0.2 acres < 0.1% of route
Herbaceous Land	0.7 acres 0.1% of route	3.6 acres 0.6% of route

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Deciduous Forest	0.1 acres < 0.1% of route	0.0 acres 0% of route
Developed Areas	241.3 acres 42.1% of route	257.1 acres 44.6% of route
Barren Land	0.0 acres 0.0% of route	0.0 acres 0.0% of route
Public Services (Section 6.2.10)	The HVTL Project would not impact the availability of public services in Cottonwood, Murray, and Redwood counties.	
Factor B - Effects on Public Health and Safety		
Public Health and Safety (Section 6.2.1)	Construction of either route option has the potential to cause a minimal, temporary increase in demand for public health and safety services in Cottonwood, Murray, and Redwood counties. No increase in demand for public health and safety services is anticipated during operation of the HVTL Project. Plum Creek will comply with all applicable safety requirements during construction and operation of the HVTL Project to minimize the need for public health and safety services.	
Factor C - Effects on Land-Based Economies		
Agriculture (Section 6.3.1)	Construction of either route option would cause minimal, temporary impacts to agricultural land from soil compaction and rutting, accelerated soil erosion, crop damage, temporary disruption to normal farming activities, and introduction of noxious weeds to the soil surface. In addition, some areas of prime farmland or farmland of statewide importance would be taken out of production during construction of either route option. Permanent impacts to agricultural land would occur from placement of transmission line structures in agricultural fields. However, Plum Creek will minimize permanent impacts to agricultural land by siting structures along field edges, as closely as feasible (approximately 10 feet) from the edge of road rights-of-way or parcel lines. If final Project design requires transmission line structures to be placed on parcels enrolled in the CREP or RIM programs, Plum Creek will work with landowners and BWSR to address potential impacts to these conservation easements and avoid impacts to landowner participation in these programs. Overall, impacts to agricultural production as a result of the HVTL Project are anticipated to be minimal, regardless of which route option is chosen by the Commission.	

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Number of poles in agricultural fields (based on preliminary engineering design)	257	257
CREP Easements Within 150-foot Right-of-Way	7 CREP Easements (5 of these in RIM Program)	6 CREP Easements (2 of these in RIM Program)
Forestry (Section 6.3.2)	No forestry operations are located within the route options; therefore, the HVTL Project would not impact forestry operations.	
Tourism (Section 6.3.3)	The HVTL Project is not anticipated to affect available tourism and recreational opportunities in the HVTL Project Study Area.	
Mining (Section 6.3.4)	No mining resources will be impacted by the proposed HVTL Project.	
Factor D - Effects on Archaeological and Historic Resources		
Previously Recorded Archaeological Resources (Section 6.4)		
Total Number Within Route/ Eligible for NRHP ¹	0/0	1/0
Total Number Within 1 mile of Route/ Eligible for NRHP ¹	3/0	7/1
Previously Recorded Historic Architectural Resources (Section 6.4)		
Total Number Within Route/ Eligible for NRHP ¹	1/0	1/0
Total Number Within 1 mile of Route/ Eligible for NRHP ¹	9/1	14/1
Factor E - Effects on the Natural Environment		

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Air Quality (Section 6.5.1)	Minimal, temporary impacts to air quality would occur during construction of the HVTL Project from vehicle emissions and fugitive dust along right-of-way and local gravel roads. Impacts to air quality would resolve after construction is complete. Operation of the HVTL Project could result in increases to ozone production rate; however, any emissions of ozone from the transmission line would be minimal and are expected to be well below federal and state standards.	
Geology and Groundwater (Section 6.5.2)	No impacts to geology or groundwater resources would occur from construction or operation of the HVTL Project.	
Number of Wells Within the 150-foot Right-of-Way	1	5
Soils (Section 6.5.3)		
Prime Farmland (All Categories)	541.1 acres 94.5% of route	532.0 acres 92.2% of route
Farmland of Statewide Importance	17.5 acres 3.1% of route	26.8 acres 4.6% of route
Surface Water Resources (Section 6.5.4)		
Lakes, Rivers, Streams, and Ditches (Section 6.5.4.1)	The 150-foot right-of-way of this route option would cross 27 streams and rivers, including 12 PWI streams	The 150-foot right-of-way of this route option would cross 23 streams and rivers, including 15 PWI streams
Impaired Waters Crossed by the Route Options (Section 6.5.4.2)	5	6
Total FEMA-designated 100-year Floodplains (Section 6.5.4.3) ²	14.0 acres 2.4% of route	18.4 acres 3.2% of route
Wetlands (Section 6.5.5)		
Total Wetlands Within the 150-foot Right-of-Way	11.0 acres 1.9% of route	16.2 acres 2.8% of route

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Non-Forested Wetlands Within the 150-foot Right-of-Way	8.7 acres 1.5% of route	15.5 acres 2.7% of route
Forested Wetlands Within the 150-foot Right-of-Way	2.3 acres 0.4% of route	1.1 acres 0.2% of route
Number of Poles in Wetlands (based on preliminary engineering design)	3	11
Flora (Section 6.5.6)	Vegetation clearing for either route option would be minimal because Plum Creek sited the routes to predominantly cross cultivated cropland. Approximately 0.1 acre of forested land is within the 150-foot right-of-way for the Green and Blue route option and no forested land is within the 150-foot right-of-way for the Yellow and Red route option.	
Fauna (Section 6.5.7)	The potential impacts on wildlife and wildlife habitat during construction and maintenance of the HVTL Project will be minimal regardless of which route option is chosen by the Commission. Potential impacts on wildlife during construction would be primarily related to temporary disturbance and displacement. Potential impacts to wildlife and wildlife habitat during operation of the HVTL Project would be minimal and primarily related to avian collisions. Plum Creek will coordinate with USFWS and MNDNR as needed to identify avian movement pathways and migration flyways that may be crossed by the Application segments and to discuss areas along the transmission line that may need to be marked with avian flight diverters to minimize impacts to birds. In addition, the HVTL Project will be constructed and operated according to Avian Power Line Interaction Committee (APLIC) recommended standards to reduce the potential for avian collisions and electrocutions (APLIC, 2006; APLIC, 2012).	
Factor F - Effects on Rare and Unique Natural Resources		
Rare and Unique Natural Resources (Section 6.6)		
Federal and State-listed Species Potentially Present Within One Mile of the Route Options (Section 6.6.1)	Northern long-eared bat Dakota skipper Prairie bush-clover	Northern long-eared bat Forster's Tern Prairie bush-clover Slender milk-vetch

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Designated Natural Resource Sites Within 150-foot Right-of-Way (Section 6.6.2)	2 SOBS (both below the minimum threshold)	2 SOBS (1 moderate and 1 below the minimum threshold)
Factor G – Application of Design Options that Maximize Energy Efficiencies, Mitigate Adverse Environmental Effects, and Could Accommodate Expansion of Transmission or Generating Capacity		
General	Construction of the facilities along either route option will maximize energy efficiencies and mitigate adverse environmental effects.	
Factor H - Use or Paralleling of Existing Rights-of-Way, Survey Lines, Natural Division Lines, and Agricultural Field Boundaries		
Survey Lines, Natural Division Lines, Agricultural Field Boundaries	Approximately 6.5 miles of this route option will follow existing property lines (20.6%).	Approximately 2.2 miles of this route option will follow existing property lines (6.9%).
Factor I – Use of Existing Large Electric Power Generating Plant Sites		
Not applicable		
Factor J - Use of Existing Transportation, Pipeline, and Electrical Transmission Systems or Rights-of-Way		
Existing road Rights-of-way	25.1 miles 79.4%	29.6 miles 93.1%
Existing Electrical Transmission Systems or Rights-of-Way	0 miles 0.0 %	0 miles 0.0 %
Existing Pipeline Systems or Rights-of-Way	Neither route option was sited to follow existing pipeline systems or rights-of-way; however, both route options cross existing pipeline systems and their rights-of-way.	
Factor K - Electrical System Reliability		
Electrical System Reliability	Both routes options support the reliability of the regional electrical system.	
Factor L - Cost of Constructing, Operating, and Maintaining the Facility Which Are Dependent on Design and Route		
Estimated Construction Costs – Single-Circuit Monopole (2019\$) (Section 2.7)	\$27.6 million	\$27.5 million
Operation and Maintenance Costs–Single-Circuit Monopole (2019\$)	Approximately \$15,800/year	Approximately \$15,900/year.
Factor M - Adverse Human and Natural Environmental Effects Which Cannot Be Avoided and Factor N – Irreversible and Irretrievable Commitments of Resources		

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General	Construction of either route option would require a commitment of people and resources and would impact the existing environment in the HVTL Project Area. While impacts to most resources would be minimal and temporary, other resources would be irreversibly committed to the Project and would be irretrievable. A summary of the unavoidable impacts from construction and operation of either route option is presented below. For both route options, the resources committed would be similar due to the same general area being crossed by each route.	
Route Specific	Length: approximately 31.6 miles Approximately 266 structures total	Length: approximately 31.8 miles Approximately 266 structures total
Construction – Both Routes	Unavoidable impacts related to the HVTL Project that would last only as long as the construction period include: <ul style="list-style-type: none">• noise emitted from vehicles and equipment during construction that will be audible to neighboring landowners;• increased traffic on roads crossed by the route options;• minimal air quality impacts due to fugitive dust;• potential for soil erosion and compaction; and• disturbance to and displacement of some species of wildlife.	
Operation – Both Routes	Unavoidable impacts related to the HVTL Project that would last as long as the life of the Project would include: <ul style="list-style-type: none">• changes to existing aesthetics of landscape (from agrarian to visible transmission line structures), which will be visible from local roadways and parcels; and• permanent impacts to agricultural land from placement of transmission line structures.	
¹ The number of NRHP-eligible resources shown is a subset of the total number of archaeological sites or historic architectural resources.		
² Neither route option would cross 500-year floodplains.		
Notes: MPCA: Minnesota Pollution Control Agency NRHP: National Register of Historic Places PWI: Public Waters Inventory SOBS: Site of Biodiversity Significance		