

Appendix I
Summary Table, North Dakota to Alexandria area

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Table I-1. Summary, North Dakota to Alexandria Proposed Routes

Factor	Applicant Preferred Route	Route A
Effects on Human Settlement		
Socioeconomic Resources	The construction, operation and maintenance of the transmission lines are not anticipated to negatively impact socioeconomic resources in the Project area. Immediate short-term positive economic gains would likely result from activities associated with the construction of the proposed Project. Long-term beneficial impacts include incremental increases in revenues from utility property tax and landowners would receive compensation for the rights to build, operate, and maintain the transmission facilities within the easements area.	
Land Use, Zoning and Planning	Approximately 76% of the route is zoned agricultural use, 4% is zoned commercial/industrial, 8% is zoned residential, and 12% is zoned recreation/park land use.	Approximately 74% of the route is zoned agricultural, 6% is zoned residential, 5% is zoned recreation/park, 5% is zoned special protection agriculture, 1% is zoned as municipal land use, and 8% is zoned for transitional uses.
Displacement	No residences are located within 75 feet of the centerline alignment. The actual 150-foot alignment would be designed to avoid residential displacements.	No residences located within 75 feet of the centerline alignment.
Property Values	Based on research conducted, it is not anticipated that the proposed transmission line routes evaluated would significantly affect the value of properties adjacent to the proposed transmission lines.	
Pipelines	The route would cross the Amoco, Williams Brothers, and Great Plains pipelines, and would periodically parallel the Amoco and Williams Brothers pipelines.	The route would not cross any of the pipelines in the study area.
Noise	Noise associated with the operation of the proposed 345 kV transmission line is not predicted to exceed the limits identified by the MPCA.	
Effects on Public Health and Safety		
EMF	The proposed HVTL would conform to all applicable local, state, and North American Electric Reliability Corporation (NERC) standards and National Electric Safety Code (NESC) standards regarding clearance to the ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths. There are no anticipated impacts attributed to EMF from the Project, however; three primary methods to reduce EMF exposure for the Project include avoiding residences to the greatest possible extent, compacting phases, and rearranging phase conductors to cancel EMF.	
Magnetic Fields	Predicted magnetic field levels are considerably less than the recommended exposure guidelines. Based on the proposed design and operation of the project, no impacts are anticipated.	
Stray Voltage	Poor grounding conditions, inadequate connections, lightning strikes, or undersized neutral conductors can be the cause for stray voltage. Therefore, impacts attributed to stray voltage are not anticipated.	
Effects on Recreation		

Factor	Applicant Preferred Route	Route A
Recreation Land	Several parks are located near this route. However, the ultimate location of the proposed transmission line is intended to be outside the designated recreation corridor. Depending on the alignment of the route, approximately 117 acres of recreation/open space/park land would be impacted. The route crosses four different trails, two of which are crossed twice, and two scenic byways.	Several parks are located near this route. However, the ultimate location of the proposed transmission line is intended to be outside the designated recreation corridor. Depending on the alignment of the route, approximately 87 acres of recreation/open space/park land would be impacted. The route crosses three different trails and one scenic byway.
Aesthetics	Would likely affect visual quality within open landscapes, WMA, wayside rest areas, and campgrounds are located in proximity of the transmission line. There are approximately 70 homes within 500 feet of the Route.	Would likely affect visual quality within open landscapes, WMA, wayside rest areas, and campgrounds in proximity of the transmission line. There are approximately 70 homes within 500 feet of the Route.
Effects on Transportation		
Roadways	The Preferred Route primarily follows I-94. Construction activities along this route have the potential to impact six future roadway projects.	Route A does not follow a particular roadway. Transportation related impacts associated with this route are similar to those impacts related to the Preferred Route. Construction activities along this route have the potential to impact two future roadway projects.
Airports	The Applicant Preferred Route is within the FAA regulatory space associated with the Fergus Falls Municipal Airport and Chandler Field. Construction notice to FAA would be required.	Route A is within the FAA regulatory space associated with the Chandler Field and Elbow Lake. Construction notice to FAA would be required. Route A would not impact any VORs.
Effects on Wireless Technologies		
Wireless Technologies	No widespread interference to radio, television, or cellular phones is anticipated.	
Effects on Archaeological and Historic Resources		
Archaeological & Historic Resources	Nine archaeological resources and 11 historic facilities resources are located within the route area.	Four archaeological resources and three historic facilities resources are located within the route area.
Effects on Land-based Economics		
Agriculture	Approximately 56% of the route is zoned for agricultural use, of which approximately 636 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 33,700 square feet.	Approximately 75% of the route is zoned for agricultural use, of which 820 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 28,300 square feet. One center-pivot irrigation system is located within this route.
Forestry	Impacts approximately 50 acres of wooded land.	Impacts approximately 37 acres of wooded land.
Tourism	No impacts to tourism are anticipated.	
Mining	No aggregate sources have been identified with the ROW for either route.	

Factor	Applicant Preferred Route	Route A
Effects on Water Resources		
Surface Waters	Crosses 42 small or unnamed streams and 17 PWI streams.	Crosses 60 small or unnamed streams and 11 PWI streams.
Groundwater Resources	All well locations within the routes would be avoided; therefore, no impacts to groundwater resources are anticipated.	
Wetlands	ROW includes 40 acres of wetlands and crosses 144 wetlands. Between 2 and 5 poles would be placed within these wetlands.	ROW includes 28 acres of wetlands and crosses approximately 139 wetlands. Approximately 5 poles would be placed within these wetlands.
Floodplains	ROW includes approximately 36 acres designated as 100-year floodplain.	ROW includes approximately 39 acres designated as 100-year floodplain.
Effects on the Natural Environment		
Flora	The majority of the Applicant Preferred Route occurs along existing rights-of-way and vegetation communities that occur in these areas are regularly disturbed. Impacts due to construction are not anticipated to substantially disrupt vegetative community quality or function. The ROW would permanently impact approximately 2,229 square feet of vegetation.	Route A does not follow major existing infrastructure and is generally along property lines or local roadways. It is expected that impacts to flora for the Applicant Preferred Route would be similar to or less than associated with Route A. The ROW would permanently impact approximately 1,904 square feet of vegetation.
Fauna	There is a potential for temporary displacement of wildlife during construction and for loss of small amounts of habitat. Because transmission line routing avoids direct impacts to lakes and rivers, impacts on fisheries will be small. Any impacts, temporary or permanent, are unlikely to affect population levels of are wildlife.	
Rare and Unique Natural Resources	Thirty-nine USFWS easements, five WMAs, seven Minnesota County Biological Survey (MCBS) Sites of Biodiversity Significance, three MCBS Railroad Prairies, five BWSR RIM Easements, and four Native Plant Communities are crossed. No WPAs or SNAs are crossed. Sixty-three acres of USFWS Easements are impacted. Approximately 0.5 acres of a MCBS site designated moderate is impacted.	Eleven USFWS easements, One WMA, three Minnesota County Biological Survey (MCBS) Sites of Biodiversity Significance, 16 MCBS Railroad Prairies, one BWSR RIM Easements, and two Native Plant Communities are crossed. No WPAs or SNAs are crossed. One species listed as endangered, threatened, or special concern by the state of Minnesota has been documented within the Route. Twelve acres of USFWS Easements are impacted. Approximately three acres of an MCBS site designated moderate is impacted.
Air Quality	During construction there would be limited emissions due to exhaust from vehicles and other construction equipment and fugitive dust from ROW clearing. The magnitude of the construction emissions is influenced heavily by the specific construction activity occurring. Adverse impacts to the surrounding environment would be minimal because of the short and intermittent nature of the exhaust emission and dust-producing construction phases.	

Table I-2. Summary, North Dakota to Alexandria Proposed Options

Factor	Option 1		Option 2			Option 3	
	Applicant Preferred Route Segment	Option 1	Applicant Preferred Route Segment	Option 2a	Option 2b	Applicant Preferred Route	Option 3
Effects on Human Settlement							
Socioeconomic Resources	The construction, operation and maintenance of the transmission lines are not anticipated to negatively impact socioeconomic resources in the Project area. Immediate short-term positive economic gains would likely result from activities associated with the construction of the proposed Project. Long-term beneficial impacts include incremental increases in revenues from utility property tax and landowners would receive compensation for the rights to build, operate and maintain the transmission facilities within the easements area.						
Land Use, Zoning and Planning	Affects 56 acres of agricultural zoned land. No other land uses are affected.	Affects 70 acres of agricultural zoned land. No other land uses are affected.	Affects 99 acres of agricultural and 44 acres of recreation zoned land. No other land uses are affected.	Affects 158 acres of agricultural and 10 acres of recreation zoned land. No other land uses are affected.	Affects 123 acres of agricultural and 33 acres of recreation zoned land. No other land uses are affected.	Affects 26 acres of recreation and 26 acres of special agriculture land. No other land uses are affected.	Affects 40 acres of recreation and 32 acres of special agriculture land. No other land uses are affected.
Displacement	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.
	The alignment would be designed to avoid residential displacements.						
Property Values	Based on research conducted, it is not anticipated that the proposed transmission line routes evaluated would significantly affect the value of properties adjacent to the proposed transmission lines.						
Pipelines	None of the options would be crossed by pipelines.						
Noise	Noise associated with the operation of the proposed 345 kV transmission line is not predicted to exceed the limits identified by the MPCA.						
Effects on Public Health and Safety							

Factor	Option 1		Option 2			Option 3	
	Applicant Preferred Route Segment	Option 1	Applicant Preferred Route Segment	Option 2a	Option 2b	Applicant Preferred Route	Option 3
EMF	<p>The proposed HVTL would conform to all applicable local, state, and North American Electric Reliability Corporation (NERC) standards and National Electric Safety Code (NESC) standards regarding clearance to the ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths.</p> <p>There are no anticipated impacts attributed to EMF from the Project however; three primary methods to reduce EMF exposure for the Project include: avoiding residences to the greatest possible extent, compacting phases, and rearranging phase conductors to cancel EMF.</p>						
Magnetic Fields	<p>Predicted magnetic field levels are considerably less than the recommended exposure guidelines. Based on the proposed design and operation of the project, no impacts are anticipated.</p>						
Stray Voltage	<p>Poor grounding conditions, inadequate connections, lightening strikes, or undersized neutral conductors can be the cause for stray voltage. Therefore, impacts attributed to stray voltage are not anticipated.</p>						
Effects on Recreation							
Recreation Land	No recreation land is affected or trails crossed by either optional segment.		Affects 44 acres of recreation land and crosses one trail.	Affects 10 acres of recreation land and crosses one trail.	Affects 33 acres of recreation land and crosses one trail.	Affects 17 acres of recreation land and no trail crossings.	Affects 40 acres of recreation land and no trail crossings. Parallels a scenic byway.
Aesthetics	One residence within 500' feet of the alignment.	Three residences within 500' of alignment.	Nine to thirteen residences within 500' of alignment.	Three residences within 500' of alignment	Five residences within 500' of alignment.	Six to ten residences within 500' of alignment.	Sixty-nine residences within 500' of alignment.
Effects on Transportation							
Roadways	No impacts to future roadway projects are expected from construction activities along this option.	No impacts to future roadway projects are expected from construction activities along this option.	Construction activities along this route have the potential to impact one future roadway project.	Construction activities along this route have the potential to impact one future roadway project.	Construction activities along this route have the potential to impact one future roadway project.	Construction activities along this route have the potential to impact one future roadway project.	Construction activities along this route have the potential to impact one future roadway project.

Factor	Option 1		Option 2			Option 3	
	Applicant Preferred Route Segment	Option 1	Applicant Preferred Route Segment	Option 2a	Option 2b	Applicant Preferred Route	Option 3
Airports	Construction notice to FAA would be required. The nearest VOR is 7,490 feet from the Preferred Route. In order to comply with FAA regulations, the transmission line structures in this area could not be taller than 156 feet.	Construction notice would not be required. This option is not expected to impact any VORs.	Construction notice to FAA would be required.	Construction notice would not be required. Options 2a and 2b are not expected to impact any VORs.		Option 3 is within the FAA regulatory space associated with Chandler Field. Construction notice to FAA would be required. Option 3 is not expected to impact any VORs.	
Effects on Wireless Technologies							
Wireless technologies	No widespread interference to radio, television, or cellular phones is anticipated.						
Effects on Archaeological and Historic Resources							
Archaeological & Historic Resources	There are no archaeological resources located within the comparable applicant preferred route segment and the route options.						No archaeological resources and four historic facilities are within the Option
Effects on Land-based Economics							

Factor	Option 1		Option 2			Option 3	
	Applicant Preferred Route Segment	Option 1	Applicant Preferred Route Segment	Option 2a	Option 2b	Applicant Preferred Route	Option 3
Agriculture	Approximately 100% of the route is zoned for agricultural use, of which approximately 28 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 1,000 square feet.	Approximately 100% of the route is zoned for agricultural use, of which approximately 27 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 1,300 square feet.	Approximately 70% of the route is zoned for agricultural use, of which approximately 66 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 2,500 square feet.	Approximately 95% of the route is zoned for agricultural use, of which approximately 61 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 2,900 square feet.	Approximately 78% of the route is zoned for agricultural use, of which approximately 63 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 2,600 square feet.	Less than 1% of the route is zoned for agricultural use, of which approximately 12 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 600 to 650 square feet.	Less than 1% of the route is zoned for agricultural use, of which approximately 28 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 1,100 square feet.
Forestry	Affects 1 acre of wooded land.	Affects 2 acres of wooded land.	Affects 4 acres of wooded land.	Affects 8 acres of wooded land.	Affects 8 acres of wooded land.	Affects 5 acres of wooded land.	Affects 5 acres of wooded land.
Tourism	No impacts to tourism are anticipated.						
Mining	No aggregate sources have been identified with the ROW for either route.						
Effects on Water Resources							
Surface Waters	No stream crossings.		Crosses 4 small or unnamed streams and 2 PWI streams.	Crosses 7 small or unnamed streams and 2 PWI streams.	Crosses 2 small or unnamed streams and 2 PWI streams.	No stream crossings.	
Groundwater Resources	All well locations within the routes would be avoided; therefore no impacts to groundwater resources are anticipated.						

Factor	Option 1		Option 2			Option 3	
	Applicant Preferred Route Segment	Option 1	Applicant Preferred Route Segment	Option 2a	Option 2b	Applicant Preferred Route	Option 3
Wetlands	ROW includes 3 acres of wetlands and crosses 5 wetlands. No poles would be placed within these wetlands.	ROW includes 1 acre of wetland with no crossings.	ROW includes 11 acres of wetlands and crosses between 17 and 19. Between 0 and 2 poles would be placed in these wetlands.	ROW includes 4 acres of wetlands and 15 crossings. No poles would be placed in these wetlands.	ROW includes 13 acres of wetlands and 23 crossings. Two poles would be placed in these wetlands.	ROW includes 6 acres of wetlands and 6 crossings. Two poles would be placed in these wetlands.	ROW includes 7 acres of wetlands and 22 crossings. No poles would be placed in these wetlands.
Floodplains	No land designated as 100-year floodplain is located within these route segments.		ROW includes between .4 and .8 acres designated as 100-year floodplain.	ROW includes approximately 1 acre designated as 100-year floodplain.	ROW includes approximately 1 acre designated as 100-year floodplain.	No land designated as 100-year floodplain is located within these route segments.	
Effects on the Natural Environment							
Flora	Would permanently impact approximately 935 square feet of vegetation.	Would permanently impact approximately 1,265 square feet of vegetation.	Would permanently impact approximately 2,420 square feet of vegetation.	Would permanently impact approximately 2,695 square feet of vegetation.	Would permanently impact approximately 2,695 square feet of vegetation.	Would permanently impact approximately 660 square feet of vegetation.	Would permanently impact approximately 1,265 square feet of vegetation.
Fauna	There is a potential for temporary displacement of wildlife during construction and for loss of small amounts of habitat. Because transmission line routing avoids direct impacts to lakes and rivers, impacts on fisheries will be small. Any impacts, temporary or permanent, are unlikely to affect population levels of are wildlife.						
Rare and Unique Natural Resources	Impacts between 11 and 13 acres of USFWS wetland easements.	No impacts.	Impacts between 0 and 14 acres of USFS wetland easement.	Impacts 0.2 acre WMA land and 2 acres USFWS wetland easement.	Impacts 0.2 acres WMA land and 10 acres USFWS wetland easement.	No impacts.	

Factor	Option 1		Option 2			Option 3	
	Applicant Preferred Route Segment	Option 1	Applicant Preferred Route Segment	Option 2a	Option 2b	Applicant Preferred Route	Option 3
Air Quality	During construction there would be limited emissions due to exhaust from vehicles and other construction equipment and fugitive dust from ROW clearing. The magnitude of the construction emissions is influenced heavily by the specific construction activity occurring. Adverse impacts to the surrounding environment would be minimal because of the short and intermittent nature of the exhaust emission and dust-producing construction phases.						

Table I-3. Summary Table, North Dakota to Alexandria Amended Scope Option Alternatives

Factor	Applicant Preferred Route Segment	Option AS-1	Option AS-2	Option AS-3
Effects on Human Settlement				
Socioeconomic Resources	The construction, operation and maintenance of the transmission lines are not anticipated to negatively impact socioeconomic resources in the Project area. Immediate short-term positive economic gains would likely result from activities associated with the construction of the proposed Project. Long-term beneficial impacts include incremental increases in revenues from utility property tax and landowners would receive compensation for the rights to build, operate and maintain the transmission facilities within the easements area.			
Land Use, Zoning and Planning	Affects 332 acres of agricultural zoned land. No other land uses are affected.	Affects 307 acres of agricultural zoned land. No other land uses are affected.	Affects 398 acres of agricultural zoned land. No other land uses are affected.	Affects 0 acres of agricultural zoned land. No other land uses are affected.
Displacement	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.	No residences are located within 75' of the alignment.
	The alignment would be designed to avoid residential displacements.			
Property Values	Based on research conducted, it is not anticipated that the proposed transmission line routes evaluated would significantly affect the value of properties adjacent to the proposed transmission lines.			
Pipelines	None of the options would be crossed by pipelines.			
Noise	Noise associated with the operation of the proposed 345 kV transmission line is not predicted to exceed the limits identified by the MPCA.			
Effects on Public Health and Safety				
EMF	The proposed HVTL would conform to all applicable local, state, and North American Electric Reliability Corporation (NERC) standards and National Electric Safety Code (NESC) standards regarding clearance to the ground, clearance to crossing utilities, clearance to buildings, strength of materials, and ROW widths. There are no anticipated impacts attributed to EMF from the Project however; three primary methods to reduce EMF exposure for the Project include: avoiding residences to the greatest possible extent, compacting phases, and rearranging phase conductors to cancel EMF.			
Magnetic Fields	Predicted magnetic field levels are considerably less than the recommended exposure guidelines. Based on the proposed design and operation of the project, no impacts are anticipated.			

Factor	Applicant Preferred Route Segment	Option AS-1	Option AS-2	Option AS-3
Stray Voltage	Poor grounding conditions, inadequate connections, lightening strikes, or undersized neutral conductors can be the cause for stray voltage. Therefore, impacts attributed to stray voltage are not anticipated.			
Effects on Recreation				
Recreation Land	No recreation land is affected or trails crossed by any of the options. Each option, with the exception of AS-4, crosses 1 trail.			
Aesthetics	Seventeen residences are located within 500' feet of the alignment.	Four residences are located within 500' feet of the alignment.	Twenty-two residences are located within 500' feet of the alignment.	No residences are located within 500' feet of the alignment.
Effects on Transportation				
Roadways	Construction activities along this route have the potential to impact one future roadway project.	Construction activities along this route have the potential to impact one future roadway project.	Construction activities along this route have the potential to impact one future roadway project.	No impacts to future roadway projects are expected from construction activities along this option.
Airports	Construction notice would not be required. No impacts to VORs are expected.			
Effects on Wireless Technologies				
Wireless technologies	No widespread interference to radio, television, or cellular phones is anticipated.			
Effects on Land-based Economics				

Factor	Applicant Preferred Route Segment	Option AS-1	Option AS-2	Option AS-3
Agriculture	Approximately 100% of the route is zoned for agricultural use, of which approximately 287 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 5,995 square feet.	Approximately 100% of the route is zoned for agricultural use, of which approximately 2,250 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 5,954 square feet.	Approximately 100% of the route is zoned for agricultural use, of which approximately 894 acres are considered prime farmland. Permanent impacts due to pole placement are approximately 7,000 to 7,300 square feet.	No part of the route is zoned for agricultural use and 1 acre prime farmland is located in the route. There would be no permanent impacts due to pole placement.
Forestry	Affects between 8 and 9 acres of wooded land.	Affects 1 acre of wood land.	Affects between 3 and 4 acres of wooded land.	No wooded land is impacted.
Tourism	No impacts to tourism are anticipated.			
Mining	No aggregate sources have been identified with the ROW for either route.			
Effects on Water Resources				
Surface Waters	Crosses 9 small or unnamed streams and 5 PWI streams.	Crosses 15 small or unnamed streams and 5 PWI streams.	Crosses 15 small or unnamed streams and 4 PWI streams.	No surface waters would be affected.
Groundwater Resources	All well locations within the routes would be avoided; therefore no impacts to groundwater resources are anticipated.			
Wetlands	ROW includes between 4.8 and 6 acres of wetlands and crosses 10 wetlands. Up to 2 poles would be placed within these wetlands.	ROW includes 6.2 acres of wetlands and crosses 9 wetlands. No poles would be placed within these wetlands.	ROW includes approximately 5 acres of wetlands and crosses 9 to 10 wetlands. No poles would be placed within these wetlands.	No wetland impacts.
Floodplains	ROW includes 33 acres designated as 100-year floodplain.	ROW includes 43 acres designated as 100-year floodplain.	ROW includes up to 49 acres designated as 100-year floodplain.	No 100-year floodplains would be affected.

Factor	Applicant Preferred Route Segment	Option AS-1	Option AS-2	Option AS-3
Effects on the Natural Environment				
Flora	Would permanently impact 5,335 square feet of vegetation.	Would permanently impact 5,005 square feet of vegetation.	Would permanently impact 6,490 square feet of vegetation.	No vegetation would be impacted.
Fauna	There is a potential for temporary displacement of wildlife during construction and for loss of small amounts of habitat. Because transmission line routing avoids direct impacts to lakes and rivers, impacts on fisheries will be small. Any impacts, temporary or permanent, are unlikely to affect population levels of are wildlife.			
Rare and Unique Natural Resources	Impacts approximately 3 acres of an MCBS site designated as moderate in the Route and 0.5 acres in the ROW.	Impacts approximately 16 acres of an MCBS site designated as moderate in the Route and 0.6 acres in the ROW. There are 4 acres in the Route and 0.4 acre in the ROW of BWSR RIM easement, 12 acres of Minnesota land Trust Easements in the Route but none in the ROW, and one acre in 12 acres of Native Plant Community in the Route but none in the ROW.	Impacts approximately 3 acres of an MCBS site designated as moderate in the Route and 0.5 acres in the ROW.	
Air Quality	During construction there would be limited emissions due to exhaust from vehicles and other construction equipment and fugitive dust from ROW clearing. The magnitude of the construction emissions is influenced heavily by the specific construction activity occurring. Adverse impacts to the surrounding environment would be minimal because of the short and intermittent nature of the exhaust emission and dust-producing construction phases.			

