

APPENDIX E

Alignment Comparison Impact Table

Alignment		Length (Miles)	Right-of-Way (Acres) ¹	Number of Poles ²	Number of Spans ³	Temporary Impacts							Permanent Impacts							
						Total Temporary Construction Impacts (Acres) ³	Number of Spooling Locations (Every Two Miles) ³	Temporary Spool Impacts ⁴ (sq ft)	Temporary Spool Impacts (Acres) ⁴	Number of Staging Areas ⁵	Temporary Staging Impacts (Acres) ⁵	Total Temporary Impacts (Acres) ⁶	ROW Agricultural Land (Acres) ⁷	ROW Percent Agricultural Land ⁷	Number of Poles in Agricultural Land ⁷	Permanent Impact in Agricultural Land (sq ft) ⁷	Number of Poles in Non-agricultural Land ⁸	Permanent Impact in Non-agricultural Land (sq ft) ⁸	Total Permanent Pole Impacts (sq ft)	Total Permanent Pole Impacts (Acres)
Preferred Route	Maximum Interstate Corridor Sharing	28.3	515	251	250	250	14	22,400	0.5	1	10	261	407	79.0%	195	195,000	56	3,080	198,080	4.5
	Minimum Interstate Corridor Sharing	28.3	515	243	242	242	14	22,400	0.5	1	10	253	410	79.6%	188	188,000	55	3,025	191,025	4.4
	No Interstate Corridor Sharing	29.1	529	251	250	250	15	24,000	0.6	1	10	261	420	79.4%	195	195,000	56	3,080	198,080	4.5
Alternate Route A	Maximum Interstate Corridor Sharing	32.3	587	268	267	267	16	25,600	0.6	1	10	278	518	88.2%	235	235,000	33	1,815	236,815	5.4
	Minimum Interstate Corridor Sharing	32.3	587	274	273	273	16	25,600	0.6	1	10	284	523	89.1%	238	238,000	36	1,980	239,980	5.5
	No Interstate Corridor Sharing	33.0	598	273	272	272	17	27,200	0.6	1	10	283	531	88.8%	237	237,000	36	1,980	238,980	5.5
Alternate Route B		34.7	629	290	289	289	17	27,200	0.6	1	10	300	563	89.5%	254	254,000	36	1,980	255,980	5.9

Assumptions:

1. Applicants are requesting a 150 foot wide Right-of-Way (ROW); 75 feet on either side of an alignment. Additional ROW may be required in special situations. ROW acres were calculated based on a width of 150 feet multiplied by the length of the route alignment.
2. The number of poles was determined by preliminary pole spotting conducted by Applicants. This number is approximate since the final number of poles is dependent on final design and engineering.
3. Temporary construction impacts were determined using one acre per span. A span is defined as the distance between two poles. Number of spans for the route is defined as total number of poles minus one.
4. Spooling impacts were determined as a 1,600 square feet stringing location every two miles.
5. Staging Area impacts were determined as a five acre staging area every 25 miles.
6. Total temporary impacts were calculated by summing the impacts from the temporary construction impacts, the spooling impacts, and the staging impacts.
7. Agricultural land was determined by land use and zoning data which was acquired from counties and cities in the Project area.
8. Non-agricultural land was determined by land use and zoning data which was acquired from counties and cities in the Project area.
9. This table only includes the sensitivities or impacts that occur along at least one of the alignments.

Alignment	Length (Miles)	Right-of-Way (Acres) ¹	Corridor Sharing									Homes				
			Corridor Sharing - Roads (Miles)	Corridor Sharing - Transmission Lines (Miles)	Corridor Sharing - Railroads (Miles)	Corridor Sharing - Pipelines (Miles)	Corridor Sharing - Parcel Lines or Field Lines (miles)	No Corridor Sharing (Miles) ²	Total Corridor Sharing (Miles) ³	Total Corridor Sharing (Percent)	Number of Homes 0-75 feet from Alignment ⁴	Number of Homes 75-150 feet from Alignment ⁴	Number of Homes 150-300 feet from Alignment ⁴	Number of Homes 300 - 500 feet from Alignment ⁴	Number of Homes 0-500 feet from Alignment ⁴	
Preferred Route	Maximum Interstate Corridor Sharing	28.3	515	23.4	0.0	0.0	0.0	4.0	1	27.4	96.8%	0	3	22	37	62
	Minimum Interstate Corridor Sharing	28.3	515	23.4	0.0	0.0	0.0	4.0	0.9	27.4	96.8%	0	5	22	36	61
	No Interstate Corridor Sharing	29.1	529	23.2	0.0	0.0	0.0	4.7	1.3	27.9	95.9%	0	5	30	31	66
Alternate Route A	Maximum Interstate Corridor Sharing	32.3	587	22.0	0.5	0.0	0.0	8.0	1.8	30.5	94.4%	0	21	38	26	85
	Minimum Interstate Corridor Sharing	32.3	587	22.0	0.5	0.0	0.0	8.0	1.9	30.5	94.4%	0	21	39	26	86
	No Interstate Corridor Sharing	33.0	598	22.0	0.5	0.0	0.0	8.4	2.1	30.9	93.6%	0	22	43	30	95
Alternate Route B		34.7	629	20.4	0.5	0.0	0.0	11.8	1.9	32.7	94.2%	0	30	51	39	120

Assumptions:

1. Applicants are requesting a 150 foot wide Right-of-Way (ROW); 75 feet on either side of an alignment. Additional ROW may be required in special situations. ROW acres were calculated based on a width of 150 feet multiplied by the length of the route alignment.
2. "No Corridor Sharing" is the approximate amount of ROW that does not parallel existing corridors such as roads, transmission lines, railroads, pipelines, parcel lines or field lines.
3. "Total Corridor Sharing" is the approximate amount of ROW that parallels existing corridors such as roads, transmission lines, railroads, pipelines, parcel lines or field lines.
4. Homes were identified during field investigations and using 2006 and 2008 NAIP aerial photographs.
5. This table only includes the sensitivities or impacts that occur along at least one of the alignments.

Alignment	Length (Miles)	Right-of-Way (Acres) ¹	Land Use and Zoning ²														
			ROW Agriculture (Acres)	ROW Commercial / Business / Institutional / Public (Acres)	ROW County Identified Municipal (Acres)	ROW Industrial (Acres)	ROW Recreational / Open Space / Park (Acres)	ROW Residential (Acres)	ROW Special Protection Agriculture (Acres)	ROW Percent Agriculture	ROW Percent Commercial / Business / Institutional / Public	ROW Percent County Identified Municipal	ROW Percent Industrial	ROW Percent Recreational / Open Space / Park	ROW Percent Residential	ROW Percent Special Protection Agriculture	
Preferred Route	Maximum Interstate Corridor Sharing	28.3	515	407	17	4	39	19	30	<1	79.0%	3.3%	<1%	7.6%	3.7%	5.8%	<1%
	Minimum Interstate Corridor Sharing	28.3	515	410	18	4	34	19	30	<1	79.6%	3.5%	<1%	6.6%	3.7%	5.8%	<1%
	No Interstate Corridor Sharing	29.1	529	420	14	4	38	18	35	<1	79.4%	2.6%	<1%	7.2%	3.4%	6.6%	<1%
Alternate Route A	Maximum Interstate Corridor Sharing	32.3	587	518	6	3	18	12	13	17	88.2%	1.0%	<1%	3.1%	2.0%	2.2%	2.9%
	Minimum Interstate Corridor Sharing	32.3	587	523	7	3	11	13	12	17	89.1%	1.2%	<1%	1.9%	2.2%	2.0%	2.9%
	No Interstate Corridor Sharing	33.0	598	531	8	3	11	16	12	17	88.8%	1.3%	<1%	1.8%	2.7%	2.0%	2.8%
Alternate Route B		34.7	629	563	2	3	13	2	23	17	89.5%	<1%	<1%	2.1%	<1%	3.7%	2.7%

Assumptions:

1. Applicants are requesting a 150 foot wide Right-of-Way (ROW); 75 feet on either side of an alignment. Additional ROW may be required in special situations. ROW acres were calculated based on a width of 150 feet multiplied by the length of the route alignment.
2. Land Use and Zoning data was aquired from counties and cities within the Project area. The dataset that these numbers were based on is the compilation of all of these datasets. The land use and zoning categories above may not be the exact same categories used by the original datasets due to the need to create a complete and uniform dataset for the entire Project area.
3. This table only includes the sensitivities or impacts that occur along at least one of the alignments.

Alignment		Length (Miles)	Right-of-Way (Acres) ¹	Wetlands ²									Streams, Lakes and PWI ⁵							
				Total Wetlands Within the ROW (Acres)	ROW Percent Wetlands	Number of Wetlands ROW Crosses	Forested Wetlands in ROW (Acres)	Percent of the ROW that Crosses Forested Wetlands	Number of Forested Wetlands ROW Crosses	Number of Poles in Wetlands ³	Length of Wetlands Crossed by Alignment (Feet)	Temporary Wetland Impacts (Acres) ⁴	Number of Streams and Rivers Crossed by the Alignment	Number of Trout Streams Crossed by the Alignment	Lakes within ROW (Acres)	Number of PWI Streams Crossed by the Alignment	Number of PWI Lakes within ROW	Number of Poles in PWI Lakes by Alignment	Number of PWI Wetlands within ROW	Number of Poles in PWI Wetlands by Alignment
Preferred Route	Maximum Interstate Corridor Sharing	28.3	515	59	11.5%	56	2	<1%	4	28	9,170	8.3	11	1	2	7	1	5	7	6
	Minimum Interstate Corridor Sharing	28.3	515	65	12.6%	58	3	<1%	4	30	9,066	8.7	11	1	3	7	1	7	7	6
	No Interstate Corridor Sharing	29.1	529	72	13.6%	60	5	<1%	4	30	9,027	9.1	11	1	3	7	1	6	7	6
Alternate Route A	Maximum Interstate Corridor Sharing	32.3	587	47	8.0%	67	3	<1%	2	19	10,248	5.8	14	1	4	10	1	3	6	6
	Minimum Interstate Corridor Sharing	32.3	587	47	8.0%	67	3	<1%	2	20	10,248	5.9	14	1	5	10	1	3	6	6
	No Interstate Corridor Sharing	33.0	598	46	7.7%	68	3	<1%	2	18	10,406	5.7	14	1	4	10	1	3	6	5
Alternate Route B		34.7	629	57	9.0%	82	3	<1%	3	24	16,005	7.3	15	2	3	10	1	2	3	1

Assumptions:

1. Applicants are requesting a 150 foot wide Right-of-Way (ROW); 75 feet on either side of an alignment. Additional ROW may be required in special situations. ROW acres were calculated based on a width of 150 feet multiplied by the length of the route alignment.
2. Wetland numbers were calculated using the NWI maps. These values represent an estimate of the number of wetlands likely present along the route. These values do not necessarily represent the number of wetland impacts subject to state and federal wetland regulations.
3. The number of poles was determined by preliminary pole spotting conducted by Applicants and the identification of wetlands was determined using NWI wetland data. This final number of poles in wetlands is dependent on final design and engineering and field delineation of wetlands.
4. Temporary impacts were calculated by identifying the acreage of wetlands that are within ten feet of each side of the alignment (20 feet total width). The 20 feet in width is the assumed width of a temporary access road. This estimate is worst-case based as the entire length of the wetland would not likely need to be traversed during construction.
5. Stream crossings were compiled using the MDNR 24K streams dataset. Lakes were identified using the MDNR 24K lakes dataset. PWI streams, waters and wetlands were identified in the MDNR datasets. PWI waters were identified using the MDNR PWI dataset.
6. This table only includes the sensitivities or impacts that occur along at least one of the alignments.

Alignment		Length (Miles)	Right-of-Way (Acres) ¹	Environmental															
				Number of County Trails ² within ROW	Number of MCBS Sites of Biodiversity Significance Crossed within ROW ^{3,4}	ROW MCBS Sites of Biodiversity Significance (Acres) ^{3,4}	ROW Percent of MCBS Sites of Biodiversity Significance ^{3,4}	ROW Minnesota Restorable Wetlands (Acres) ⁵	ROW Percent Minnesota Restorable Wetlands ⁵	Number of MDNR Wildlife Management Areas within Route ³	Number of MDNR Wildlife Management Areas ³ within ROW	State Listed T&E or Candidate Species Within Route ⁶	State Listed T&E or Candidate Species Occurrences within Route ⁶	State Listed T&E or Candidate Species within 1 mile of Route ⁶	State Listed T&E or Candidate Species Occurrences within 1 mile of Route ⁶	ROW Minnesota State Wild and Scenic River Districts (Acreage) ³	ROW Percent Minnesota State Wild and Scenic River Districts ³	ROW Wooded Areas(Acreage) ⁷	ROW Percent Wooded Areas ⁷
Preferred Route	Maximum Interstate Corridor Sharing	28.3	515	1	3	18	3.5%	35	6.8%	0	0	1	1	10	42	26	5.1%	23	4.5%
	Minimum Interstate Corridor Sharing	28.3	515	1	3	19	3.7%	37	7.2%	0	0	1	1	10	42	26	5.1%	28	5.4%
	No Interstate Corridor Sharing	29.1	529	0	3	19	3.6%	41	7.7%	0	0	1	1	10	42	26	4.9%	37	7.0%
Alternate Route A	Maximum Interstate Corridor Sharing	32.3	587	1	4	12	2.0%	40	6.8%	0	0	1	1	11	29	10	1.7%	62	10.6%
	Minimum Interstate Corridor Sharing	32.3	587	1	4	14	2.4%	40	6.8%	0	0	1	1	11	29	10	1.7%	67	11.4%
	No Interstate Corridor Sharing	33.0	598	1	4	17	2.8%	40	6.7%	0	0	1	1	11	29	9	1.5%	75	12.5%
Alternate Route B		34.7	629	1	5	11	1.7%	45	7.1%	1	0	0	0	11	30	<1	<1%	94	14.9%

Assumptions:

1. Applicants are requesting a 150 foot wide Right-of-Way (ROW); 75 feet on either side of an alignment. Additional ROW may be required in special situations. ROW acres were calculated based on a width of 150 feet multiplied by the length of the route alignment.
2. County Trails data was acquired from Stearns County and Wright County.
3. MCBS Sites of Biodiversity Significance, Wildlife Management Areas and Minnesota State Wild and Scenic River Districts data was acquired from the MDNR Data Deli.
4. Includes Medium, High, and Outstanding diversity sites only.
5. Minnesota Restorable Wetlands data was acquired from the Restorable Wetlands Working Group.
6. Threatened and Endangered Species were identified using data licensed from the MDNR for this project.
7. Wooded Areas were identified using the USGS 2001 National Land Cover Dataset.
8. This table only includes the sensitivities or impacts that occur along at least one of the alignments.

Alignment	Length (Miles)	Right-of-Way (Acres) ¹	Other Environmental									
			Number of Non-Residential Buildings or Structures within ROW ²	Number of Center Pivot Irrigation Systems ³ Within ROW	ROW USDA Conservation Reserve Program Land (Acres) ⁴	ROW Percent USDA Conservation Reserve Program Land ⁴	ROW 100-year Floodplain (Acres) ⁵	ROW Percent 100-year Floodplain (Acres) ⁵	Number of Poles in Floodplain by Alignment ⁵	ROW Population Center (Acres) ⁶	ROW Percent Population Center ⁶	
Preferred Route	Maximum Interstate Corridor Sharing	28.3	515	22	1	14	2.7%	8	1.6%	4	178	34.6%
	Minimum Interstate Corridor Sharing	28.3	515	12	1	15	2.9%	8	1.6%	3	178	34.6%
	No Interstate Corridor Sharing	29.1	529	12	1	17	3.2%	8	1.5%	3	178	33.6%
Alternate Route A	Maximum Interstate Corridor Sharing	32.3	587	15	5	19	3.2%	1	<1%	0	184	31.3%
	Minimum Interstate Corridor Sharing	32.3	587	5	5	19	3.2%	1	<1%	0	184	31.3%
	No Interstate Corridor Sharing	33.0	598	8	5	20	3.3%	1	<1%	0	184	30.7%
Alternate Route B		34.7	629	4	9	19	3.0%	1	<1%	0	184	29.2%

Assumptions:

1. Applicants are requesting a 150 foot wide Right-of-Way (ROW); 75 feet on either side of an alignment. Additional ROW may be required in special situations. ROW acres were calculated based on a width of 150 feet multiplied by the length of the route alignment.
2. Non-Residential Buildings or Structures were identified during field investigations and using 2006 and 2008 NAIP aerial photographs.
3. Center Pivot Irrigation Systems were identified using 2006 and 2008 NAIP aerial photographs.
4. USDA Conservation Reserve Program Land data was acquired from the USDA Farm Service Agency.
5. 100-year Floodplains were identified using FEMA Digital Flood Insurance Rate Maps (FIRMs). The number of poles within floodplains is preliminary, as the final number and placement of poles is dependent on final design and engineering.
6. Population Centers were identified using municipality boundary data from the MDNR Data Deli and updated using municipal boundary maps provided by cities within the Project area.
7. This table only includes the sensitivities or impacts that occur along at least one of the alignments.