Appendix C

Route Option Comparison Table

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ROUTE OPTION COMPARISON TABLE

Big Stone South to Alexandria 345 kV Transmission Line Project

MPUC DOCKET NO. E017, ET10/TL-23-160

October 2024

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
GENERAL						
Length (miles)	41.94	38.82	34.43	38.55	18.13	25.26
150-foot ROW (acres)	762.6	705.9	626.1	700.9	329.7	459.2
Route Width (acres)	5,944.6	4,644.1	4,222.0	6,715.5	2,600.4	2,998.8
Parcels in 150-ft ROW (count)	211	216	183	186	110	152
Parcels in Route Width (count)	304	262	206	216	136	203
Corridor Sharing						
Paralleling Existing Transmission Lines (miles)	2.7	0.0	1.5	0.5	0.0	1.3
Paralleling Existing Roads and Railroads (miles)	14.4	28.4	20.9	20.4	5.0	3.8
Following Property Lines (miles)	20.5	8.0	11.5	15.0	11.0	17.8
Total Linear Feature Sharing (miles)	**37.6**	**36.3**	**33.9**	**35.9**	**16.0**	**22.9**
Total Linear Feature Sharing (percent)	**89.7**	**93.6**	**98.5**	**93.1**	**88.0**	**91.0**
Proximity to Residences						
Homes within 75 feet (count from Application Alignment)	0	0	0	0	0	0
Homes within 150 feet (count from Application Alignment)	0	0	1	0	0	0
Homes within 300 feet (count from Application Alignment)	3	16	3	8	9	2
Homes within 500 feet (count from Application Alignment)	7	22	11	11	17	8
Community Features						

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
City Limit (miles of Application Alignment within limits)	1.1	0.5	0	0	1.5	0.6
Snow Trails (count of Application Alignment crossings)	3	8	3	2	6	18
Scenic Byways (linear distance within Route Width; miles)	1.3	1.2	0	0	0	1.2
Schools within 0.5 mile (count)	0	1	1	1	0	0
Application Alignment is adjacent Center Pivot Irrigation (count)	1	3	4	29	0	2
Gravel Pits within ROW (count)	17	17	0	0	0	10
Gravel Pits within Route Width (count)	19	17	0	0	0	12
Airports within 2 miles of the Project centerline (count)	3	1	2	2	0	0
Farmland Classifications within Route Width						
Prime Farmland within Route Width (acres)	2,828.9	2,137.5	2,684.3	3,514.7	1,433.0	778.2
Prime Farmland within Route Width (%)	48.1	46.0	63.6	52.3	55.1	25.9
Farmland of State Importance within Route Width (acres)	233.3	218.8	343.2	446.1	379.3	1216.6
Farmland of State Importance within Route Width (%)	4.0	4.7	8.1	6.6	14.6	40.6
Prime farmland if drained within Route Width (acres)	2,320.9	1838.7	1,074.2	2,641.1	525.9	573.6
Prime farmland if drained (%)	39.4	39.6	25.4	39.3	20.2	19.1
Prime farmland if protected from flooding within Route Width (acres)	58.1	0	0	0	0	0

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
Prime farmland if protected from flooding (%)	1.0	0.0	0.0	0.0	0.0	0.0
Not Prime Farmland within Route Width (acres)	501.9	448.8	120.3	113.6	262.1	430.4
Not Prime Farmland (%)	8.5	9.7	2.8	1.7	10.4	14.4
TOTAL (acres)	**5,885.1**	**4,643.8**	**4,222.0**	**6,715.5**	**2,600.4**	**2,998.8**
TOTAL (%)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Land Use Types within Route Width						
Land Use Type: Cultivated Crops (acres)	4,748.5	3,427.5	3,736.1	6,011.0	2,084.7	1,956.7
Cultivated crops in Route Width (%)	79.9	73.8	88.5	89.5	80.2	65.3
Land Use Type: Hay Pasture (acres)	187.3	128.9	43.0	51.8	110.6	519.6
Hay pasture in Route Width (%)	3.2	2.8	1.0	0.8	4.3	17.3
Land Use Type: Developed High Intensity (acres)	7.2	1.7	5.1	6.6	11.8	15.8
Developed high intensity in Route Width (%)	0.1	0.0	0.1	0.1	0.5	0.5
Land Use Type: Developed Low Intensity (acres)	59.3	70.2	96.1	91.4	32.7	46.9
Developed low intensity in Route Width (%)	1.0	1.5	2.3	1.4	1.3	1.6
Land Use Type: Developed Medium Intensity (acres)	22.7	18.9	26.0	30.7	21.1	50.6
Developed medium intensity in Route Width (%)	0.4	0.4	0.6	0.5	0.8	1.7
Land Use Type: Developed Open Space (acres)	285.4	356.8	222.5	266.2	74.9	67.5
Developed open space in Route Width (%)	4.8	7.7	5.3	4.0	2.9	2.3

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
Land Use Type: Emergent Herbaceous Wetlands (acres)	370.9	431.4	61.6	227.1	104.2	233.4
Emergency herbaceous wetlands in Route Width (%)	6.2	9.3	1.5	3.4	4.0	7.8
Land Use Type: Open Water (acres)	56.6	52.7	8.0	6.7	43.2	30.6
Open water in Route Width (%)	1.0	1.1	0.2	0.1	1.7	1.0
Land Use Type: Woody Wetlands (acres)	91.2	26.0	1.1	4.7	3.7	18.7
Woody wetlands in Route Width (%)	1.5	0.6	0.0	0.1	0.1	0.6
Land Use Type: Herbaceous (acres)	35.7	56.8	5.2	3.9	7.8	13.4
Herbaceous land in Route Width (%)	0.6	1.2	0.1	0.0	0.3	0.4
Land Use Type: Deciduous Forest (acres)	18.3	39.9	12.4	11.0	105.1	20.5
Deciduous forest in Route Width (%)	0.3	0.9	0.3	0.2	4.0	0.7
Land Use Type: Mixed Forest (acres)	1.8	0	1.0	0.9	0	1.8
Mixed forest in Route Width (%)	0.0	0.0	0.0	0.0	0.0	0.16
Land Use Type: Evergreen Forest (acres)	0.0	0.0	0.0	0.0	0.0	1.6
Evergreen forest in Route Width (%)	0.0	0.0	0.0	0.0	0.0	0.1
Land Use Type: Barren Land (acres)	59.6	33.4	3.9	3.5	0.4	21.8
Barren land in Route Width (%)	1.0	0.7	0.1	0.1	0.0	0.7
TOTAL	**5,944.6**	**4,644.1**	**4,222.0**	**6,715.5**	**2,600.4**	**2,997.3**
TOTAL (%)	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
Water Features						
FEMA Flood Zone - 100-yr floodplain in ROW (acres)	24.1	27.4	0	0	0	0
FEMA Flood Zone - 100-yr floodplain in Route Width (acres)	259.9	206.9	0	0	0	0
NWI Wetlands in ROW (acres)	58.4	79.8	14.9	19.2	41.6	62.2
NWI Wetlands in Route Width (acres)	552.9	567.0	170.7	250.1	296.6	460.0
NHD Streams within ROW (count)	27	25	15	30	15	3
NHD Streams within Route Width (count)	32	38	21	49	24	4
PWI Watercourses within ROW (count)	6	8	5	5	1	1
PWI Watercourses within Route Width (count)	6	9	6	5	1	1
NHD Waterbodies within ROW (count)	9	10	2	5	3	8
NHD Waterbodies within Route Width (count)	27	30	4	12	4	22
PWI Water Basins within ROW (count)	5	5	0	0	4	3
PWI Water Basins within Route Width (count)	7	5	3	2	6	3
Conservation Easements						
BWSR Easements in ROW (acres)	3.8	0.1	0	0	0	0
BWSR Easements in Route Width (acres)	29.9	30.5	15.2	15.3	0	0.4
MDNR Native Plants Communities in ROW (acres)	9.2	7.9	0	0.2	0.0	7.2
MDNR Native Plants Communities in Route Width (acres)	61.3	89.2	0	2.7	6.6	35.5

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
Calcareous Fens within Route Width (count)	0	0	0	0	0	0
Calcareous Fens within 1.0 mile (count)	1	1	0	0	0	0
NRCS Easements in ROW (acres)	0	0	0	0	0	0
NRCS Easements in Route Width (acres)	0	8.6	0	0	0	0
USFWS Fee Title Lands in ROW (acres)	0	10.3	0.2	0.1	0	0
USFWS Fee Title Lands in Route Width (acres)	21.2	223.9	1.4	0.7	0	0
USFWS Waterfowl Production Areas in ROW (acres)	97.9	110.0	0.2	0.1	0	61.5
USFWS Waterfowl Production Areas in Route Width (acres)	339.0	441.6	0.7	0.3	0	77.1
USFWS Wetland Easements in ROW (acres)	92.9	92.6	0	0	0	61.5
USFWS Wetland Easements in Route Width (acres)	585.9	613.2	0	0	0	158.3
USFWS Grassland Easements in ROW (acres)	5.0	7.3	0	0	0	0
USFWS Grassland Easements in Route Width (acres)	77.2	54.9	0	0	0	0
USFWS Transfer Easements in ROW (acres)	0	0	0	0	0	0
USFWS Transfer Easements in Route Width (acres)	0	0	0	0	0	6.7
MDNR Wildlife Management Areas in ROW (acres)	0	0	2.9	1.4	6.6	0.1
MDNR Wildlife Management Areas in Route Width (acres)	0	0	37.4	6.9	45.3	5.9
MDNR Rare Natural Communities in ROW (acres)	0	0.5	0	0	0	0
MDNR Rare Natural Communities in Route Width (acres)	0	9.8	0	0	0	0

Comparison of Key Factors of Routes Considered

Environmental Features	Route Segments/Options					
	South Segment		Central Segment		North Segment	
	South 1	South 2	Central 1	Central 2	North 1	North 2
Cultural Resources						
Cemeteries within ROW (count)	0	0	0	0	0	0
Cemeteries within Route Width (count)	0	2	0	0	0	0
Estimated Costs						
Estimated Segment Cost ($) – NOTE 1	203,544,500	165,733,000	165,629,500	193,880,500	127,665,000	95,246,500

NOTE 1 – The estimated individual cost per segment are only to be considered for comparison purposes. The estimates include transmission line material/construction costs, land costs, and engineering costs but do not include other costs common among all segments. Accordingly, the summation of individual segments will not equal the total project costs.