

Table 4-1
Land Use and Environmental Data for Primary Route Evaluation
Routes 10/11/2018

Evaluation Criteria		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Length of primary alternative route (miles)	70.7	67.8	69.4	71.1	71.7	74.2	75.7	77.2	78.9	78.7	75.6	80.3	81.0	81.1	82.5	84.1
2	Number of habitable structures ¹ within 500 feet of ROW centerline	5	5	11	2	8	11	10	5	5	0	5	0	0	2	2	2
3	Length of ROW using existing transmission line ROW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Length of ROW parallel and adjacent to existing transmission line ROW	53.7	19.9	33.8	31.5	40.5	28.9	41.2	31.8	46.2	20.6	15.8	24.0	17.8	12.6	0.0	6.9
5	Length of ROW parallel and adjacent to existing 345-kV transmission line ROW	2.8	0.1	0.1	0.1	2.8	0.1	2.8	2.8	0.1	0.0	0.1	2.8	0.0	0.1	0.0	0.0
6	Length of ROW parallel and adjacent to existing 138-kV transmission line ROW ²	0.6	3.6	33.7	1.2	21.4	20.8	38.4	1.2	0.6	20.6	4.2	21.2	17.8	12.5	0.0	3.3
7	Length of ROW parallel and adjacent to existing 69-kV transmission line ROW	50.3	16.3	0.0	30.2	16.3	8.0	0.0	27.7	45.5	0.0	11.4	0.0	0.0	0.0	0.0	3.6
8	Length of ROW parallel and adjacent to other existing ROW (roadways, railways, etc.)	2.6	9.0	3.1	10.8	7.6	13.6	10.3	3.0	7.6	21.0	9.0	22.0	18.2	21.5	27.8	18.2
9	Length of ROW parallel and adjacent to apparent property lines ³	3.2	14.4	12.6	13.7	3.9	13.1	6.8	24.6	10.6	15.1	21.5	16.0	23.8	22.7	29.8	37.5
10	Sum of evaluation criteria 4, 8, and 9	59.4	43.4	49.5	56.0	52.0	55.7	58.3	59.4	64.4	56.7	46.3	62.0	59.8	56.8	57.6	62.6
11	Percent of evaluation criteria 4, 8, and 9	84%	64%	71%	79%	72%	75%	77%	77%	82%	72%	61%	77%	74%	70%	70%	74%
12	Length of ROW across parks/recreational areas ⁴	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Number of additional parks/recreational areas ⁴ within 1,000 feet of ROW centerline	0	0	1	0	0	0	1	0	0	3	0	3	3	3	3	2
14	Length of ROW across University Lands	0.0	8.2	8.2	8.4	1.7	1.7	1.7	0.0	0.0	38.4	8.2	23.8	38.5	23.8	38.4	38.5
15	Length of ROW through cropland	1.6	0.5	0.0	0.5	0.5	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
16	Length of ROW through pasture/rangeland	68.1	66.3	67.6	69.9	70.1	73.6	75.0	75.7	77.4	74.7	75.2	77.2	74.2	75.1	75.6	77.2
17	Length of ROW through land irrigated by traveling systems (rolling or pivot type)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	Length of ROW parallel and adjacent to exiting natural gas pipelines (6" diameter or greater) ⁵	1.8	0.0	0.0	1.8	0.0	0.0	0.0	1.5	2.1	0.6	0.3	0.6	3.6	0.4	0.4	3.6
19	Number of pipeline crossings ⁵	33	42	33	36	41	40	39	29	38	23	46	20	23	23	25	25
20	Number of transmission line crossings	9	8	7	8	8	8	7	9	9	6	8	7	6	7	6	6
21	Number of IH, US, and state highway crossings	3	3	3	3	3	3	3	3	3	5	3	5	6	6	6	6
22	Number of FM road crossings	5	3	3	3	5	5	5	5	5	2	3	2	2	2	2	2
23	Number of cemeteries within 1,000 feet of the ROW centerline	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
24	Number of FAA registered public/military airports ⁶ with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0
25	Number of FAA registered public/military airports ⁶ having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Number of private airstrips within 10,000 feet of the ROW centerline	0	2	1	1	1	1	1	0	0	0	2	1	0	1	0	0
27	Number of heliports within 5,000 feet of the ROW centerline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	3	2	2	2	3	0	3	1	1	3	1	3	2	1	2	1
Aesthetics																	
30	Estimated length of ROW within foreground visual zone ⁷ of IH, US, and state highways	4.0	9.5	25.1	5.0	8.5	4.0	19.5	4.6	11.2	47.6	16.7	46.8	40.7	38.0	36.2	28.3
31	Estimated length of ROW within foreground visual zone ⁷ of FM roads	7.6	5.1	5.1	6.6	5.7	12.9	11.2	7.5	12.6	1.5	5.1	1.3	1.5	4.0	1.5	1.5
32	Estimated length of ROW within foreground visual zone ^{7[8]} of parks/recreational areas ⁴	0.0	0.0	1.5	0.0	0.0	0.0	1.5	0.0	0.0	4.3	0.0	3.8	4.3	3.8	4.3	2.8
Ecology																	
33	Length of ROW through upland woodlands/brushland	17.8	8.5	5.1	7.4	14.6	8.5	11.3	20.1	13.6	10.5	7.3	11.5	11.8	9.6	13.9	11.8
34	Length of ROW through bottomland/riparian woodlands	0.26	0.20	0.63	0.04	0.28	0.28	0.24	0.28	0.29	0.05	0.23	0.01	0.00	0.00	0.04	0.11
35	Length of ROW across NWI mapped wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.02	0.02	0.02
36	Length of ROW across known habitat of federally listed endangered or threatened species	0.0	0.01	0.0	0.0	0.01	0.01	0.01	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	0.0
37	Length of ROW across open water (lakes, ponds)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Number of stream crossings	17	17	26	15	16	16	13	16	15	28	17	34	23	27	26	25
39	Number of river crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Length of ROW parallel (within 100 feet) to streams or rivers	0.4	0.0	0.9	0.0	0.0	0.0	0.0	0.4	0.4	0.1	0.0	0.0	0.1	0.0	0.3	0.3
41	Length of ROW across 100-year floodplain (No defined floodplains in the study area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cultural Resources																	
42	Number of recorded cultural resource sites crossed by ROW	2	0	1	2	0	0	0	1	2	3	0	1	3	0	2	3
43	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	2	2	2	2	2	2	2	2	2	12	2	6	9	6	12	9
44	Number of NRHP listed properties crossed by ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Length of ROW through areas of high archeological site potential	16.1	16.2	18.7	16.6	16.8	15.0	18.7	14.7	16.2	25.3	17.1	24.2	24.3	24.0	25.3	23.3

Notes: ¹Single-family and multi-family dwellings, and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 500 feet of the centerline of a transmission project of 230-kV or more.

²The data associated with paralleling 138-kV transmission lines includes an existing 69-kV transmission line that is being upgraded for operation at 138-kV prior to the completion of the Proposed Project.

³Apparent property lines created by existing roads, highways, or railroad ROWs are not "double-counted" in the length of ROW parallel to apparent property boundaries criteria.

⁴Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church within 1,000 feet of the centerline of the project.

⁵Only pipelines six inches and greater in diameter carrying petrochemicals were quantified in the pipeline crossing and paralleling calculations.

⁶As listed in the Chart Supplement South Central U.S. (FAA 2018b formerly known as the Airport/Facility Directory South Central U.S.) and FAA 2018a.

⁷One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of interstates, US and state highway criteria are not "double-counted" in the length of ROW within the visual foreground zone of FM roads criteria.

⁸One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of parks/recreational areas may overlap with the total length of ROW within the visual foreground zone of interstates, US and state highway criteria and/or with the total length of ROW within the visual foreground zone of FM roads criteria.

All length measurements are shown in miles unless noted otherwise. All linear measurements were obtained from aerial photography flown March 2018 with the exception of high probability areas for archeological historical/resources which were measured from the USGS Topographic Quadrangles. The aerial photography was orthorectified to National Map Accuracy Standards of +/- 9 feet.

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Land Use and Environmental Data for Primary Route Evaluation
Routes 10/11/2018

Evaluation Criteria		17	18	19	20	21	22	23	24	25
1	Length of primary alternative route (miles)	81.4	88.3	89.3	89.9	91.8	77.0	73.4	71.1	82.4
2	Number of habitable structures ¹ within 500 feet of ROW centerline	8	0	0	0	0	0	14	5	2
3	Length of ROW using existing transmission line ROW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Length of ROW parallel and adjacent to existing transmission line ROW	13.6	14.7	13.6	0.0	10.9	23.9	54.4	50.4	6.9
5	Length of ROW parallel and adjacent to existing 345-kV transmission line ROW	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.1	0.0
6	Length of ROW parallel and adjacent to existing 138-kV transmission line ROW ²	5.7	14.7	6.0	0.0	3.3	23.9	51.6	0.0	3.3
7	Length of ROW parallel and adjacent to existing 69-kV transmission line ROW	8.0	0.0	7.6	0.0	7.6	0.0	0.0	50.3	3.6
8	Length of ROW parallel and adjacent to other existing ROW (roadways, railways, etc.)	22.2	15.0	21.8	13.6	4.1	3.8	1.7	7.6	5.8
9	Length of ROW parallel and adjacent to apparent property lines ³	19.2	20.4	31.1	43.7	43.7	19.8	2.0	3.6	38.3
10	Sum of evaluation criteria 4, 8, and 9	55.0	50.1	66.5	57.3	58.7	47.4	58.1	61.5	51.0
11	Percent of evaluation criteria 4, 8, and 9	68%	57%	74%	64%	64%	62%	79%	86%	62%
12	Length of ROW across parks/recreational areas ⁴	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Number of additional parks/recreational areas ⁴ within 1,000 feet of ROW centerline	2	1	2	1	0	1	1	0	0
14	Length of ROW across University Lands	34.1	39.6	38.5	32.3	32.3	36.6	1.7	0.0	36.6
15	Length of ROW through cropland	0.0	0.5	0.0	0.0	0.0	0.0	0.0	1.6	0.1
16	Length of ROW through pasture/rangeland	80.1	84.7	84.2	82.9	82.2	66.7	71.3	68.5	69.0
17	Length of ROW through land irrigated by traveling systems (rolling or pivot type)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	Length of ROW parallel and adjacent to exiting natural gas pipelines (6" diameter or greater) ⁵	3.1	3.6	3.7	0.1	4.5	3.7	0.0	1.8	3.6
19	Number of pipeline crossings ⁵	44	22	25	23	23	24	32	34	26
20	Number of transmission line crossings	8	10	8	6	6	6	7	9	6
21	Number of IH, US, and state highway crossings	3	7	8	5	5	4	3	3	5
22	Number of FM road crossings	3	2	1	2	2	3	5	5	3
23	Number of cemeteries within 1,000 feet of the ROW centerline	0	0	0	0	0	0	1	1	0
24	Number of FAA registered public/military airports ⁶ with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline	0	1	1	0	0	1	1	0	0
25	Number of FAA registered public/military airports ⁶ having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0
26	Number of private airstrips within 10,000 feet of the ROW centerline	1	1	0	1	1	0	0	0	0
27	Number of heliports within 5,000 feet of the ROW centerline	0	0	0	0	0	0	0	0	0
28	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline	0	0	0	0	0	0	0	0	0
29	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	1	2	1	1	0	2	3	2	0
Aesthetics										
30	Estimated length of ROW within foreground visual zone ⁷ of IH, US, and state highways	22.0	37.5	33.2	19.4	11.5	30.1	24.2	4.0	15.8
31	Estimated length of ROW within foreground visual zone ⁷ of FM roads	3.6	3.2	1.5	2.4	2.4	2.5	5.7	12.6	2.5
32	Estimated length of ROW within foreground visual zone ⁷⁽⁸⁾ of parks/recreational areas ⁴	2.8	1.6	2.8	1.5	0.0	1.5	1.5	0.0	0.0
Ecology										
33	Length of ROW through upland woodlands/brushland	9.2	10.2	10.3	13.1	13.6	13.3	11.1	14.8	16.2
34	Length of ROW through bottomland/riparian woodlands	0.20	0.11	0.26	0.53	0.85	0.06	0.71	0.26	0.17
35	Length of ROW across NWI mapped wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02
36	Length of ROW across known habitat of federally listed endangered or threatened species	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Length of ROW across open water (lakes, ponds)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Number of stream crossings	20	36	29	23	23	24	25	15	23
39	Number of river crossings	0	0	0	0	0	0	0	0	0
40	Length of ROW parallel (within 100 feet) to streams or rivers	0.1	0.5	0.2	0.4	0.5	0.0	0.9	0.4	0.2
41	Length of ROW across 100-year floodplain (No defined floodplains in the study area)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cultural Resources										
42	Number of recorded cultural resource sites crossed by ROW	4	4	3	3	4	5	1	2	4
43	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	9	10	9	11	4	3	2	2	3
44	Number of NRHP listed properties crossed by ROW	0	0	0	0	0	0	0	0	0
45	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0
46	Length of ROW through areas of high archeological site potential	21.4	31.3	24.1	31.5	27.0	27.2	19.3	15.3	27.5

Notes:

¹Single-family and multi-family dwellings, and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 500 feet of the centerline of a transmission project of 230-kV or more.

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