

Office Memorandum



Date: June 22, 2023

To: Project File

From: Casey D. Petty

Subject: Alternative Routes Evaluation: North McCamey – Sand Lake 345 kV Transmission Line Project

This memorandum discusses the evaluation of routing alternatives for Oncor Electric Delivery Company LLC's ("Oncor") and LCRA Transmission Services Corporation's ("LCRA TSC") proposed North McCamey – Sand Lake 345 kV Transmission Line Project ("Proposed Transmission Line Project"). In addition to the recommendation of a route that best addresses the requirements of the Texas Utilities Code and the Substantive Rules of the Public Utility Commission of Texas ("Commission"), alternative routes were also identified to be included in Oncor and LCRA TSC's joint CCN Application.

Background

The goal of this process is to provide the Commission with an adequate number of reasonably differentiated alternative routes to conduct a proper evaluation. These alternative routes provide good geographic diversity while complying with Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code, Commission Procedural Rule 22.52(a)(4), Commission Substantive Rule 25.101(b)(3)(B), including the Commission's policy of prudent avoidance, and the issues commonly addressed in Commission preliminary orders associated with CCN applications.

The alternative route selections are based on Oncor and LCRA TSC's: (1) reconnaissance and observations of the project area; (2) independent review of the data included in the *Environmental Assessment and Alternative Route Analysis prepared for Oncor and LCRA TSC: North McCamey to Sand Lake 345-kV Transmission Line Project in Crane, Crockett, Pecos, Reeves, Upton, and Ward Counties, Texas* ("Environmental Assessment and Routing Study"), prepared by Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell"); (3) discussions with Burns and McDonnell personnel; (4) discussions with personnel from both companies; (5) involvement in the public participation meeting process; (6) review of correspondence related to the Proposed Transmission Line Project; (7) input received from other interested parties; and (8) other information. The route identifications incorporate consideration of information contained in the Environmental Assessment and Routing Study, engineering feasibility, the estimated cost of potential alternative routes, and construction limitations.

Development of Alternative Route Links

Burns & McDonnell documented its efforts to identify potential preliminary alternative route links for the Proposed Transmission Line Project in Section 4.0 of the Environmental Assessment and Routing Study. After Burns & McDonnell completed the initial data gathering and constraints

mapping process, it identified preliminary alternative route links on recent aerial photography. These preliminary alternative route links were selected considering the location of existing corridors, apparent property boundaries, and routing constraints. Some of the routing constraints within the study area include: the Pecos River; many state highways and county roads where 90-degree roadway crossings by transmission lines are required by the Texas Department of Transportation; oil and gas facilities; potential existing transmission line crossings; aircraft landing strips; and other constraints. Numerous preliminary alternative route links were identified by Burns and McDonnell prior to the public participation meetings that, when combined, could be formed to create preliminary alternative routes to connect Oncor's Sand Lake Station to LCRA TSC's North McCamey Station. The preliminary alternative route links evaluated by Burns & McDonnell and presented at the public participation meetings are depicted in Figures 6-1 through 6-23 located in Appendix C of the Environmental Assessment and Routing Study, along with the alternative route link deletions, additions, and modifications that were made following the public participation meetings. The modified preliminary alternative route links included in the CCN Application are discussed in detail in Section 6.0 of the Environmental Assessment and Routing Study.

In general, links were modified where possible to address public comments and routing constraints identified after additional field investigations. Following revision to the preliminary alternative route links, a total of 188 alternative route links were adopted from which alternative routes were ultimately delineated.

Development of Alternative Routes

Burns & McDonnell identified several thousand potential alternative routes using the 188 alternative route links. Through an iterative process that considered route length; constraints data; input from public meetings; and information from local, state, and federal officials; Burns & McDonnell, Oncor, and LCRA TSC reduced the total number of potential route combinations to a smaller subset of geographically diverse and forward progressing alternative routes that were evaluated in Section 7.0 of the Environmental Assessment and Routing Study. First, Burns & McDonnell, Oncor, and LCRA TSC initially identified five alternative route links that created corridors in which to group potential alternative routes. Second, the ten shortest alternative route combinations within each of the five routing corridors were identified. Third, Burns & McDonnell, Oncor, and LCRA TSC further considered and evaluated each of the alternative route link corridors to identify an additional number of geographically diverse route alternatives from which the Commission could compare the routing possibilities for the Proposed Transmission Line Project. Ultimately, a total of 82 alternative routes were identified for further analysis as shown in Table 7-2 in Appendix E of the Environmental Assessment and Routing Study.

Discussion of Alternative Routes

Below is a discussion of the 82 alternative routes that were identified to be filed with the CCN Application. Each alternative route included in the CCN Application complies with Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code and Commission Substantive Rule 25.101, including the Commission's policy of prudent avoidance.

The alternative routes can be grouped in many different ways; one approach is to group them into geographic corridors. With input from Burns & McDonnell, Oncor and LCRA TSC grouped the alternative routes into five different geographic corridors. These five corridors are identified as those: (1) using Link M4; (2) using Link M3; (3) using Link J4b; (4) using Link H7; and (5) using Link H5. The map attached to this Memorandum shows these alternative route link locations.

The 82 geographically diverse alternative routes are included in the CCN Application to provide the Commission with an adequate number of alternative routes to conduct a proper evaluation. The alternative route links that comprise each of these 82 alternative routes are presented in Table 1 attached to this Memorandum. Table 2 attached to this Memorandum presents quantifiable environmental data on the 82 alternative routes included in the CCN Application. Each of the 188 alternative route links is included in at least one of the 82 alternative routes.

Following identification of the 82 alternative routes as described above, Oncor's engineer overseeing this project, Ms. Corin Cooley, considered and evaluated each of the routes with respect to engineering feasibility, construction limitations, and cost. Ms. Cooley confirmed the engineering feasibility and lack of known engineering constraints for each of the alternative routes, and she also provided cost estimates for each alternative route.

Below is a discussion of each of the five geographic corridors and the alternative routes selected for filing within each corridor.

The routes containing Link M4 ("Link M4 Corridor Routes") vary in length from approximately 88.03 to 102.96 miles. Transmission line costs for Link M4 Corridor Routes range from \$318,529,000 to \$375,550,000. Link M4 Corridor Routes vary from 0 to 7 habitable structures within 500 feet of the route centerline. The 18 alternatives filed in the CCN Application from the Link M4 Corridor Routes include Alternative Routes 65 through 82.

The routes containing Link M3 ("Link M3 Corridor Routes") contains the shortest filed route (Route 53) with route lengths varying from approximately 87.97 to 95.24 miles. Transmission line costs for Link M3 Corridor Routes range from \$321,539,000 to \$354,301,000. Link M3 Corridor Routes vary in the number of habitable structures within 500 feet of the route centerline from 0 to 6. The 16 alternatives filed in the Application from the Link M3 Corridor Routes include Alternative Routes 49 through 64.

The routes containing Link J4b ("Link J4b Corridor Routes") vary in length from approximately 88.01 to 94.82 miles. Transmission line costs for Link J4b Corridor Routes range from \$331,128,000 to \$356,928,000. Link J4b Corridor Routes contain the greatest number of habitable structures within 500 feet of the route centerline, varying from 3 to 9. The 15 alternatives filed in the Application from the Link J4b Corridor Routes include Alternative Routes 34 through 48.

The routes using Link H7 ("Link H7 Corridor Routes") vary in length from approximately 90.93 to 105.63 miles. Transmission line costs for Link H7 Corridor Routes range from \$333,572,000 to \$392,526,000. Link H7 Corridor Routes vary in the number of habitable structures within 500 feet of the route centerline from 2 to 6. The 16 alternatives filed in the Application from the Link H7 Corridor Routes include Alternative Routes 18 through 33.

The routes using Link H5 (“Link H5 Corridor Routes”) contains the longest filed route (Route 17) with route lengths varying from approximately 98.62 to 106.08 miles. Transmission line costs for Link H5 Corridor Routes range from \$377,207,000 to \$397,544,000. Link H5 Corridor Routes vary in the number of habitable structures within 500 feet of the route centerline from 3 to 8. The 17 alternatives filed in the Application from the Link H5 Corridor Routes include Alternative Routes 1 through 17.

Selection of Route 65 as the Route Best Addressing the Applicable Routing Criteria

After holistically analyzing each of the 82 alternative routes based on all applicable routing criteria, Oncor and LCRA TSC identified Route 65 as the route that best addresses the requirements of Texas Utilities Code § 37.056(c)(4)(A)-(D) and Commission Substantive Rule 25.101(b)(3)(B). Route 65 is comprised of Links A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4.

Some of the significant factors leading to the identification of Route 65 include the following:

- The length of Route 65 is approximately 88.03 miles, which is the fourth shortest route and only 0.06 mile longer than the shortest among all the filed routes (Route 53) while being approximately 18 miles shorter than the longest alternative route included in the Application (Route 17 is the longest at approximately 106.08 miles);
- The estimated transmission line cost for Route 65 is \$318,529,000, which is the least estimated cost alternative route and is approximately 19.9% less than the highest estimated cost alternative route (Route 16 is estimated to cost \$397,544,000, excluding station costs);
- There are only four habitable structures within 500 feet of the centerline of Route 65, which is five less than the routes with the highest number (9 for Routes 46, 47, and 48);
- Route 65 parallels existing compatible corridors for approximately 42% of its length (including apparent property boundaries). The percentage that alternative routes parallel existing compatible corridors ranges from approximately 25% to 63%;
- Route 65 crosses no parks/recreational areas, does not have any parks/recreational areas within 1,000 feet of its centerline, and does not have any length of ROW within a foreground visual zone (0.5 mile of unobstructed view) of any parks/recreational area;
- Route 65 crosses no apparent cropland; whereas some alternative routes cross over 15,000 feet of apparent cropland;
- Route 65 has no river crossings, whereas a majority of the identified alternative routes have 2 river crossings;
- Route 65 has only 96 feet of its length across lakes or ponds (open waters), tied for the least among filed alternative routes;
- Route 65 has no recorded cultural resource site crossed by its centerline, whereas some of filed alternative routes cross one recorded cultural resource site;
- Route 65 has one FAA-registered airport with a runway greater than 3,200 feet within 20,000 feet of the centerline along its entire length, tied for the least among all filed alternative routes (some filed routes have two);
- Route 65 has no private airstrip or FAA-registered airport with a runway of 3,200 feet or less within 10,000 feet of the centerline along its entire length, and no heliport within 5,000 feet of its centerline;

- Route 65 crosses five U.S. or State highways along its entire length (the greatest number of U.S. or State Highways crossings is seven);
- Route 65 crosses seven farm-to-market (“FM”) roads, county roads or other streets along its entire length (the greatest number of FM, county roads or other street crossings is eleven); and
- Route 65 has been judged to be feasible from an engineering perspective based on currently known conditions, without the benefit of on-the-ground and subsurface surveys, and there are no currently identifiable engineering constraints that impact this alternative route that cannot be addressed with additional consideration by Oncor and LCRA TSC during the engineering and construction process.

Additional information concerning the issues addressed in this memorandum can be found in the Environmental Assessment and Routing Study included as Attachment No. 1 to the CCN Application, as well as my direct testimony filed concurrently with the CCN Application.

TABLE 1: LINK COMPOSITION OF ALTERNATIVE ROUTES

Route	Link Sequence	Length (feet)	Length (miles)
1	A1-A3-A5-A7-A11-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S5-S7-S8-T3-T4	521,265	98.72
2	A1-A3-A5-A7-A11-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	520,777	98.63
3	A1-A3-A5-A7-A11-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q3-Q4-S3-S5-S7-S8-T3-T4	521,269	98.73
4	A1-A3-A5-A7-A11-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q3-Q4-S3-S6-S8-T3-T4	520,780	98.63
5	A1-A3-A5-A7-A12-A14-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	526,239	99.67
6	A1-A3-A5-A7-A12-A14-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L4-L6-N3-N4-N7-N9-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	537,049	101.71
7	A1-A3-A5-A7-A12-A15-C1-B5-F2a-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	537,648	101.83
8	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F4-F6-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	535,555	101.43
9	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	521,296	98.73
10	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S5-S7-S8-T3-T4	521,205	98.71
11	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	520,716	98.62
12	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q3-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	521,299	98.73
13	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q3-Q4-S3-S5-S7-S8-T3-T4	521,208	98.71
14	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H5-L2-L3-L7-N8-N12-P5-Q1-Q3-Q4-S3-S6-S8-T3-T4	520,719	98.62
15	A1-A3-A5-A8-A13-B1-F1-F6-F5b-H5-L1-L3-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	541,687	102.59
16	A1-A3-A5-A8-A13-B1-F1-F6-F5b-H5-L1-L4-L5-L7-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	553,917	104.91
17	A1-A2-A6-A10-A14-B2-B3-F1-F6-F5b-H5-L2-L4-L6-N3-N4-N7-N9-N11-P2-P5-Q1-Q2-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	560,118	106.08
18	A1-A3-A5-A7-A12-A14-B2-B4a-B8-F2b-F5a-F5b-H1-H6-H7-K1a-K4-N1-N2-N8-N11-P3a-P3b-P7-R3-R7-R8-S2a-S2b-S4-S7-S8-T3-T4	546,920	103.58
19	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N10-P3a-P3b-P7-R3-R7-R8-S2a-S2b-S4-S7-S8-T3-T4	492,513	93.28
20	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q2-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	480,702	91.04
21	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q2-Q4-S3-S5-S7-S8-T3-T4	480,610	91.02
22	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	480,122	90.93
23	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q3-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	480,705	91.04
24	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q3-Q4-S3-S5-S7-S8-T3-T4	480,613	91.03
25	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q3-Q4-S3-S6-S8-T3-T4	480,125	90.93
26	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K2-K5-N4-N7-N9-N12-P5-Q1-Q2-Q4-S3-S5-S7-S8-T3-T4	481,222	91.14
27	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K2-K5-N4-N7-N9-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	480,733	91.05
28	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K2-K5-N4-N7-N9-N12-P5-Q1-Q3-Q4-S3-S5-S7-S8-T3-T4	481,225	91.14
29	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H6-H7-K2-K5-N4-N7-N9-N12-P5-Q1-Q3-Q4-S3-S6-S8-T3-T4	480,736	91.05
30	A1-A3-A5-A7-A12-A15-C1-B6a-B7a-B7c-E1d-F3-F7-H6-H7-K1a-K4-N1-N2-N8-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	501,153	94.92
31	A1-A2-A6-A10-A14-B2-B4a-B8-F2b-F5a-F5b-H1-H6-H7-K1a-K1b-K3-K5-N4-N5-N6-O4-O6a-O6b-P2-P5-P6-P7-R3-R7-R8-S2a-S2b-S4-S7-S8-T3-T4	557,706	105.63

TABLE 1: LINK COMPOSITION OF ALTERNATIVE ROUTES

Route	Link Sequence	Length (feet)	Length (miles)
32	A1-A3-A5-A8-A13-A16-B2-B4a-B4b-B5-F3-F7-H6-H7-K1a-K4-N3-N4-N7-N9-N12-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	500,901	94.87
33	A1-A3-A5-A8-A13-A16-B2-B4a-B8-F2b-F5a-F5b-H1-H6-H7-K1a-K4-N1-N2-N8-N11-P3a-P3b-P7-R3-R7-R8-S2a-S2b-S4-S7-S8-T3-T4	541,397	102.54
34	A1-A3-A5-A7-A12-A15-C1-B5-F3-F7-H2-H3-H9-J2-J4a-J4b-N6-O1-O2-O3-P4-P7-R3-R7-R8-S2a-S2b-S4-S7-S8-T3-T4	500,647	94.82
35	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	465,286	88.12
36	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S5-S7-S8-T3-T4	465,195	88.11
37	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	464,706	88.01
38	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q3-Q4-S1-S2a-S2b-S4-S7-S8-T3-T4	465,289	88.12
39	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q3-Q4-S3-S5-S7-S8-T3-T4	465,198	88.11
40	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q3-Q4-S3-S6-S8-T3-T4	464,709	88.01
41	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6c-P3b-P7-R3-R7-R8-S2a-S2b-S4-S7-S8-T3-T4	468,364	88.71
42	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6c-P3b-P7-R3-R7-R9a-R9b-S4-S7-S8-T3-T4	468,433	88.72
43	A1-A3-A5-A7-A12-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6c-P3b-P7-R3-R7-R9a-R9c-S2b-S4-S7-S8-T3-T4	468,430	88.72
44	A1-A2-A6-A10-A15-C1-B5-F3-F8-H3-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	468,837	88.79
45	A1-A2-A6-A9-C3-D1-E1a-E1b-E1d-F3-F7-H6-H8-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	499,510	94.60
46	A1-A2-A6-A9-C3-D1-E2a-E2b-E6a-E6b-E7-G1-H4-H9-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	495,036	93.76
47	A1-A2-A6-A9-C3-D1-E2a-E2b-E6a-E6b-E7-G1-I1a-J1a-J1b-J2-J4a-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	491,750	93.13
48	A1-A2-A6-A9-C3-D1-E2a-E2b-E6a-E6b-E7-G1-I1a-J1a-J1c-J4b-N6-O4-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	487,739	92.37
49	A1-A2-A6-A9-C3-D2-E3-E6b-E7-G2a-G2b-I4-I8-M1-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	465,419	88.15
50	A1-A2-A6-A9-C3-D2-E3-E6b-E7-G2a-G2b-I4-I8-M1-M3-M6-M8-O3-P8-R1-R3-R6-R10-T2-T4	466,192	88.29
51	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G8-I7-I8-M1-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	467,635	88.57
52	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G8-I9-I11-M1-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	466,058	88.27
53	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	464,480	87.97
54	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P4-P7-R3-R6-T1-T3-T4	465,673	88.20
55	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P8-R1-R3-R6-R10-T2-T4	465,253	88.12
56	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P8-R1-R3-R6-T1-T3-T4	466,446	88.34
57	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P8-R2-R4-R6-R10-T2-T4	465,524	88.17
58	A1-A3-A4-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	465,607	88.18
59	A1-A3-A4-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P8-R1-R3-R6-R10-T2-T4	466,380	88.33
60	A1-A3-A5-A7-A12-A15-C1-B6a-B6b-E2a-E2b-E6a-E6b-E7-G1-I1a-I1b-I4-I13-I6b-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	496,300	94.00
61	A1-A3-A5-A7-A12-A15-C1-B6a-B6b-E2a-E2b-E6a-E6b-E7-G2a-G2b-I3-I5-I6a-I6b-M3-M6-M8-O3-P8-R1-R3-R6-R10-T2-T4	490,575	92.91
62	A1-A3-A5-A7-A12-A15-C1-B6a-B6b-E2a-E2b-E6a-E6b-E8-E9-G3-G7-G9-I10-I11-M1-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	485,897	92.03

TABLE 1: LINK COMPOSITION OF ALTERNATIVE ROUTES

Route	Link Sequence	Length (feet)	Length (miles)
63	A1-A3-A5-A7-A12-A15-C1-B6a-B7a-B7b-E1c-E2b-E6a-E6b-E7-G2a-G2b-I3-I5-I6a-I6b-M3-M6-M8-O3-P4-P7-R3-R6-R10-T2-T4	502,864	95.24
64	A1-A2-A6-A9-C4-C5-D4-E4a-E4b-E9-G3-G7-G9-I10-I11-M1-M3-M5-O4-O6a-O6c-P3b-P7-R3-R6-R10-T2-T4	494,635	93.68
65	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4	464,809	88.03
66	A1-A2-A6-A9-C4-C6-C7-D6-D7-D8-E4a-E4b-E9-G3-G7-G9-I10-I11-M2-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4	520,520	98.58
67	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-T1-T3-T4	466,001	88.26
68	A1-A2-A6-A9-C4-C6-C8-D7-D8-E4a-E5-G6-I12-M4-M8-O3-P8-R2-R5-T2-T4	529,840	100.35
69	A1-A3-A4-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4	465,936	88.25
70	A1-A3-A4-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-T1-T3-T4	467,128	88.47
71	A1-A3-A4-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R1-R3-R6-R10-T2-T4	466,708	88.39
72	A1-A3-A4-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R2-R4-R6-R10-T2-T4	466,980	88.44
73	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R1-R3-R6-R10-T2-T4	465,581	88.18
74	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R1-R3-R6-T1-T3-T4	466,774	88.40
75	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R2-R4-R6-R10-T2-T4	465,853	88.23
76	A1-A3-A5-A7-A12-A15-C2-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R1-R3-R6-R10-T2-T4	484,038	91.67
77	A1-A2-A6-A9-C3-D2-E3-E6b-E8-E9-G3-G7-G9-G10-I12-M4-M8-O3-P8-R2-R4-R6-T1-T3-T4	467,045	88.46
78	A1-A3-A5-A7-A12-A15-C2-C4-C5-D3-E3-E6b-E8-E9-G4-G5-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4	497,288	94.18
79	A1-A3-A5-A7-A12-A15-C2-C4-C5-D5-D6-D7-D8-E4a-E4b-E9-G3-G7-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4	515,257	97.59
80	A1-A3-A5-A7-A12-A15-C2-C4-C6-C7-D6-D7-D8-E4a-E4b-E9-G4-G5-G7-G9-I10-I11-M2-M4-M8-O3-P8-R1-R3-R6-R10-T2-T4	543,613	102.96
81	A1-A2-A6-A9-C3-D2-E3-E6b-E7-G2a-G2c-G9-G10-I12-M4-M8-O3-P4-P7-R3-R6-R10-T2-T4	480,315	90.97
82	A1-A2-A6-A9-C4-C5-D5-D6-D7-D8-E4a-E4b-E9-G3-G7-G9-G10-I12-M4-M7-O5-O6a-O6b-P2-P5-Q1-Q2-Q4-S3-S6-S8-T3-T4	506,558	95.94

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		1	2	3	4	5	6	7
Land Use								
1a	Length of alternative route in feet	521,265	520,777	521,269	520,780	526,239	537,049	537,648
1b	Length of alternative route in miles	98.72	98.63	98.73	98.63	99.67	101.71	101.83
2	Number of habitable structures ^a within 500 feet of ROW centerline	5	4	5	4	3	3	3
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	180,860	183,057	179,992	182,189	190,114	190,114	84,626
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	34,196	34,196	34,196	34,196	13,881	7,562	73,100
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	55,648	52,660	55,648	52,660	60,028	102,031	67,582
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	270,704	269,913	269,836	269,045	264,023	299,707	225,308
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	1	1	1	1	0	0	0
10	Length of ROW across cropland	2,347	2,347	2,347	2,347	2,347	2,347	2,347
11	Length of ROW across pastureland/rangeland	509,872	509,433	509,916	509,477	515,327	525,708	527,549
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	5,828	7,028	5,828	7,028	7,028	9,613	7,028
14	Number of transmission line crossings	18	18	18	18	14	14	14
15	Number of U.S. and State highway crossings	6	6	6	6	4	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	6	6	6	6	6	6	6
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	3	3	3	3	2	2	2
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	84,814	84,814	84,818	84,818	57,363	22,357	57,363
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	60,678	60,350	60,678	60,350	60,350	95,014	55,294
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	6,105	6,105	6,105	6,105	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	474,202	473,571	474,450	473,819	477,981	491,751	489,622
27	Length of ROW through bottomland/riparian woodland/brushland	4,175	4,048	4,175	4,048	4,569	3,443	2,895
28	Length of ROW across potential wetlands ^h	2,556	2,519	2,556	2,519	2,554	2,000	2,423
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	35	35	35	35	35	38	28
31	Number of river crossings	2	2	2	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	1,171	967	1,171	967	1,302	1,302	1,054
33	Length of ROW across open water (ponds, lakes, etc.)	274	274	274	274	274	228	262
34	Length of ROW across 100-year floodplains ⁱ	14,610	14,610	14,614	14,614	14,610	14,610	14,610
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	1	1	1	1	1
36	Number of recorded cultural resource sites crossed by ROW	1	1	1	1	1	0	1
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	17	17	18	18	16	13	9
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	1	1	1	1	1	0	1
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	100,341	97,737	101,042	98,438	98,620	106,241	90,485
Cost								
41	Estimated transmission line cost	\$ 377,658,000.00	\$ 377,898,000.00	\$ 377,645,000.00	\$ 377,768,000.00	\$ 378,091,000.00	\$ 380,498,000.00	\$ 380,394,000.00

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		8	9	10	11	12	13	14
Land Use								
1a	Length of alternative route in feet	535,555	521,296	521,205	520,716	521,299	521,208	520,719
1b	Length of alternative route in miles	101.43	98.73	98.71	98.62	98.73	98.71	98.62
2	Number of habitable structures ^a within 500 feet of ROW centerline	4	5	5	4	5	5	4
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	148,129	173,768	179,856	182,053	172,900	178,988	181,185
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	52,618	34,196	34,196	34,196	34,196	34,196	34,196
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	53,595	60,470	55,648	52,660	60,470	55,648	52,660
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	254,342	268,434	269,700	268,909	267,566	268,832	268,041
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	1	1	1	1	1	1	1
10	Length of ROW across cropland	2,347	2,347	2,347	2,347	2,347	2,347	2,347
11	Length of ROW across pastureland/rangeland	524,724	509,889	509,811	509,372	509,933	509,855	509,416
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	7,028	5,828	5,828	7,028	5,828	5,828	7,028
14	Number of transmission line crossings	23	18	18	18	18	18	18
15	Number of U.S. and State highway crossings	6	6	6	6	6	6	6
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	6	6	6	6	6	6	6
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	3	3	3	3	3	3	3
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	92,321	92,321	92,321	92,321	92,325	92,325	92,325
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	61,780	60,906	60,678	60,350	60,906	60,678	60,350
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	6,105	6,105	6,105	6,105	6,105	6,105	6,105
Ecology								
26	Length of ROW through upland woodland/brushland	488,272	473,829	474,118	473,487	474,077	474,366	473,735
27	Length of ROW through bottomland/riparian woodland/brushland	4,048	4,212	4,175	4,048	4,212	4,175	4,048
28	Length of ROW across potential wetlands ^h	2,519	2,549	2,556	2,519	2,549	2,556	2,519
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	35	35	35	35	35	35	35
31	Number of river crossings	2	2	2	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	967	3,982	1,171	967	3,982	1,171	967
33	Length of ROW across open water (ponds, lakes, etc.)	274	274	274	274	274	274	274
34	Length of ROW across 100-year floodplains ⁱ	14,610	14,610	14,610	14,610	14,614	14,614	14,614
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	1	1	1	1	1
36	Number of recorded cultural resource sites crossed by ROW	1	1	1	1	1	1	1
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	16	17	17	17	18	18	18
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	1	1	1	1	1	1	1
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	97,737	100,631	100,341	97,737	101,332	101,042	98,438
Cost								
41	Estimated transmission line cost	\$ 388,026,000.00	\$ 378,772,000.00	\$ 377,220,000.00	\$ 377,461,000.00	\$ 378,759,000.00	\$ 377,207,000.00	\$ 377,448,000.00

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		15	16	17	18	19	20	21
Land Use								
1a	Length of alternative route in feet	541,687	553,917	560,118	546,920	492,513	480,702	480,610
1b	Length of alternative route in miles	102.59	104.91	106.08	103.58	93.28	91.04	91.02
2	Number of habitable structures ^a within 500 feet of ROW centerline	6	6	8	2	2	4	4
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	103,122	103,122	108,463	167,919	17,942	22,366	28,454
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	45,818	39,499	7,562	41,821	11,230	11,848	11,848
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	97,782	135,040	187,949	124,676	114,404	93,812	88,990
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	246,722	277,661	303,974	334,416	143,576	128,026	129,292
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	1	1	0	0	0	0	0
10	Length of ROW across cropland	2,347	2,347	2,347	6,738	6,738	7,855	7,855
11	Length of ROW across pastureland/rangeland	531,896	544,117	549,534	534,806	481,130	465,110	465,032
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	7,028	7,028	10,994	30,347	30,699	32,537	32,537
14	Number of transmission line crossings	25	25	19	17	17	15	15
15	Number of U.S. and State highway crossings	6	6	4	4	4	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	6	6	6	7	8	7	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	3	2	2	2	3	2	2
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	131,509	96,503	30,450	61,238	19,380	22,116	22,116
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	49,519	49,519	89,351	55,358	87,127	91,420	91,191
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	5,921	5,921	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	492,656	503,919	517,682	492,884	441,405	428,521	428,810
27	Length of ROW through bottomland/riparian woodland/brushland	3,529	3,447	3,559	3,413	2,244	2,022	1,985
28	Length of ROW across potential wetlands ^h	1,962	1,960	1,864	2,317	2,445	2,033	2,040
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	29	30	36	47	45	31	31
31	Number of river crossings	2	2	2	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	544	544	4,166	1,809	1,561	4,068	1,258
33	Length of ROW across open water (ponds, lakes, etc.)	266	220	228	156	144	216	216
34	Length of ROW across 100-year floodplains ⁱ	18,233	18,233	14,610	10,855	10,855	14,610	14,610
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	0	0	0	0	0
36	Number of recorded cultural resource sites crossed by ROW	2	2	0	1	0	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	9	9	9	20	3	5	5
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	1	1	0	1	0	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	93,035	95,002	109,944	119,527	128,266	104,476	104,186
Cost								
41	Estimated transmission line cost	\$ 391,339,000.00	\$ 397,544,000.00	\$ 388,963,000.00	\$ 382,247,000.00	\$ 342,729,000.00	\$ 335,136,000.00	\$ 333,585,000.00

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		22	23	24	25	26	27	28
Land Use								
1a	Length of alternative route in feet	480,122	480,705	480,613	480,125	481,222	480,733	481,225
1b	Length of alternative route in miles	90.93	91.04	91.03	90.93	91.14	91.05	91.14
2	Number of habitable structures ^a within 500 feet of ROW centerline	3	4	4	3	5	4	5
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	30,651	21,498	27,586	29,783	28,454	30,651	27,586
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	11,848	11,848	11,848	11,848	22,383	22,383	22,383
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	86,002	93,812	88,990	86,002	69,432	66,444	69,432
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	128,501	127,158	128,424	127,633	120,269	119,478	119,401
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	7,855	7,855	7,855	7,855	10,890	10,890	10,890
11	Length of ROW across pastureland/rangeland	464,593	465,154	465,076	464,637	462,589	462,150	462,633
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	1,297	1,297	1,297
13	Length of ROW parallel to pipelines ^{d,e}	33,737	32,537	32,537	33,737	14,455	15,655	14,455
14	Number of transmission line crossings	15	15	15	15	14	14	14
15	Number of U.S. and State highway crossings	4	4	4	4	4	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	7	7	7	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	1	1	1
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	2	2	2	2	2	2	2
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	22,116	22,120	22,120	22,120	22,116	22,116	22,120
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	90,863	91,420	91,191	90,863	90,977	90,649	90,977
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	428,179	428,769	429,058	428,427	430,191	429,560	430,439
27	Length of ROW through bottomland/riparian woodland/brushland	1,858	2,022	1,985	1,858	1,910	1,783	1,910
28	Length of ROW across potential wetlands ^h	2,003	2,033	2,040	2,003	2,099	2,062	2,099
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	31	31	31	31	31	31	31
31	Number of river crossings	2	2	2	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	1,054	4,068	1,258	1,054	1,258	1,054	1,258
33	Length of ROW across open water (ponds, lakes, etc.)	216	216	216	216	433	433	433
34	Length of ROW across 100-year floodplains ⁱ	14,610	14,614	14,614	14,614	14,610	14,610	14,614
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
36	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	5	6	6	6	5	5	6
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	0	0	0	0	0	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	101,582	105,177	104,887	102,283	103,901	101,297	104,602
Cost								
41	Estimated transmission line cost	\$ 333,825,000.00	\$ 335,124,000.00	\$ 333,572,000.00	\$ 333,812,000.00	\$ 334,421,000.00	\$ 334,661,000.00	\$ 334,408,000.00

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		29	30	31	32	33	34	35
Land Use								
1a	Length of alternative route in feet	480,736	501,153	557,706	500,901	541,397	500,647	465,286
1b	Length of alternative route in miles	91.05	94.92	105.63	94.87	102.54	94.82	88.12
2	Number of habitable structures ^a within 500 feet of ROW centerline	4	3	6	5	3	3	5
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	29,783	30,651	153,952	43,148	159,858	17,942	22,366
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	22,383	85,008	41,821	46,858	62,136	42,875	21,331
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	66,444	97,546	132,784	82,240	117,308	122,707	124,846
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	118,610	213,205	328,557	172,246	339,302	183,524	168,543
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	1	1	0	0
10	Length of ROW across cropland	10,890	7,855	6,738	7,855	6,738	14,009	15,126
11	Length of ROW across pastureland/rangeland	462,194	485,849	544,533	485,029	528,852	481,889	442,416
12	Length of ROW across cropland or pastureland with mobile irrigation systems	1,297	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	15,655	31,152	33,288	33,737	30,347	5,216	7,054
14	Number of transmission line crossings	14	15	16	19	21	15	13
15	Number of U.S. and State highway crossings	4	4	4	6	6	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	11	7	7	7	8	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	1	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	2	1	2	4	3	2	1
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	22,120	22,116	69,332	57,074	96,196	51,028	32,042
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	90,649	122,912	55,162	122,079	55,358	57,887	60,421
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	6,105	6,105	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	429,808	443,506	498,120	451,422	488,389	444,946	408,978
27	Length of ROW through bottomland/riparian woodland/brushland	1,783	1,790	3,525	2,389	2,892	3,311	2,120
28	Length of ROW across potential wetlands ^h	2,062	1,824	2,388	1,578	2,282	2,536	1,963
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	31	31	53	40	47	57	36
31	Number of river crossings	2	2	2	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	1,054	157	1,966	1,501	1,474	3,190	4,068
33	Length of ROW across open water (ponds, lakes, etc.)	433	216	204	228	156	155	216
34	Length of ROW across 100-year floodplains ⁱ	14,614	14,610	13,821	14,610	10,855	13,257	14,610
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	0	0	0	0	0	1	1
36	Number of recorded cultural resource sites crossed by ROW	0	1	0	0	1	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	6	14	12	10	21	4	6
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	0	1	0	0	1	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	101,998	115,096	132,081	119,974	118,644	150,213	108,929
Cost								
41	Estimated transmission line cost	\$ 334,649,000.00	\$ 353,509,000.00	\$ 392,526,000.00	\$ 353,193,000.00	\$ 383,290,000.00	\$ 351,153,000.00	\$ 333,067,000.00

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		36	37	38	39	40	41	42
Land Use								
1a	Length of alternative route in feet	465,195	464,706	465,289	465,198	464,709	468,364	468,433
1b	Length of alternative route in miles	88.11	88.01	88.12	88.11	88.01	88.71	88.72
2	Number of habitable structures ^a within 500 feet of ROW centerline	5	4	5	5	4	3	3
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	28,454	30,651	21,498	27,586	29,783	17,942	17,942
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	21,331	21,331	21,331	21,331	21,331	20,713	31,656
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	120,024	117,036	124,846	120,024	117,036	138,069	131,366
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	169,809	169,018	167,675	168,941	168,150	176,724	180,964
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	15,126	15,126	15,126	15,126	15,126	14,009	12,779
11	Length of ROW across pastureland/rangeland	442,338	441,899	442,460	442,382	441,943	449,684	450,943
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	7,054	8,254	7,054	7,054	8,254	5,216	4,070
14	Number of transmission line crossings	13	13	13	13	13	15	15
15	Number of U.S. and State highway crossings	4	4	4	4	4	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	7	7	8	8
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	1	1	1	1	1	2	2
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	32,042	32,042	32,046	32,046	32,046	29,306	29,306
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	60,192	59,864	60,421	60,192	59,864	64,535	64,605
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	409,267	408,636	409,226	409,515	408,884	414,084	420,363
27	Length of ROW through bottomland/riparian woodland/brushland	2,083	1,956	2,120	2,083	1,956	2,184	2,257
28	Length of ROW across potential wetlands ^h	1,970	1,933	1,963	1,970	1,933	2,272	2,295
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	36	36	36	36	36	49	50
31	Number of river crossings	2	2	2	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	1,258	1,054	4,068	1,258	1,054	1,561	1,560
33	Length of ROW across open water (ponds, lakes, etc.)	216	216	216	216	216	144	144
34	Length of ROW across 100-year floodplains ⁱ	14,610	14,610	14,614	14,614	14,614	10,855	10,855
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	1	1	1	1	2
36	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	6	6	7	7	7	4	5
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	0	0	0	0	0	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	108,638	106,034	109,630	109,339	106,735	129,945	133,246
Cost								
41	Estimated transmission line cost	\$ 331,141,000.00	\$ 331,382,000.00	\$ 332,680,000.00	\$ 331,128,000.00	\$ 331,369,000.00	\$ 333,718,000.00	\$ 332,599,000.00

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route	43	44	45	46	47	48	49	
Land Use								
1a	Length of alternative route in feet	468,430	468,837	499,510	495,036	491,750	487,739	465,419
1b	Length of alternative route in miles	88.72	88.79	94.60	93.76	93.13	92.37	88.15
2	Number of habitable structures ^a within 500 feet of ROW centerline	3	8	8	9	9	9	6
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	17,942	16,684	43,265	25,353	54,532	49,879	17,663
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	27,314	21,331	31,324	68,372	57,831	57,831	37,705
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	132,611	140,286	131,324	172,490	154,523	152,330	138,718
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	177,867	178,301	205,913	266,215	266,886	260,040	194,086
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	12,779	15,126	15,126	15,126	15,126	15,126	0
11	Length of ROW across pastureland/rangeland	450,956	445,294	475,488	471,399	468,306	464,283	460,350
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	4,070	8,602	27,174	22,098	22,098	22,098	15,987
14	Number of transmission line crossings	15	13	13	13	13	13	18
15	Number of U.S. and State highway crossings	4	4	4	7	5	5	5
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	8	7	7	5	4	4	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	2	1	0	2	1	1	1
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	29,306	40,136	41,832	118,098	101,210	101,210	80,619
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	64,601	59,864	60,196	39,698	34,029	34,029	34,745
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	420,558	412,677	437,605	429,036	425,829	422,672	423,316
27	Length of ROW through bottomland/riparian woodland/brushland	2,257	1,956	2,164	1,966	2,141	2,141	3,649
28	Length of ROW across potential wetlands ^h	2,295	1,933	1,326	1,091	1,109	1,109	1,602
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	50	36	38	35	35	35	56
31	Number of river crossings	2	2	2	2	2	2	0
32	Length of ROW paralleling (within 100 feet) streams	1,560	1,054	157	157	655	655	1,444
33	Length of ROW across open water (ponds, lakes, etc.)	144	216	265	192	249	249	96
34	Length of ROW across 100-year floodplains ⁱ	10,855	14,610	14,610	20,630	19,866	19,866	42,052
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	2	0	0	0	0	0	1
36	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	1
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	5	6	9	9	8	8	9
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	0	0	0	0	0	0	1
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	133,075	106,034	107,799	94,893	95,648	95,648	153,764
Cost								
41	Estimated transmission line cost	\$ 332,600,000	\$ 333,769,000	\$ 356,928,000	\$ 354,173,000	\$ 352,498,000	\$ 345,846,000	\$ 323,521,000

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		50	51	52	53	54	55	56
Land Use								
1a	Length of alternative route in feet	466,192	467,635	466,058	464,480	465,673	465,253	466,446
1b	Length of alternative route in miles	88.29	88.57	88.27	87.97	88.20	88.12	88.34
2	Number of habitable structures ^a within 500 feet of ROW centerline	6	4	4	4	4	4	4
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	28,167	45,338	45,338	50,665	49,193	61,169	59,697
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	37,705	3,375	0	7,275	7,275	7,275	7,275
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	142,791	142,599	140,125	122,142	122,142	126,215	126,215
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	208,663	191,312	185,463	180,082	178,610	194,659	193,187
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^d within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	0	0	0	0	0	0	0
11	Length of ROW across pastureland/rangeland	460,570	462,737	461,213	459,650	460,941	459,870	461,161
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	15,987	18,297	18,297	23,607	23,083	23,607	23,083
14	Number of transmission line crossings	18	19	19	19	20	19	20
15	Number of U.S. and State highway crossings	4	5	5	5	5	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	7	7	7	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	1	2	2	1	1	1	1
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	77,976	46,840	46,840	46,840	46,840	44,197	44,197
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	41,058	34,746	35,044	43,738	45,223	50,051	51,536
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	425,673	414,104	412,114	410,563	413,041	412,920	415,398
27	Length of ROW through bottomland/riparian woodland/brushland	3,149	3,506	3,506	3,506	3,392	3,006	2,892
28	Length of ROW across potential wetlands ^h	1,444	1,727	1,727	1,727	1,730	1,569	1,572
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	52	54	54	54	54	50	50
31	Number of river crossings	0	0	0	0	0	0	0
32	Length of ROW paralleling (within 100 feet) streams	757	1,444	1,444	1,444	1,444	757	757
33	Length of ROW across open water (ponds, lakes, etc.)	96	96	96	96	96	96	96
34	Length of ROW across 100-year floodplains ⁱ	44,121	48,930	49,520	46,682	46,682	48,751	48,751
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	1	1	1	1	1
36	Number of recorded cultural resource sites crossed by ROW	1	1	1	1	1	1	1
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	10	9	9	9	9	10	10
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	1	1	1	1	1	1	1
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	142,227	148,862	148,862	148,862	148,927	137,325	137,390
Cost								
41	Estimated transmission line cost	\$ 326,116,000	\$ 321,744,000	\$ 321,552,000	\$ 321,539,000	\$ 321,543,000	\$ 324,133,000	\$ 324,138,000

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route	57	58	59	60	61	62	63	
Land Use								
1a	Length of alternative route in feet	465,524	465,607	466,380	496,300	490,575	485,897	502,864
1b	Length of alternative route in miles	88.17	88.18	88.33	94.00	92.91	92.03	95.24
2	Number of habitable structures ^a within 500 feet of ROW centerline	6	4	4	3	0	0	0
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	61,169	48,353	58,857	27,381	33,465	55,963	22,961
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	7,275	7,275	7,275	99,927	84,078	57,023	105,995
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	126,353	126,268	130,341	92,136	109,147	84,976	91,858
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	194,797	181,896	196,473	219,444	226,690	197,962	220,814
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	0	0	0	0	0	0	0
11	Length of ROW across pastureland/rangeland	459,973	460,769	460,989	491,599	485,436	481,446	497,703
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	24,665	23,259	23,259	6,923	6,923	14,543	6,923
14	Number of transmission line crossings	19	19	19	15	17	18	17
15	Number of U.S. and State highway crossings	4	5	4	5	4	5	5
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	8	9	9	11
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	1	1	1	2	1	1	1
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	44,197	50,611	47,968	78,758	57,456	26,320	60,099
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	48,345	43,738	50,051	71,082	82,675	85,355	98,744
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	410,531	411,541	413,898	449,906	446,129	427,518	455,349
27	Length of ROW through bottomland/riparian woodland/brushland	3,006	3,506	3,006	3,602	3,245	3,602	3,826
28	Length of ROW across potential wetlands ^h	1,569	1,727	1,569	2,433	2,300	2,512	2,734
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	50	54	50	61	58	56	62
31	Number of river crossings	0	0	0	2	2	2	2
32	Length of ROW paralleling (within 100 feet) streams	757	1,444	757	1,444	757	1,444	1,444
33	Length of ROW across open water (ponds, lakes, etc.)	96	96	96	149	149	149	161
34	Length of ROW across 100-year floodplains ⁱ	47,905	46,682	48,751	42,045	44,121	46,682	42,052
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	2	2	2	2	2	2
36	Number of recorded cultural resource sites crossed by ROW	1	1	1	1	1	1	1
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	10	9	10	6	7	6	6
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	1	1	1	1	1	1	1
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	132,088	148,862	137,325	179,941	169,939	167,824	196,848
Cost								
41	Estimated transmission line cost	\$ 325,017,000	\$ 322,001,000	\$ 324,596,000	\$ 350,530,000	\$ 346,692,000	\$ 341,736,000	\$ 354,301,000

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

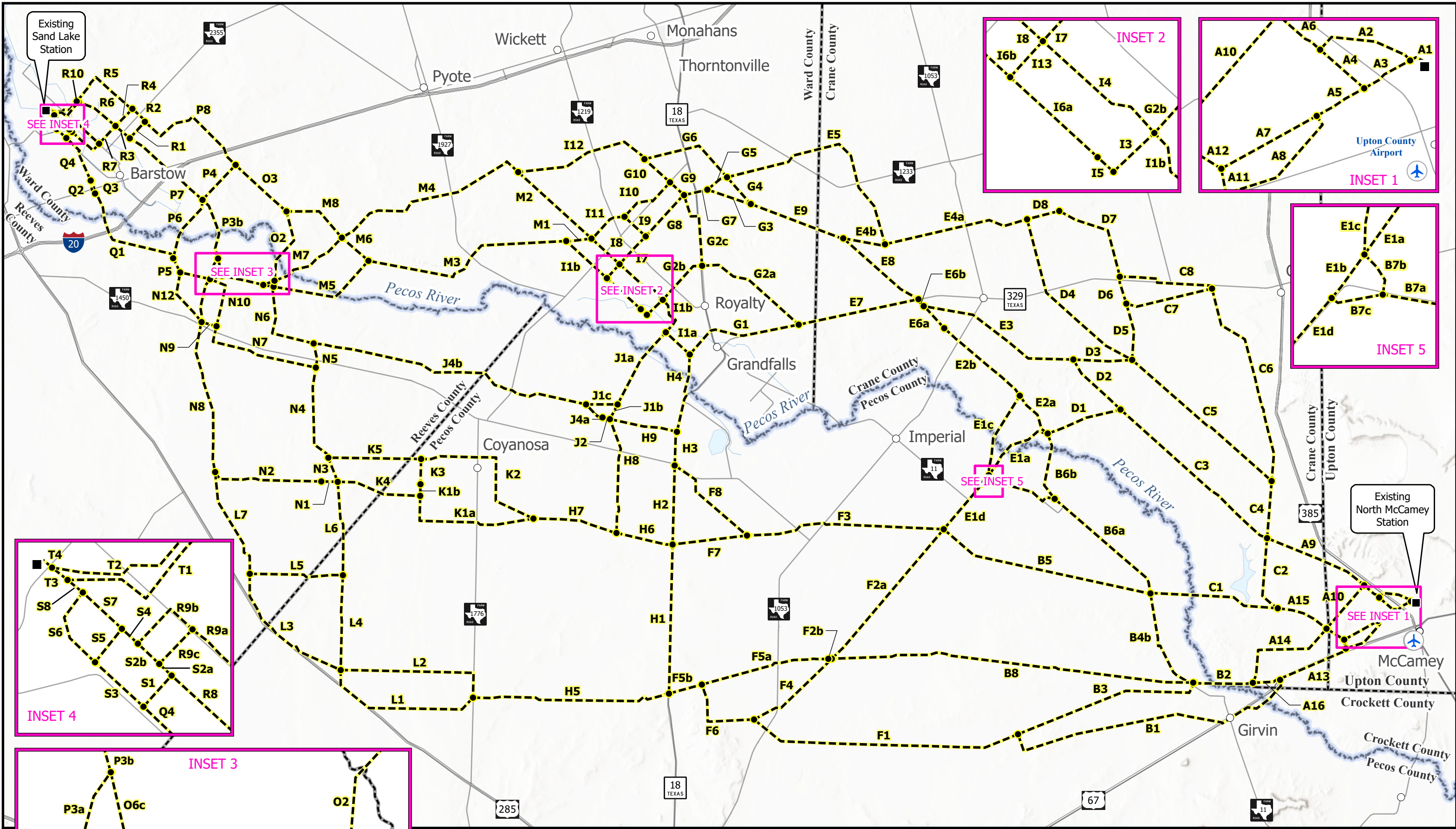
Alternative Route		64	65	66	67	68	69	70
Land Use								
1a	Length of alternative route in feet	494,635	464,809	520,520	466,001	529,840	465,936	467,128
1b	Length of alternative route in miles	93.68	88.03	98.58	88.26	100.35	88.25	88.47
2	Number of habitable structures ^a within 500 feet of ROW centerline	4	4	4	4	6	4	4
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	77,481	71,471	126,222	69,999	85,123	69,159	67,687
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	7,275	0	11,440	0	15,242	0	0
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	123,954	125,134	108,185	125,134	149,684	129,260	129,260
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	208,710	196,605	245,847	195,133	250,049	198,419	196,947
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^d within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	0	0	0	0	0	0	0
11	Length of ROW across pastureland/rangeland	489,853	460,006	515,774	461,296	524,319	461,125	462,415
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	23,607	18,297	23,607	17,773	29,543	17,949	17,425
14	Number of transmission line crossings	19	19	18	20	22	19	20
15	Number of U.S. and State highway crossings	5	5	5	5	4	5	5
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	7	8	7	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	2	1	2	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	1	4	4	4	4	4	4
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	44,787	46,839	52,267	46,839	67,651	50,610	50,610
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	43,556	34,789	43,548	36,274	46,761	34,789	36,274
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	458,013	411,050	489,314	413,528	498,243	412,028	414,506
27	Length of ROW through bottomland/riparian woodland/brushland	3,065	2,976	3,415	2,862	2,681	2,976	2,862
28	Length of ROW across potential wetlands ^h	1,774	1,824	1,967	1,827	1,625	1,824	1,827
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	56	46	53	46	47	46	46
31	Number of river crossings	2	0	0	0	0	0	0
32	Length of ROW paralleling (within 100 feet) streams	0	1,998	1,998	1,998	1,311	1,998	1,998
33	Length of ROW across open water (ponds, lakes, etc.)	146	96	96	96	96	96	96
34	Length of ROW across 100-year floodplains ⁱ	56,252	20,378	19,687	20,378	18,674	20,378	20,378
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	0	0	0	0	1	1
36	Number of recorded cultural resource sites crossed by ROW	1	0	0	0	0	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	7	8	6	8	7	8	8
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	1	0	0	0	0	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	148,481	136,675	153,397	136,740	130,803	136,675	136,740
Cost								
41	Estimated transmission line cost	\$ 338,453,000	\$ 318,529,000	\$ 352,300,000	\$ 318,533,000	\$ 363,043,000	\$ 318,991,000	\$ 318,995,000

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

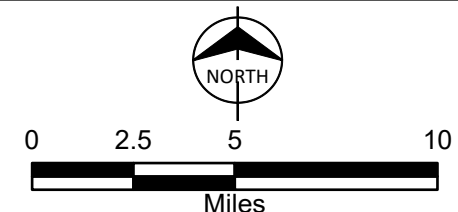
Alternative Route	71	72	73	74	75	76	77	
Land Use								
1a	Length of alternative route in feet	466,708	466,980	465,581	466,774	465,853	484,038	467,045
1b	Length of alternative route in miles	88.39	88.44	88.18	88.40	88.23	91.67	88.46
2	Number of habitable structures ^a within 500 feet of ROW centerline	4	6	4	4	6	0	6
3	Length utilizing existing transmission line ROW	0	0	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	79,663	79,663	81,975	80,503	81,975	103,510	80,503
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	0	0	0	0	0	16,769	0
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	133,333	133,471	129,207	129,207	129,345	122,065	129,345
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	212,996	213,134	211,182	209,710	211,320	242,344	209,848
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
10	Length of ROW across cropland	0	0	0	0	0	0	0
11	Length of ROW across pastureland/rangeland	461,345	461,448	460,226	461,516	460,329	479,383	461,619
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	17,949	19,007	18,297	17,773	19,355	9,233	18,831
14	Number of transmission line crossings	19	19	19	20	19	19	20
15	Number of U.S. and State highway crossings	4	4	4	4	4	4	4
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	7	7	7	7
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	1	1	1	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	4	4	4	4	4	4	4
Aesthetics								
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	47,967	47,967	44,196	44,196	44,196	24,481	44,196
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	41,102	39,396	41,102	42,587	39,396	41,102	40,881
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0	0	0
Ecology								
26	Length of ROW through upland woodland/brushland	414,384	411,995	413,406	415,884	411,017	430,333	413,495
27	Length of ROW through bottomland/riparian woodland/brushland	2,476	2,476	2,476	2,362	2,476	3,123	2,362
28	Length of ROW across potential wetlands ^h	1,666	1,666	1,666	1,669	1,666	1,937	1,669
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0	0	0
30	Number of stream crossings	42	42	42	42	42	42	42
31	Number of river crossings	0	0	0	0	0	0	0
32	Length of ROW paralleling (within 100 feet) streams	1,311	1,311	1,311	1,311	1,311	1,311	1,311
33	Length of ROW across open water (ponds, lakes, etc.)	96	96	96	96	96	96	96
34	Length of ROW across 100-year floodplains ⁱ	22,447	21,601	22,447	22,447	21,601	22,447	21,601
Cultural Resources								
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	0	0	0	1	0
36	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	9	9	9	9	9	8	9
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	0	0	0	0	0	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	125,138	119,901	125,138	125,203	119,901	123,770	119,966
Cost								
41	Estimated transmission line cost	\$ 321,586,000	\$ 322,470,000	\$ 321,124,000	\$ 321,128,000	\$ 322,007,000	\$ 333,927,000	\$ 322,012,000

TABLE 2: ENVIRONMENTAL DATA FOR FILED ROUTES IN THE CCN APPLICATION LCRA TSC NORTH MCCAMEY - ONCOR SAND LAKE 345 KV TRANSMISSION LINE PROJECT

Alternative Route		78	79	80	81	82
Land Use						
1a	Length of alternative route in feet	497,288	515,257	543,613	480,315	506,558
1b	Length of alternative route in miles	94.18	97.59	102.96	90.97	95.94
2	Number of habitable structures ^a within 500 feet of ROW centerline	0	0	0	4	7
3	Length utilizing existing transmission line ROW	0	0	0	0	0
4	Length of ROW parallel to existing transmission line ROW	119,089	119,822	168,290	57,749	113,484
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc. – does not include pipelines)	16,769	16,769	28,209	34,330	618
6	Length of ROW parallel to apparent property lines (not following existing ROW) ^b	91,495	88,889	107,040	124,278	102,702
7	Total length of ROW parallel to existing corridors (including apparent property boundaries)	227,353	225,480	303,539	216,357	216,804
8	Length of ROW across parks/recreational areas ^c	0	0	0	0	0
9	Number of additional parks/recreational areas ^c within 1,000 ft of ROW centerline	0	0	0	0	0
10	Length of ROW across cropland	0	0	0	0	2,347
11	Length of ROW across pastureland/rangeland	493,178	511,232	539,013	475,275	496,392
12	Length of ROW across cropland or pastureland with mobile irrigation systems	0	0	0	0	0
13	Length of ROW parallel to pipelines ^{d,e}	11,157	9,233	16,467	15,987	17,169
14	Number of transmission line crossings	19	18	18	18	17
15	Number of U.S. and State highway crossings	5	5	4	5	5
16	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings	7	7	7	7	6
17	Number of FAA-registered public/military airfields ^f within 20,000 feet of ROW centerline (with at least one runway >3,200 feet)	1	1	2	1	1
18	Number of FAA-registered public/military airfields ^f within 10,000 feet of ROW centerline (with runway <3,200 feet)	0	0	0	0	0
19	Number of private airstrips within 10,000 feet of ROW centerline	0	0	0	0	0
20	Number of heliports within 5,000 feet of ROW centerline	0	0	0	0	0
21	Number of commercial AM radio transmitters within 10,000 feet of ROW centerline	0	0	0	0	0
22	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	4	4	4	5	3
Aesthetics						
23	Estimated length of ROW within foreground visual zone ^g of U.S. and State highways	27,124	24,845	29,909	96,643	47,298
24	Estimated length of ROW within foreground visual zone ^g of FM/RM roads	34,789	34,606	49,861	34,788	44,516
25	Estimated length of ROW within foreground visual zone ^g of parks/recreational areas ^c	0	0	0	0	0
Ecology						
26	Length of ROW through upland woodland/brushland	446,378	481,626	512,118	434,548	464,029
27	Length of ROW through bottomland/riparian woodland/brushland	3,880	3,880	3,562	2,976	2,458
28	Length of ROW across potential wetlands ^h	2,236	2,236	2,080	1,658	1,752
29	Length of ROW across known occupied habitat of federally endangered or threatened species	0	0	0	0	0
30	Number of stream crossings	53	53	49	46	43
31	Number of river crossings	0	0	0	0	2
32	Length of ROW paralleling (within 100 feet) streams	1,998	1,998	1,311	1,998	711
33	Length of ROW across open water (ponds, lakes, etc.)	96	96	96	96	229
34	Length of ROW across 100-year floodplains ⁱ	20,575	20,378	21,953	17,488	27,466
Cultural Resources						
35	Number of cemeteries within 1,000 ft of ROW centerline	1	1	1	0	0
36	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0
37	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline	6	5	6	8	6
38	Number of NRHP-listed or determined-eligible sites crossed by ROW	0	0	0	0	0
39	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline	0	0	0	0	0
40	Length of ROW crossing areas of high archeological/historical site potential	147,861	147,861	140,492	136,675	142,338
Cost						
41	Estimated transmission line cost	\$ 337,668,000	\$ 349,371,000	\$ 375,550,000	\$ 329,978,000	\$ 348,173,000



- Segment Endpoint
- Project Endpoint
- City or Unincorporated Place
- ✈ Upton County Airport
- Primary Alternative Route Link
- Major Road
- - - County Boundary



**BURNS
MCDONNELL**

Alternative Link Network
North McCamey to Sand Lake
345-kV Transmission Line Project
Oncor / LCRA
Crane, Crockett, Pecos, Reeves,
Upton and Ward Counties, Texas