

132R	118,016	41,734	35.36%
130R	116,821	40,541	34.70%
154	119,463	40,543	33.94%
11	108,190	36,675	33.90%
116	119,030	40,204	33.78%
15	105,547	34,920	33.08%
61	106,109	34,948	32.94%
78	106,044	34,900	32.91%
10	107,966	35,263	32.66%
137	111,599	36,161	32.40%
164R	114,759	36,646	31.93%
13	108,924	34,587	31.75%
119	118,138	37,496	31.74%
3	108,960	34,445	31.61%
132	118,739	37,473	31.56%
184	117,406	36,732	31.29%
24	106,244	33,131	31.18%
130	117,544	36,281	30.87%
187	115,987	35,068	30.23%
23	109,621	32,798	29.92%
22R	109,621	32,798	29.92%
178	119,040	35,525	29.84%
199	110,007	32,658	29.69%
186	114,792	33,876	29.51%
216	120,969	35,590	29.42%
92	119,760	35,211	29.40%
71	116,232	34,121	29.36%
29R	113,597	32,501	28.61%
138	111,258	31,809	28.59%
18	111,183	31,685	28.50%
16	105,124	29,931	28.47%
33	116,619	32,991	28.29%
164	115,482	32,385	28.04%
26	106,045	29,554	27.87%
28	110,319	30,367	27.53%

5	108,537	29,455	27.14%
70	117,115	31,498	26.89%
14	111,501	29,931	26.84%
25	105,821	28,141	26.59%
179-A	114,174	30,322	26.56%
200	106,206	28,002	26.37%
175	117,796	30,635	26.01%
36	108,375	28,120	25.95%
185	117,146	30,321	25.88%
22	110,345	28,537	25.86%
29	114,320	28,240	24.70%
170	116,686	28,046	24.04%
218	111,817	26,298	23.52%
94	111,175	25,989	23.38%
179-C	110,373	25,665	23.25%
142	116,653	27,048	23.19%
103	110,806	25,646	23.14%
69	118,810	27,400	23.06%
217	112,061	25,480	22.74%
179	114,898	26,061	22.68%
108	118,176	26,791	22.67%
65	111,587	25,198	22.58%
54	111,219	25,023	22.50%
19	114,265	25,511	22.33%
44	106,411	23,690	22.26%
192	112,247	24,786	22.08%
41	110,686	24,374	22.02%
42	108,034	23,769	22.00%
179-B	116,750	25,665	21.98%
86	108,531	23,749	21.88%
43	109,788	23,357	21.27%
96	110,086	23,308	21.17%
176	118,808	25,145	21.16%
87	110,285	23,337	21.16%
191	112,023	23,374	20.87%

58	107,108	21,901	20.45%
143	116,661	23,724	20.34%
68	115,997	23,326	20.11%
207	109,117	21,840	20.02%
146	118,637	23,131	19.50%
219	111,226	20,193	18.15%
1	111,751	20,181	18.06%
72	112,248	20,161	17.96%
67	113,673	20,376	17.93%
221	111,588	19,253	17.25%

As the chart shows, Route 179-C is the 28th shortest route and has the 53rd highest percentage of compatible right-of-way compared to the other proposed alternative routes.

Q. Could you briefly discuss the routes that are shorter and utilize a higher percentage of compatible right-of-way and why Route 179-C is still preferred?

A. Yes. Route 179-C has less habitable structures within 500 feet of its centerline and is less expensive than Routes 44, 58, 207, 43, 87, 117, 116R, 63, 132R, 130R, 154, 11, 116, 15, 61, 78, 10, 137, 13, 119, 3, 132, 184, 24, 130, 187, 23, 22R, 178, 199, 186, 216, 92, 71, 138, 18, 33, 26, 28, 5, 70, 14, 25, 179-A, 200, 175, 185, 22, 170, and 218.⁹⁸ Route 179-C is less expensive and shorter than Routes 164 and 164R.⁹⁹ Route 179-C has fewer habitable structures within 500 feet of its centerline and is

⁹⁸ Compare Attachment JP-4 Part 1 at 000019 and Oncor's Notice of Errata at Attachment 5 with Application, Attachment 1 at Exhibit E (Table 7-2) and Oncor's Notice of Errata at Attachment 2 and Attachment 5 and Attachment JP-4 Part 3.

⁹⁹ Compare Attachment JP-4 Part 1 at 000019 and Oncor's Notice of Errata at Attachment 5 with Application, Attachment 1 at Exhibit E (Table 7-2), Oncor's Notice of Errata at Attachment 2 and Attachment 5, and Attachment JP-4 Part 3.

shorter than Routes 29R, 36, 29, and 94.¹⁰⁰ Routes 22R, 10, 11, 13, 14, 15, 16, 18, 22, 23, 24, 25, 26, 61, 63, 78, 199, 200, 130R, 132R, 130, 132, 137, 138, 116, 116R, 28, 3, 5, 164, 164R, 117, 119, 70, 186, 187, 218, 170, and 92 cross parks and recreational areas while Route 179-C does not.¹⁰¹ Route 16 has more habitable structures within 500 feet of its centerline than Route 179-C.¹⁰²

2. PARALLELING OF NATURAL OR CULTURAL FEATURES

Q. Describe how Oncor proposes to parallel natural or cultural features for the Proposed Project.

A. None of the proposed alternative routes parallel natural or cultural features.

K. PRUDENT AVOIDANCE

Q. Define prudent avoidance.

A. Prudent avoidance is defined by 16 TAC § 25.101(a)(6) as follows: “The limiting of exposures to electric and magnetic fields that can be avoided with reasonable investments of money and effort.”

Q. How can exposure to electric and magnetic fields be limited when routing transmission lines?

A. Primarily by proposing alternative routes that would minimize, to the extent

¹⁰⁰ Compare Attachment JP-4 Part 1 at 000019 with Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

¹⁰¹ *Id.*

¹⁰² *Id.*

reasonable, the number of habitable structures located in close proximity to the routes.

Q. How many habitable structures are located in close proximity to each of the proposed alternative routes?

A. The table below ranks the number of habitable structures that are within 500 feet of the centerline of the proposed alternative routes in this project.

<u>Route</u>	<u>Number of habitable structures</u>
164	93
164R	96
179	97
179-C	98
179-B	98
179-A	100
175	108
176	110
184	112
185	112
29	131
5	132
28	133
29R	134
154	145
178	145
71	146
3	151
36	155
42	158
86	158
207	160
41	168
33	183
1	188
65	188
72	188
14	191

16	191
61	191
13	193
18	193
200	193
199	195
22	197
43	197
87	197
25	198
23	200
146	200
22R	200
26	202
116	203
130	204
132	204
119	205
116R	206
130R	207
132R	207
15	210
78	210
44	214
24	217
63	217
143	220
221	220
58	221
142	223
218	226
137	228
138	231
69	234
68	240
67	252
216	261
117	263
70	266
54	267
108	271
170	282
103	287
96	290
217	293

94	294
92	319
19	320
219	327
10	348
11	352
186	364
187	364
191	396
192	400

There are 98 habitable structures that are within 500 feet of the centerline of Route 179-C which is tied for the 4th least of any route.

Q. Could you briefly discuss the routes with an equal or fewer number of impacted habitable structures and why Route 179-C is still preferred?

A. Yes. Routes 179, 179-B, 164R, and 164 are all longer and more expensive than Route 179-C.¹⁰³ Route 179-C makes better use of compatible right-of-way as a percentage of its total length than Routes 179 and 179-B. Routes 164 and 164R cross park and recreational areas while Route 179-C does not.¹⁰⁴

Q. Do you conclude that Oncor's proposed alternative routes have minimized, to the extent reasonable, the number of habitable structures located in close proximity to the routes?

A. Oncor has designed its proposed segments in such a way as to minimize, to the

¹⁰³ Compare Attachment JP-4 Part 1 at 000019 and Oncor's Notice of Errata at Attachment 5 with Application, Attachment 1 at Exhibit E (Table 7-2) and Oncor's Notice of Errata at Attachment 2 and Attachment 5, and Attachment JP-4 Part 1 at 000015 and Part 3.

¹⁰⁴ Compare Attachment JP-4 Part 1 at 000019 with Application, Attachment 1 at Exhibit E (Table 7-2) and Attachment JP-4 Part 3.

1 extent reasonable, the number of habitable structures located in close proximity to
2 the routes. However, some routes perform better in this area than others.

3
4 **VI. CONCLUSION**

5 **Q. In your opinion, is any one of the proposed alternative routes better than all of**
6 **the other routes in all respects?**

7 A. No.

8
9 **Q. If no proposed alternative route is better than all of the others in all respects,**
10 **why have you recommended Route 179-C instead of the other proposed**
11 **alternative routes?**

12 A. In summary, after analyzing all the factors that the Commission must consider under
13 PURA § 37.056 and 16 TAC § 25.101, I conclude that Route 179-C best meets the
14 criteria of PURA and the Commission's rules because:

15 (1) Route 179-C is the 22nd least expensive proposed route at
16 \$251,143,000.00, a \$7,485,000.00 or 3.27% difference from the least
17 expensive route;

18 (2) Route 179-C is the 29th shortest route at 110,373 feet, a 5,249 feet or 5%
19 difference from the shortest route;

20 (3) Route 179-C is tied for the 4th least amount of habitable structures within
21 500 feet of its centerline with 98, five more than the route with the least
22 number of habitable structures;

23 (4) Route 179-C has none of its length across parks or recreation areas; and

1 (5) Route 179-C has none of its length across potential wetlands.
2 Route 179-C, like all of the proposed alternative routes, has some advantages and
3 some disadvantages as I have discussed in my testimony. However, I consider Route
4 179-C overall to have the most advantages and to be superior to the other proposed
5 alternative routes.

6

7 **Q. Does this conclude your testimony?**

8 **A. Yes**