Appendix E

SHADOW FLICKER MODELING REPORT

Dodge County Wind Project
Dodge and Steele Counties, Minnesota

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1.0 EXECUTIVE SUMMARY

The Dodge County Wind Project (the Project) is a proposed wind power generation facility with a total capacity of approximately 170 megawatt (MW) and will consist of 68 wind turbines within an approximately 81 square mile region (Project Area) in Dodge and Steele Counties, Minnesota. The Project is being developed by Dodge County Wind, LLC (DCW), a wholly-owned indirect subsidiary of NextEra Energy Resources (NEER). Epsilon Associates, Inc. (Epsilon) has been retained by DCW through Atwell, LLC (Atwell) to conduct shadow flicker modeling for this Project.

Shadow flicker modeling was conservatively conducted for 72 GE wind turbines, which includes 4 alternate wind turbine locations. The purpose of this analysis is to predict the worst-case and expected annual durations of wind turbine shadow flicker at nearby residences and other sensitive receptors (e.g. church).

The maximum expected annual duration of shadow flicker at a modeling receptor resulting from the operation of the 68 proposed and 4 alternate wind turbines is 39 hours, 29 minutes. This is at a participating receptor. The maximum expected annual duration of shadow flicker at a non-participating modeling receptor is 33 hours, 56 minutes. The modeling results are conservative in that modeling receptors were treated as "greenhouses" and the surrounding area was assumed to be without vegetation or structures ("bare earth").

2.0 INTRODUCTION

The proposed Project to be located in Dodge and Steele Counties, Minnesota is proposed to consist of 68 wind turbines. The proposed wind turbines are a combination of GE 2.5 MW and GE 2.3 MW units with rotor diameters of 116 meters for each, and hub heights of 90 and 80 meters, respectively. All GE 2.5-116 units and all GE 2.3-116 units will be Low Noise Trailing Edge (LNTE) models. Of the 72 wind turbines included in the analysis (68 proposed + 4 alternates), 58 are located in Dodge County and 14 are located in Steele County. Figure 2-1 shows the locations of the 68 proposed and 4 alternate wind turbines over aerial imagery in Dodge and Steele Counties.

With respect to wind turbines, shadow flicker can be defined as an intermittent change in the intensity of light in a given area resulting from the operation of a wind turbine due to its interaction with the sun. While indoors, an observer experiences repeated changes in the brightness of the room as shadows cast from the wind turbine blades briefly pass by windows as the blades rotate. In order for this to occur, the wind turbine must be operating, the sun must be shining, and the window must be within the shadow region of the wind turbine, otherwise there is no shadow flicker. A stationary wind turbine only generates a stationary shadow similar to any other structure.

Based on the current design and operation of typical modern wind turbines, shadow flicker is not a cause of epileptic seizures. According to the Epilepsy Foundation, "Generally, flashing lights most likely to trigger seizures are between the frequency of 5 to 30 flashes per second (Hertz)."[1] The wind turbines for this Project have a maximum rotational speed of 15.7 rpm which corresponds to a shadow flicker frequency of 0.8 Hz. This frequency is well below the frequency identified by the Epilepsy Foundation; therefore, the triggering of epileptic seizures is not a concern with this Project.

This report presents the findings of a shadow flicker modeling study for the Project. The wind turbines were modeled with the WindPRO software package using information provided by DCW and Atwell. The expected annual duration of shadow flicker was calculated at modeling receptors and shadow flicker isolines for the area surrounding the Project were generated. The results of the modeling are found within this report.

[1] Epilepsy Foundation, http://www.epilepsy.com/learn/triggers-seizures/photosensitivity-and-seizures. Accessed in June 2018.

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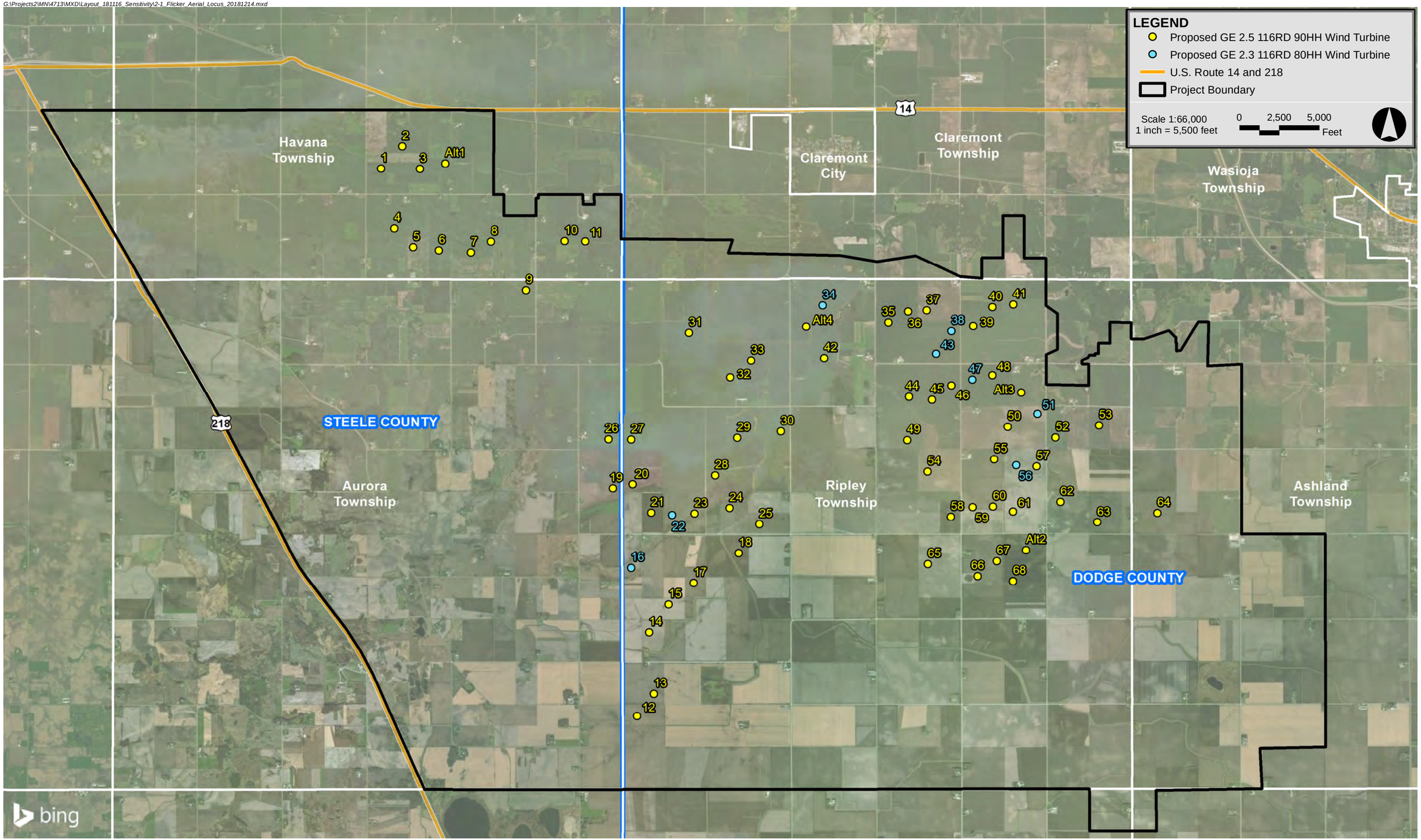

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Figure 2-1
Aerial Locus, 181116 Layout

3.0 SHADOW FLICKER MODELING

3.1 Modeling Methodology

Shadow flicker was modeled using a software package, WindPRO version 3.2. WindPRO is a software suite developed by EMD International A/S and is used for assessing potential environmental impacts from wind turbines. Using the Shadow module within WindPRO, worst-case shadow flicker in the area surrounding the wind turbines was calculated based on data inputs including: location of the wind turbines, location of discrete receptor points, wind turbine dimensions, flicker calculation limits, and terrain data. Based on these data, the model was able to incorporate the appropriate sun angle and maximum daily sunlight for this latitude into the calculations. The resulting worst-case calculations assume that the sun is always shining during daylight hours and that the wind turbine is always operating. The WindPRO Shadow module can be further refined by incorporating sunshine probabilities and wind turbine operational estimates by wind direction over the course of a year. The values produced by this further refinement are known as the "expected" shadow flicker. Both worst-case and expected annual shadow flicker durations are presented in this section.

The proposed wind turbine layout for the Project dated November 16, 2018 was provided by Atwell. Of the 72 conservatively modeled wind turbines, 4 are alternative wind turbine locations. Locations of the turbines are shown in Figure 3-1, and the coordinates are provided in Appendix A. The layout consists of 64 GE 2.5-116 wind turbines (4 alts) and eight (8) GE 2.3-116 wind turbines with rotor diameters of 116 meters for each, and hub heights of 90 meters and 80 meters, respectively. All wind turbines will have the optional LNTE blades. This option does not impact the shadow flicker calculations. Each wind turbine has the following characteristics based on the technical data provided by Atwell, DCW, and/or NEER:

		GE 2.5-116	GE 2.3-116
♦ Rated Power	=	2,500 kW	2,300 kW
♦ Hub Height	=	90 meters	80 meters
♦ Rotor Diameter	=	116 meters	116 meters
♦ Cut-in Wind Speed	=	3 m/s	3 m/s
♦ Cut-out Wind Speed[2]	=	31 m/s	32 m/s
♦ Maximum RPM	=	15.7 rpm	15.7 rpm

To-date, there are no federal, state, or local regulations regarding the maximum radial distance from a wind turbine to which shadow flicker should be analyzed applicable to this Project. In the United States, shadow flicker is commonly evaluated out to a distance of ten

[2] Based on a 600-second time interval

times the rotor diameter. According to the Massachusetts Model Bylaw for wind energy facilities, shadow flicker impacts are minimal at and beyond a distance of ten rotor diameters.[3] Defining the shadow flicker calculation area has also been addressed in Europe where the ten times rotor diameter approach has been accepted in multiple European countries.[4] Some jurisdictions conservatively require a larger calculation area. The New Hampshire Site Evaluation Committee through rulemaking docket 2014-04 adopted rules on December 15, 2015 outlining application requirements and criteria for energy facilities, including wind energy facilities. As part of these revised regulations, Site 301.08(a)(2) requires an evaluation distance of at least 1 mile from a wind turbine.[5] Section 16-50j-94, part (g), of the Regulations of Connecticut State Agencies identifies the components required in a shadow flicker evaluation report which includes the calculation of shadow flicker from each proposed wind turbine to any off-site occupied structure within a 1.25 mile radius.[6] For this Project, ten times the maximum rotor diameter of the proposed wind turbines corresponds to a distance of 0.72 miles (1,160 m). Conservatively, this analysis includes shadow flicker calculations out to 1.25 miles (2,012 m) from each wind turbine in the model for the proposed layout.

A dataset containing participation status information for property parcels in the proximity of the Project was provided by Atwell on December 10, 2018. This information was supplemented by Atwell/DCW regarding a recent change to participation status for the parcel with receptor #358 whose owner recently signed a participation agreement. Parcels identified as "LSE" within the dataset and the receptor #358 parcel are participating and are indicated as such on Figure 3-1. Consistent with the LWECS requirement, properties in Dodge County not participating in the Project will have turbines set back at least 3 rotor diameters (RD) from their property in non-prevailing wind directions and at least 5 RD from their property in prevailing wind directions from each wind turbine (5 by 3 setback). Therefore, any parcel located in Dodge County that is closer than these setbacks must be a participating parcel for the Project. Accordingly, any non-"LSE" parcel in Dodge County closer than these setbacks has been assigned a "participation pending" status. Properties located in Steele County not participating in the Project will have turbines set back at least 5 rotor diameters from their property in any direction from a wind turbine (5 by 5 setback). Therefore, any parcel located in Steele County closer than this setback must be a

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[3] Massachusetts Department of Energy Resources, "Model As-of-Right Zoning Ordinance or Bylaw: Allowing Use of Wind Energy Facilities" 2009.

[4] Parsons Brinckerhoff, "Update of UK Shadow Flicker Evidence Base" Prepared for Department of Energy and Climate Change, 2011.

[5] State of New Hampshire Site Evaluation Committee Site 300 Rules (2015), available at http://www.gencourt.state.nh.us/rules/state_agencies/site100-300.html Accessed in January 2018.

[6] State of Connecticut CSC Wind Regulations (2014), available at https://www.cga.ct.gov/aspx/CGARegulations/CGARegulations.aspx?Yr=2014&Reg=2012-054&Amd=E Accessed in January 2018.

participating parcel for the Project. Accordingly, any non-"LSE" parcel in Steele County closer than the 5 by 5 setback has been assigned a "participation pending" status. A setback data layer was provided by Atwell and is shown on Figure 3-1. Participation status used throughout this analysis is shown in Figure 3-1.

A modeling receptor dataset dated June 15, 2017 was provided by Atwell. Receptors within 2 miles of the Project Area categorized as residential, mobile home, town, church, or municipal (694) were input into the WindPRO model. Each modeling point was assumed to have a window facing all directions ("greenhouse" mode) which yields conservative results. Participation status for each modeling receptor was assigned based on the data presented in Figure 3-1. All modeling receptors are identified in Figure 3-2 and are distinguished as either participating, participation pending, or non-participating. The model was set to limit calculations to 2,012 meters from a wind turbine, the equivalent of 1.25 miles. Consequently, shadow flicker at any of the 694 modeling receptors greater than the corresponding limitation distance from a wind turbine was zero. In addition to modeling discrete points, shadow flicker was calculated at grid points in the area surrounding the modeled wind turbines to generate flicker isolines. A 20-meter spacing was used for this grid.

The terrain height contour elevations for the modeling domain were generated from elevation information derived from the National Elevation Dataset (NED) developed by the U.S. Geological Survey. Conservatively, obstacles, i.e. buildings and vegetation, were excluded from the analysis. This is effectively a "bare earth" scenario which is conservative. When accounted for in the shadow flicker calculations, such obstacles may significantly mitigate or eliminate the flicker effect depending on their size, type, and location. In addition, shadow flicker durations were calculated only when the angle of the sun was at least 3° above the horizon.

Monthly sunshine probabilities were input for each month from January to December. These numbers were obtained from a publicly available historical dataset for Minneapolis-St. Paul, Minnesota from the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI).[7] Table 3-1 shows the percentage of sunshine hours by month used in the shadow flicker modeling. These values are the percentages that the sun is expected to be shining during daylight hours.

Annual operational hours per wind direction sector were provided by NEER. These hours per wind direction sector are used by WindPRO in the estimation of the "wind direction" and "operation time" reduction factors. Based on this dataset, the wind turbines would operate 97% of the year. Table 3-2 shows the distribution of operational hours for the 16 wind directions.

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[7] NCEI (formerly NCDC), http://www1.ncdc.noaa.gov/pub/data/ccd-data/pctpos15.dat. Accessed in April 2018.

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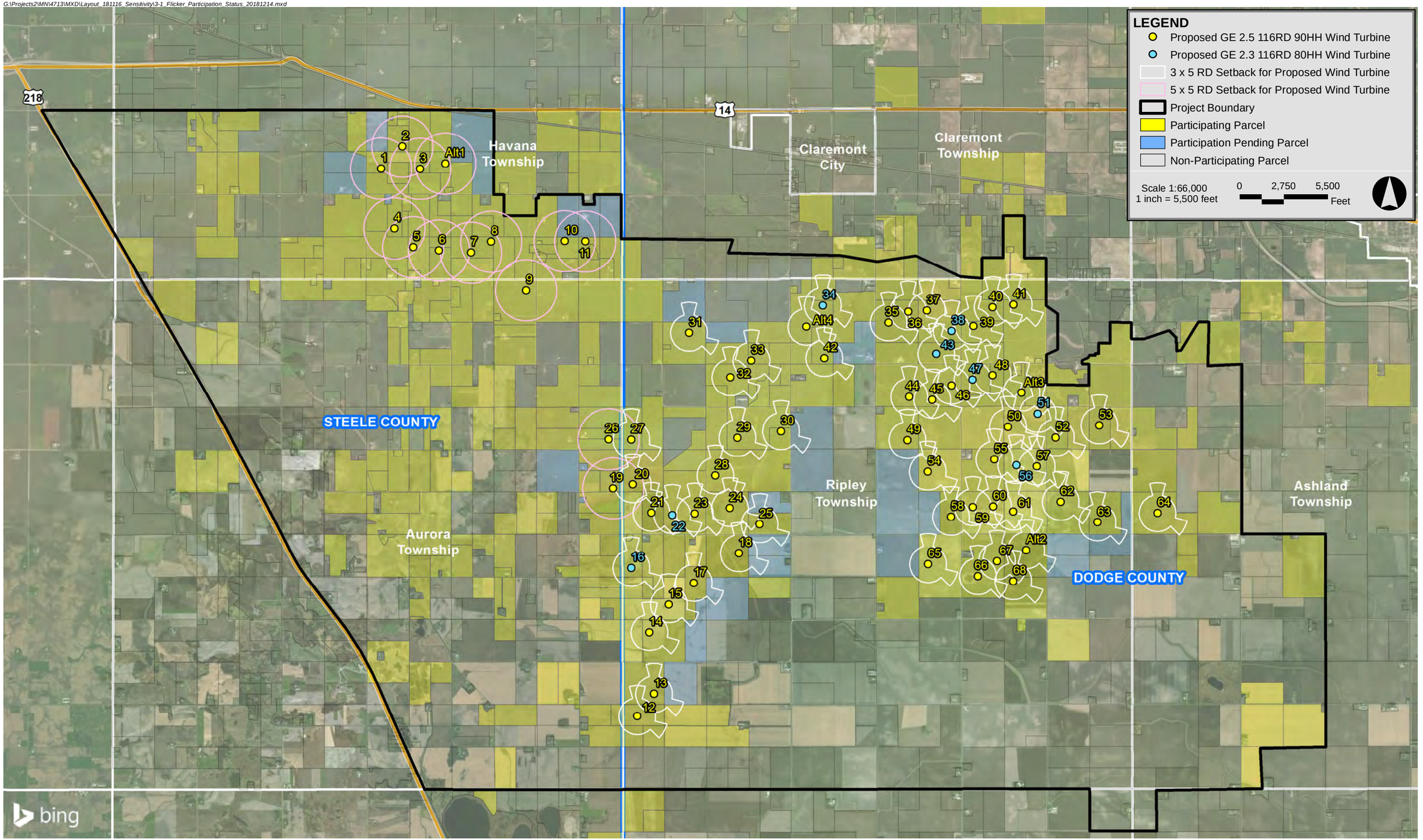

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Figure 3-1

Participation Status, 181116 Layout

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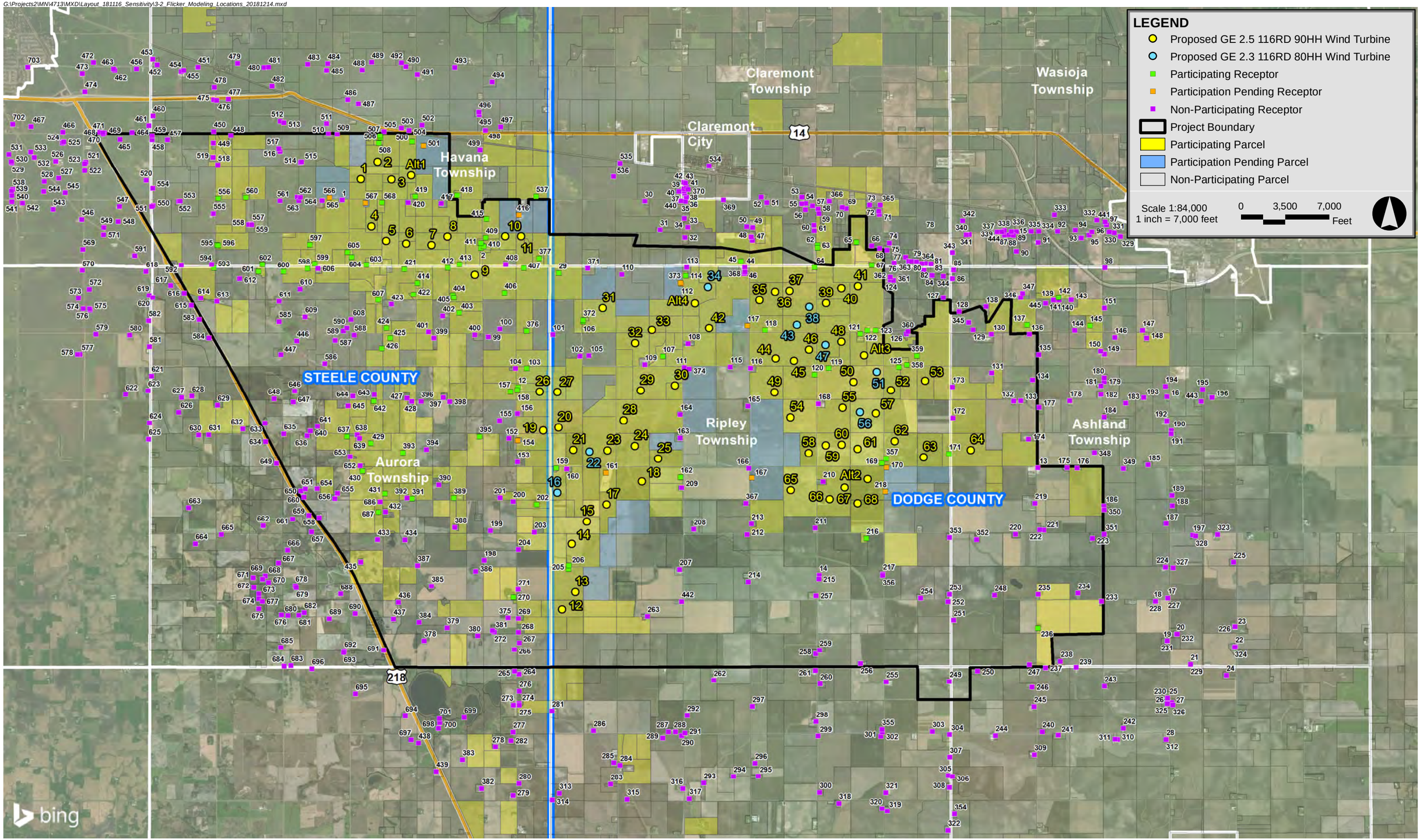

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Figure 3-2

Shadow Flicker Modeling Locations, 181116 Layout

Table 3-1 Monthly Percent of Possible Sunshine

Month	Possible Sunshine
January	53%
February	59%
March	57%
April	56%
May	62%
June	67%
July	74%
August	69%
September	62%
October	51%
November	37%
December	38%

Table 3-2 Operational Hours per Wind Direction Sector

Wind Sector	Operational Hours
N	322
NNE	238
NE	229
ENE	199
E	286
ESE	335
SE	391
SSE	675
S	1,176
SSW	859
SW	501
WSW	358
W	483
WNW	826
NW	1,068
NNW	535
Annual	8,481

3.2 Results

Following the modeling methodology outlined in Section 3.1, WindPRO was used to calculate shadow flicker at the 694 discrete modeling points in Dodge and Steele Counties and generate shadow flicker isolines based on the grid calculations. Table B-1 in Appendix B presents the modeling results for the 694 modeling receptor locations. Both worst-case and expected values are presented.

The modeled worst-case annual shadow flicker duration ranged from 0 hours, 0 minutes per year to 125 hours, 39 minutes per year. The maximum worst-case flicker was at a participating receptor (#169). The maximum modeled worst-case annual flicker at a non-participating receptor (#116) is 94 hours, 16 minutes.

The predicted expected annual shadow flicker duration ranged from 0 hours, 0 minutes per year to 39 hours, 29 minutes per year. The maximum expected flicker was at a participating receptor (#125). The maximum expected annual duration of shadow flicker at a non-participating modeling receptor is 33 hours, 56 minutes (#116). The majority of the receptors (546) were predicted to experience no annual shadow flicker. 97 locations were predicted to experience some shadow flicker but less than 10 hours per year. The modeling results showed that 39 locations would be expected to have 10 to 30 hours of shadow flicker per year. 12 receptors are expected to have over 30 hours of flicker per year, one of which is a non-participating receptor. Figure 3-3 displays the modeled flicker isolines (expected hrs/yr) over aerial imagery in relation to modeled wind turbines and modeling receptors.

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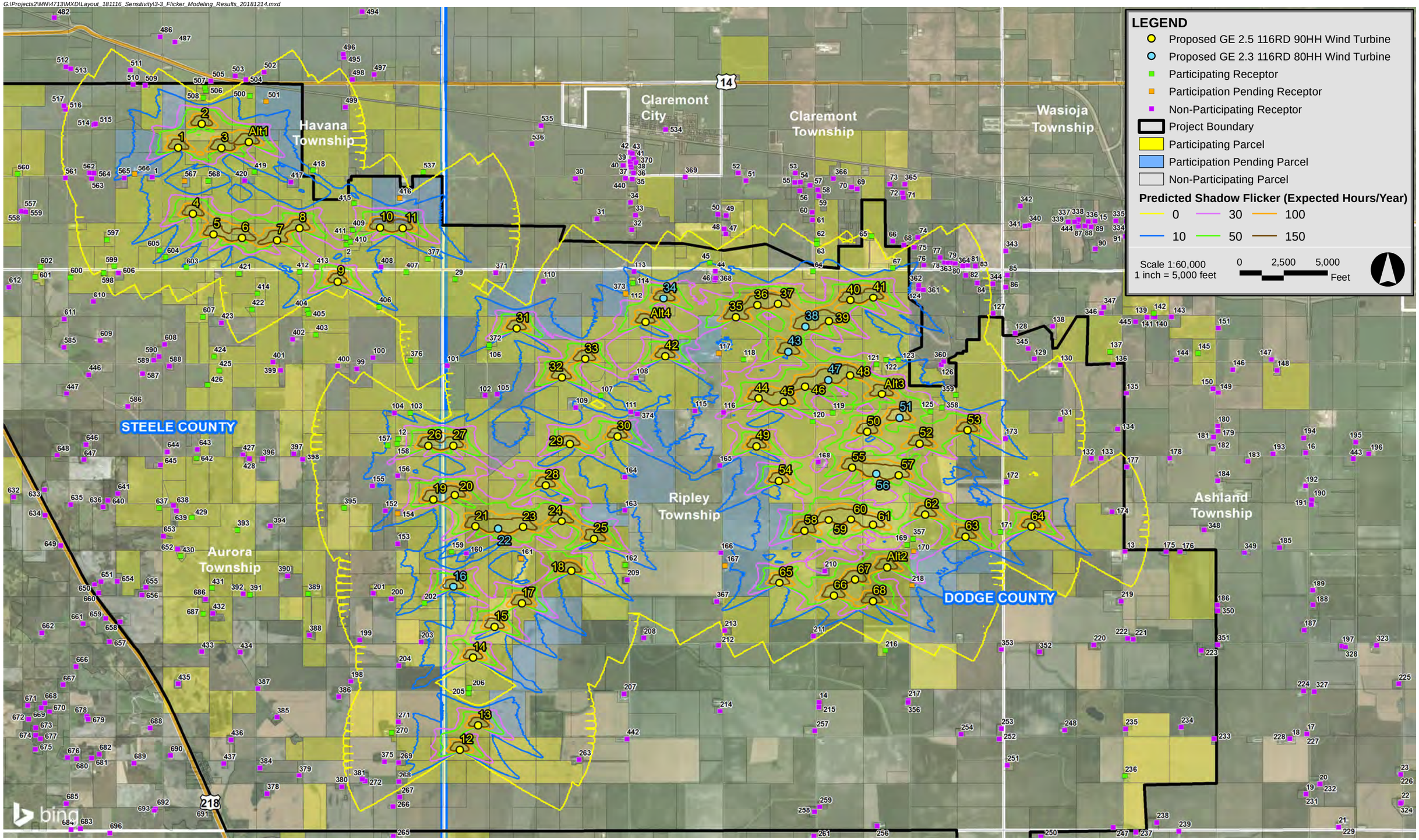

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Figure 3-3
Shadow Flicker Modeling Results, 181116 Layout

Appendix A
DCW Wind Turbine Coordinates

Table A-1: DCW Wind Turbine Coordinates

Wind Turbine ID	Coordinates NAD83 UTM Zone 15N (meters)	
	X (Easting)	Y (Northing)
1	491773.49	4876513.69
2	492177.40	4876929.74
3	492515.95	4876507.29
4	492027.69	4875376.03
5	492382.70	4875021.02
6	492872.33	4874956.90
7	493480.60	4874916.73
8	493862.85	4875124.65
9	494524.33	4874201.90
10	495256.04	4875133.97
11	495645.46	4875128.40
12	496632.97	4866120.24
13	496950.55	4866540.12
14	496863.02	4867708.41
15	497232.19	4868242.38
16	496520.92	4868936.19
17	497702.64	4868650.42
18	498559.17	4869213.08
19	496175.92	4870443.22
20	496546.68	4870518.48
21	496901.03	4869976.79
22	497294.89	4869935.28
23	497723.95	4869962.98
24	498388.48	4870067.35
25	498952.27	4869760.73
26	496087.93	4871373.26
27	496519.91	4871371.21
28	498114.74	4870686.08
29	498532.91	4871403.19
30	499356.88	4871529.00
31	497612.89	4873395.25
32	498398.28	4872549.54
33	498796.96	4872868.03
34	500149.90	4873911.23
35	501398.06	4873589.09
36	501770.29	4873795.69
37	502124.90	4873815.21
38	502595.92	4873426.22
39	503005.34	4873519.47
40	503372.12	4873881.51
41	503770.23	4873926.96
42	500177.97	4872914.07
43	502301.86	4872993.95
44	501790.90	4872182.22
45	502227.91	4872122.24
46	502591.63	4872391.24
47	502991.91	4872505.27
48	503371.39	4872585.69
49	501755.51	4871361.61
50	503662.93	4871608.22

Table A-1: DCW Wind Turbine Coordinates

Wind Turbine ID	Coordinates NAD83 UTM Zone 15N (meters)	
	X (Easting)	Y (Northing)
51	504224.94	4871855.24
52	504569.48	4871409.27
53	505395.56	4871637.86
54	502140.74	4870760.46
55	503404.54	4870993.37
56	503820.93	4870883.24
57	504206.39	4870859.18
58	502581.34	4869899.76
59	502997.22	4870084.96
60	503382.55	4870096.20
61	503764.41	4869999.27
62	504662.35	4870183.97
63	505359.94	4869797.24
64	506497.95	4869971.23
65	502147.93	4869004.19
66	503091.92	4868779.21
67	503453.82	4869064.27
68	503763.25	4868682.38
Alt1	492991.91	4876607.27
Alt2	504008.92	4869270.22
Alt3	503919.66	4872259.61
Alt4	499837.87	4873507.53

Appendix B
Shadow Flicker Modeling Results: Modeling Receptors

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
1	491323.97	4876003.31	Non-Participating	38:02	118	0:31	12:20
2	494675.74	4874843.64	Participating	85:20	151	0:50	32:51
12	495571.71	4871482.46	Participating	48:31	65	1:05	16:58
13	508114.34	4869543.75	Non-Participating	2:39	21	0:11	1:02
14	502838.46	4866942.77	Non-Participating	0:00	0	0:00	0:00
15	507596.16	4875246.28	Non-Participating	0:00	0	0:00	0:00
16	511230.91	4871253.21	Non-Participating	0:00	0	0:00	0:00
17	511252.81	4866394.34	Non-Participating	0:00	0	0:00	0:00
18	510963.01	4866310.55	Non-Participating	0:00	0	0:00	0:00
19	511236.15	4865354.84	Non-Participating	0:00	0	0:00	0:00
20	511469.59	4865525.69	Non-Participating	0:00	0	0:00	0:00
21	511803.28	4864790.87	Non-Participating	0:00	0	0:00	0:00
22	512882.51	4865215.73	Non-Participating	0:00	0	0:00	0:00
23	512873.66	4865696.43	Non-Participating	0:00	0	0:00	0:00
24	512672.12	4864525.97	Non-Participating	0:00	0	0:00	0:00
25	511249.27	4863981.03	Non-Participating	0:00	0	0:00	0:00
26	511259.59	4863882.99	Non-Participating	0:00	0	0:00	0:00
27	511344.96	4863873.64	Non-Participating	0:00	0	0:00	0:00
28	511215.66	4862975.26	Non-Participating	0:00	0	0:00	0:00
29	496552.23	4874244.46	Participating	12:32	46	0:20	3:36
30	498628.08	4875979.63	Non-Participating	0:00	0	0:00	0:00
31	499002.42	4875287.65	Non-Participating	0:00	0	0:00	0:00
32	499599.12	4875101.12	Non-Participating	0:00	0	0:00	0:00
33	499667.39	4875349.30	Non-Participating	0:00	0	0:00	0:00
34	499579.55	4875568.90	Non-Participating	0:00	0	0:00	0:00
35	499611.30	4875969.22	Non-Participating	0:00	0	0:00	0:00
36	499630.61	4876074.26	Non-Participating	0:00	0	0:00	0:00
37	499592.84	4876172.35	Non-Participating	0:00	0	0:00	0:00
38	499584.90	4876221.63	Non-Participating	0:00	0	0:00	0:00
39	499575.64	4876277.53	Non-Participating	0:00	0	0:00	0:00
40	499452.74	4876213.03	Non-Participating	0:00	0	0:00	0:00
41	499633.37	4876323.52	Non-Participating	0:00	0	0:00	0:00
42	499577.34	4876430.68	Non-Participating	0:00	0	0:00	0:00
43	499610.04	4876414.33	Non-Participating	0:00	0	0:00	0:00
44	501043.37	4874380.00	Non-Participating	63:22	110	0:48	18:04
45	500947.46	4874527.17	Participating	44:45	86	0:43	11:44
46	501031.13	4874231.83	Non-Participating	49:09	92	0:47	15:15
47	501227.06	4875030.65	Non-Participating	0:00	0	0:00	0:00
48	501197.62	4875115.32	Non-Participating	0:00	0	0:00	0:00
49	501230.36	4875345.51	Non-Participating	0:00	0	0:00	0:00
50	501090.13	4875362.70	Non-Participating	0:00	0	0:00	0:00
51	501571.15	4875944.50	Non-Participating	0:00	0	0:00	0:00
52	501438.59	4876074.41	Non-Participating	0:00	0	0:00	0:00
53	502423.50	4876077.06	Non-Participating	0:00	0	0:00	0:00
54	502510.29	4875920.42	Non-Participating	0:00	0	0:00	0:00
55	502413.98	4875915.66	Non-Participating	0:00	0	0:00	0:00
56	502502.88	4875773.32	Non-Participating	0:00	0	0:00	0:00
57	502679.62	4875863.27	Non-Participating	0:00	0	0:00	0:00
58	502810.85	4875788.66	Non-Participating	0:00	0	0:00	0:00
59	502831.49	4875681.24	Non-Participating	0:00	0	0:00	0:00
60	502714.55	4875399.19	Non-Participating	0:00	0	0:00	0:00
61	502721.16	4875266.90	Non-Participating	0:00	0	0:00	0:00
62	502793.92	4874915.01	Participating	0:00	0	0:00	0:00
63	502795.77	4874857.59	Participating	0:00	0	0:00	0:00
64	502728.04	4874380.81	Participating	84:25	123	1:02	23:13
65	503738.09	4874989.75	Participating	3:49	47	0:09	0:54
66	504105.86	4874905.08	Non-Participating	0:00	0	0:00	0:00
67	504104.11	4874434.02	Participating	34:50	81	0:39	8:14
68	504298.15	4874837.83	Non-Participating	0:00	0	0:00	0:00
69	503489.38	4875803.62	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
70	503392.81	4875830.08	Non-Participating	0:00	0	0:00	0:00
71	504290.41	4875654.93	Non-Participating	0:00	0	0:00	0:00
72	504273.87	4875735.63	Non-Participating	0:00	0	0:00	0:00
73	504056.70	4875882.71	Non-Participating	0:00	0	0:00	0:00
74	504535.62	4874968.38	Non-Participating	0:00	0	0:00	0:00
75	504475.43	4874793.75	Non-Participating	10:34	40	0:19	2:22
76	504646.75	4874484.85	Non-Participating	23:25	70	0:32	5:56
77	504921.92	4874625.08	Non-Participating	11:01	54	0:20	2:46
78	505001.62	4874532.14	Non-Participating	9:07	40	0:21	2:33
79	505124.98	4874525.20	Non-Participating	6:34	33	0:19	1:55
80	505184.52	4874515.28	Non-Participating	5:35	32	0:17	1:40
81	505399.82	4874479.23	Non-Participating	2:09	18	0:11	0:39
82	505367.74	4874307.25	Non-Participating	2:43	18	0:13	0:48
83	505532.77	4874466.33	Non-Participating	1:38	16	0:09	0:29
84	505566.18	4874182.83	Non-Participating	1:38	15	0:10	0:30
85	506083.22	4874314.89	Non-Participating	0:00	0	0:00	0:00
86	506058.09	4874109.83	Non-Participating	0:00	0	0:00	0:00
87	507311.95	4875159.44	Non-Participating	0:00	0	0:00	0:00
88	507422.02	4875164.20	Non-Participating	0:00	0	0:00	0:00
89	507528.65	4875149.91	Non-Participating	0:00	0	0:00	0:00
90	507599.42	4874772.15	Non-Participating	0:00	0	0:00	0:00
91	508121.97	4874981.77	Non-Participating	0:00	0	0:00	0:00
92	508591.19	4875255.26	Non-Participating	0:00	0	0:00	0:00
93	509166.13	4875086.85	Non-Participating	0:00	0	0:00	0:00
94	509022.59	4875282.64	Non-Participating	0:00	0	0:00	0:00
95	509351.34	4875158.02	Non-Participating	0:00	0	0:00	0:00
96	509416.42	4875235.41	Non-Participating	0:00	0	0:00	0:00
97	509776.66	4875411.96	Non-Participating	0:00	0	0:00	0:00
98	509731.74	4874372.94	Non-Participating	0:00	0	0:00	0:00
99	494854.60	4872697.99	Non-Participating	0:00	0	0:00	0:00
100	495132.34	4872890.10	Non-Participating	0:00	0	0:00	0:00
101	496413.53	4872753.51	Non-Participating	13:45	72	0:17	5:07
102	497067.91	4872235.01	Non-Participating	17:10	103	0:17	5:00
103	495778.39	4871934.81	Participating	30:43	76	0:31	9:08
104	495507.06	4871937.58	Non-Participating	32:30	90	0:33	9:41
105	497277.52	4872254.03	Non-Participating	30:58	130	0:28	9:18
106	497138.35	4873069.61	Participating	7:12	44	0:18	2:32
107	499065.71	4872231.14	Participating	45:20	78	0:46	20:19
108	499677.17	4872538.85	Non-Participating	26:07	88	0:30	10:53
109	498632.85	4872029.26	Non-Participating	33:12	133	0:33	10:29
110	498077.69	4874206.61	Non-Participating	1:38	16	0:09	0:35
111	499582.38	4871957.52	Non-Participating	24:34	107	0:22	9:23
112	499505.52	4873983.70	Participation Pending	33:02	98	0:41	11:16
113	499640.46	4874375.81	Non-Participating	42:45	85	0:43	12:46
114	499618.58	4874177.48	Participating	39:58	69	0:48	13:44
115	500691.28	4871972.52	Non-Participating	26:05	116	0:25	8:32
116	501183.27	4871944.87	Non-Participating	94:16	206	0:44	33:56
117	501103.10	4872967.75	Participation Pending	46:48	203	0:39	16:24
118	501528.69	4872860.66	Participating	58:49	236	0:35	21:09
119	503071.21	4871942.22	Participating	87:34	199	0:54	31:11
120	502725.93	4871787.44	Participating	64:50	227	0:42	23:33
121	503827.13	4872773.68	Participating	77:13	201	1:09	25:05
122	503996.46	4872856.76	Participating	38:17	101	0:51	12:00
123	504201.25	4872856.23	Participating	30:54	128	0:37	11:11
124	504551.09	4874079.47	Non-Participating	21:05	63	0:37	6:31
125	504758.52	4871963.59	Participating	113:42	255	0:49	39:29
126	504942.08	4872768.12	Non-Participating	12:45	60	0:24	3:39
127	505837.17	4873650.51	Non-Participating	0:00	0	0:00	0:00
128	506220.82	4873313.16	Non-Participating	0:00	0	0:00	0:00
129	506549.56	4872868.13	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
130	506996.44	4872762.57	Non-Participating	2:45	33	0:09	0:39
131	506998.03	4871828.06	Non-Participating	2:17	18	0:12	0:45
132	507534.25	4871148.65	Non-Participating	0:00	0	0:00	0:00
133	507702.53	4871154.60	Non-Participating	0:00	0	0:00	0:00
134	507988.15	4871657.51	Non-Participating	0:00	0	0:00	0:00
135	508141.14	4872275.11	Non-Participating	0:00	0	0:00	0:00
136	507912.94	4872763.80	Non-Participating	0:00	0	0:00	0:00
137	507852.51	4872992.61	Participating	0:00	0	0:00	0:00
138	506865.15	4873428.54	Non-Participating	0:00	0	0:00	0:00
139	508493.79	4873588.15	Non-Participating	0:00	0	0:00	0:00
140	508608.89	4873590.53	Non-Participating	0:00	0	0:00	0:00
141	508631.91	4873590.93	Non-Participating	0:00	0	0:00	0:00
142	508613.65	4873652.84	Participating	0:00	0	0:00	0:00
143	508917.66	4873593.31	Non-Participating	0:00	0	0:00	0:00
144	509004.04	4872856.29	Non-Participating	0:00	0	0:00	0:00
145	509375.92	4872966.88	Participating	0:00	0	0:00	0:00
146	509975.20	4872682.45	Non-Participating	0:00	0	0:00	0:00
147	510643.93	4872858.40	Non-Participating	0:00	0	0:00	0:00
148	510742.82	4872673.86	Non-Participating	0:00	0	0:00	0:00
149	509722.39	4872284.72	Non-Participating	0:00	0	0:00	0:00
150	509630.84	4872355.63	Non-Participating	0:00	0	0:00	0:00
151	509722.69	4873399.56	Non-Participating	0:00	0	0:00	0:00
152	495349.84	4870249.67	Non-Participating	21:25	69	0:33	7:25
153	495559.21	4869681.85	Non-Participating	21:37	95	0:21	6:45
154	495562.38	4870204.93	Participation Pending	68:46	140	0:44	25:33
155	495124.76	4870677.40	Non-Participating	20:40	110	0:24	7:22
156	495559.28	4870851.63	Non-Participating	62:43	173	0:42	21:13
157	495387.82	4871379.34	Participating	35:25	105	0:39	11:52
158	495550.87	4871409.04	Participating	44:08	79	0:54	15:31
159	496488.82	4869537.11	Participating	49:39	178	0:32	17:58
160	496747.46	4869514.95	Non-Participating	31:53	137	0:26	11:43
161	497688.18	4869422.48	Participation Pending	25:25	97	0:30	8:26
162	499490.33	4869311.02	Participating	14:54	69	0:28	5:05
163	499484.18	4870256.98	Non-Participating	51:20	126	0:40	13:25
164	499480.74	4870826.96	Non-Participating	20:55	133	0:20	6:18
165	501120.03	4871028.07	Non-Participating	50:26	152	0:40	18:16
166	501137.73	4869524.71	Non-Participating	15:20	68	0:24	5:08
167	501212.34	4869298.23	Participation Pending	18:20	75	0:29	6:34
168	502822.20	4871087.25	Non-Participating	78:42	226	0:45	26:39
169	504355.79	4869657.97	Participating	125:39	234	1:03	38:34
170	504464.66	4869547.53	Participation Pending	104:07	215	1:08	33:30
171	505966.47	4869876.74	Participating	87:17	136	1:06	30:12
172	506068.12	4870744.95	Non-Participating	7:42	63	0:13	2:51
173	506052.46	4871492.14	Non-Participating	37:10	98	0:41	14:22
174	507891.98	4870234.05	Non-Participating	3:58	23	0:16	1:10
175	508823.64	4869539.44	Non-Participating	0:00	0	0:00	0:00
176	509063.51	4869535.71	Non-Participating	0:00	0	0:00	0:00
177	508143.94	4871002.25	Non-Participating	2:26	24	0:10	0:35
178	508887.77	4871155.48	Non-Participating	0:00	0	0:00	0:00
179	509716.92	4871621.42	Non-Participating	0:00	0	0:00	0:00
180	509716.39	4871712.56	Non-Participating	0:00	0	0:00	0:00
181	509642.37	4871517.50	Non-Participating	0:00	0	0:00	0:00
182	509638.57	4871313.88	Non-Participating	0:00	0	0:00	0:00
183	510238.58	4871099.40	Non-Participating	0:00	0	0:00	0:00
184	509715.57	4870766.88	Non-Participating	0:00	0	0:00	0:00
185	510779.47	4869615.18	Non-Participating	0:00	0	0:00	0:00
186	509710.09	4868616.84	Non-Participating	0:00	0	0:00	0:00
187	511208.69	4868187.15	Non-Participating	0:00	0	0:00	0:00
188	511358.45	4868626.10	Non-Participating	0:00	0	0:00	0:00
189	511354.81	4868870.63	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
190	511340.26	4870437.24	Non-Participating	0:00	0	0:00	0:00
191	511328.61	4870357.34	Non-Participating	0:00	0	0:00	0:00
192	511231.78	4870673.51	Non-Participating	0:00	0	0:00	0:00
193	510669.32	4871235.95	Non-Participating	0:00	0	0:00	0:00
194	511198.71	4871506.32	Non-Participating	0:00	0	0:00	0:00
195	512094.54	4871434.48	Non-Participating	0:00	0	0:00	0:00
196	512320.76	4871236.81	Non-Participating	0:00	0	0:00	0:00
197	511855.79	4867910.86	Non-Participating	0:00	0	0:00	0:00
198	494754.88	4867302.15	Non-Participating	0:00	0	0:00	0:00
199	494905.17	4868021.02	Non-Participating	3:49	52	0:06	1:23
200	495449.94	4868724.88	Non-Participating	14:46	100	0:22	4:53
201	495138.07	4868819.47	Non-Participating	3:04	21	0:13	1:02
202	496022.17	4868650.40	Participating	34:38	103	0:37	12:47
203	495966.21	4867985.63	Non-Participating	20:21	88	0:29	7:05
204	495581.29	4867570.63	Non-Participating	14:56	96	0:19	4:54
205	496788.12	4867093.39	Participating	0:00	0	0:00	0:00
206	496798.37	4867179.05	Participating	0:00	0	0:00	0:00
207	499466.54	4867083.00	Non-Participating	0:00	0	0:00	0:00
208	499809.28	4868052.25	Non-Participating	0:00	0	0:00	0:00
209	499522.27	4869059.69	Non-Participating	13:40	55	0:27	5:01
210	502932.76	4869206.67	Non-Participating	88:42	195	1:21	29:35
211	502739.87	4868086.02	Non-Participating	8:14	44	0:15	3:03
212	501100.51	4867929.92	Non-Participating	0:00	0	0:00	0:00
213	501205.69	4868183.52	Non-Participating	1:30	16	0:08	0:32
214	501126.31	4866789.30	Non-Participating	0:00	0	0:00	0:00
215	502829.57	4866859.28	Non-Participating	0:00	0	0:00	0:00
216	503980.77	4867832.68	Participating	0:00	0	0:00	0:00
217	504375.89	4866974.59	Non-Participating	0:00	0	0:00	0:00
218	504434.89	4868964.79	Participation Pending	40:01	114	0:38	12:45
219	508048.06	4868683.08	Non-Participating	0:00	0	0:00	0:00
220	507577.42	4867933.06	Non-Participating	0:00	0	0:00	0:00
221	508256.18	4868031.55	Non-Participating	0:00	0	0:00	0:00
222	508160.93	4868043.79	Non-Participating	0:00	0	0:00	0:00
223	509431.73	4867831.46	Non-Participating	0:00	0	0:00	0:00
224	511197.03	4867137.19	Non-Participating	0:00	0	0:00	0:00
225	512836.13	4867255.07	Non-Participating	0:00	0	0:00	0:00
226	512876.54	4865698.06	Non-Participating	0:00	0	0:00	0:00
227	511254.51	4866393.12	Non-Participating	0:00	0	0:00	0:00
228	510956.59	4866312.68	Non-Participating	0:00	0	0:00	0:00
229	511803.46	4864790.40	Non-Participating	0:00	0	0:00	0:00
230	511248.62	4863982.43	Non-Participating	0:00	0	0:00	0:00
231	511238.56	4865356.24	Non-Participating	0:00	0	0:00	0:00
232	511480.24	4865525.57	Non-Participating	0:00	0	0:00	0:00
233	509654.54	4866311.78	Non-Participating	0:00	0	0:00	0:00
234	509084.69	4866510.99	Non-Participating	0:00	0	0:00	0:00
235	508125.47	4866480.14	Non-Participating	0:00	0	0:00	0:00
236	508115.22	4865668.00	Participating	0:00	0	0:00	0:00
237	508300.10	4864702.93	Non-Participating	0:00	0	0:00	0:00
238	508661.25	4864863.00	Non-Participating	0:00	0	0:00	0:00
239	509043.52	4864717.00	Non-Participating	0:00	0	0:00	0:00
240	508220.95	4863160.03	Non-Participating	0:00	0	0:00	0:00
241	508608.56	4863085.28	Non-Participating	0:00	0	0:00	0:00
242	510181.05	4863250.58	Non-Participating	0:00	0	0:00	0:00
243	509723.76	4864264.38	Non-Participating	0:00	0	0:00	0:00
244	507091.02	4863071.04	Non-Participating	0:00	0	0:00	0:00
245	508023.68	4863776.16	Non-Participating	0:00	0	0:00	0:00
246	507972.08	4864241.82	Non-Participating	0:00	0	0:00	0:00
247	507911.18	4864780.64	Non-Participating	0:00	0	0:00	0:00
248	507075.09	4866460.06	Non-Participating	0:00	0	0:00	0:00
249	505979.98	4864375.54	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
250	506660.75	4864623.72	Non-Participating	0:00	0	0:00	0:00
251	506083.96	4865856.15	Non-Participating	0:00	0	0:00	0:00
252	505944.82	4866307.39	Non-Participating	0:00	0	0:00	0:00
253	505982.60	4866485.83	Non-Participating	0:00	0	0:00	0:00
254	505286.95	4866388.36	Non-Participating	0:00	0	0:00	0:00
255	504453.20	4864368.89	Non-Participating	0:00	0	0:00	0:00
256	503837.48	4864808.63	Non-Participating	0:00	0	0:00	0:00
257	502759.65	4866448.52	Non-Participating	0:00	0	0:00	0:00
258	502756.62	4865044.88	Non-Participating	0:00	0	0:00	0:00
259	502847.64	4865132.72	Non-Participating	0:00	0	0:00	0:00
260	502861.92	4864320.45	Non-Participating	0:00	0	0:00	0:00
261	502744.45	4864637.95	Non-Participating	0:00	0	0:00	0:00
262	500293.87	4864408.55	Non-Participating	0:00	0	0:00	0:00
263	498693.14	4865949.36	Non-Participating	2:01	20	0:09	0:50
264	495594.27	4864552.69	Non-Participating	0:00	0	0:00	0:00
265	495484.80	4864629.42	Non-Participating	0:00	0	0:00	0:00
266	495481.67	4865143.24	Non-Participating	0:00	0	0:00	0:00
267	495597.95	4865308.34	Non-Participating	0:00	0	0:00	0:00
268	495580.09	4865567.90	Non-Participating	17:29	64	0:22	6:32
269	495577.97	4865900.74	Non-Participating	16:16	75	0:24	5:46
270	495457.06	4866413.77	Participating	9:06	49	0:20	3:04
271	495573.74	4866601.10	Non-Participating	11:56	55	0:22	4:08
272	494999.07	4865576.36	Non-Participating	2:14	21	0:10	0:48
273	495460.45	4863808.79	Non-Participating	0:00	0	0:00	0:00
274	495591.47	4863853.66	Non-Participating	0:00	0	0:00	0:00
275	495598.45	4863807.52	Non-Participating	0:00	0	0:00	0:00
276	495602.69	4864144.71	Non-Participating	0:00	0	0:00	0:00
277	495449.26	4863156.32	Non-Participating	0:00	0	0:00	0:00
278	495021.10	4862798.98	Non-Participating	0:00	0	0:00	0:00
279	495447.60	4861627.16	Non-Participating	0:00	0	0:00	0:00
280	495589.39	4861913.81	Non-Participating	0:00	0	0:00	0:00
281	496387.78	4863669.96	Non-Participating	0:00	0	0:00	0:00
282	495401.41	4862947.65	Non-Participating	0:00	0	0:00	0:00
283	497806.48	4861897.78	Non-Participating	0:00	0	0:00	0:00
284	498032.83	4862353.66	Non-Participating	0:00	0	0:00	0:00
285	497883.34	4862416.63	Non-Participating	0:00	0	0:00	0:00
286	497390.91	4863188.77	Non-Participating	0:00	0	0:00	0:00
287	499200.13	4863160.86	Non-Participating	0:00	0	0:00	0:00
288	499366.82	4863159.80	Non-Participating	0:00	0	0:00	0:00
289	499062.33	4863011.63	Non-Participating	0:00	0	0:00	0:00
290	499521.73	4863071.93	Non-Participating	0:00	0	0:00	0:00
291	499600.44	4863131.46	Non-Participating	0:00	0	0:00	0:00
292	499653.41	4863563.84	Non-Participating	0:00	0	0:00	0:00
293	500052.87	4861924.15	Non-Participating	0:00	0	0:00	0:00
294	500766.98	4862078.00	Non-Participating	0:00	0	0:00	0:00
295	501364.94	4862089.11	Non-Participating	0:00	0	0:00	0:00
296	501290.46	4862403.31	Non-Participating	0:00	0	0:00	0:00
297	501228.41	4863777.42	Non-Participating	0:00	0	0:00	0:00
298	502760.35	4863408.22	Non-Participating	0:00	0	0:00	0:00
299	502811.16	4863065.78	Non-Participating	0:00	0	0:00	0:00
300	502845.02	4861700.00	Non-Participating	0:00	0	0:00	0:00
301	504324.44	4863058.11	Non-Participating	0:00	0	0:00	0:00
302	504359.50	4863154.55	Non-Participating	0:00	0	0:00	0:00
303	505569.77	4863166.39	Non-Participating	0:00	0	0:00	0:00
304	505982.13	4863095.12	Non-Participating	0:00	0	0:00	0:00
305	505957.47	4862103.78	Non-Participating	0:00	0	0:00	0:00
306	506058.01	4862083.94	Non-Participating	0:00	0	0:00	0:00
307	505988.95	4862547.09	Non-Participating	0:00	0	0:00	0:00
308	505982.34	4861816.52	Non-Participating	0:00	0	0:00	0:00
309	508028.80	4862608.01	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
310	510037.65	4862973.60	Non-Participating	0:00	0	0:00	0:00
311	509978.52	4862987.49	Non-Participating	0:00	0	0:00	0:00
312	511214.04	4862974.57	Non-Participating	0:00	0	0:00	0:00
313	496566.43	4861678.65	Non-Participating	0:00	0	0:00	0:00
314	496394.58	4861521.88	Non-Participating	0:00	0	0:00	0:00
315	498202.69	4861536.49	Non-Participating	0:00	0	0:00	0:00
316	499547.11	4861789.56	Non-Participating	0:00	0	0:00	0:00
317	499706.65	4861546.15	Non-Participating	0:00	0	0:00	0:00
318	503314.07	4861437.35	Non-Participating	0:00	0	0:00	0:00
319	504482.21	4861250.15	Non-Participating	0:00	0	0:00	0:00
320	504352.19	4861303.49	Non-Participating	0:00	0	0:00	0:00
321	504448.61	4861690.45	Non-Participating	0:00	0	0:00	0:00
322	505946.34	4860787.53	Non-Participating	0:00	0	0:00	0:00
323	512456.10	4867927.90	Non-Participating	0:00	0	0:00	0:00
324	512869.46	4865200.07	Non-Participating	0:00	0	0:00	0:00
325	511241.06	4863845.52	Non-Participating	0:00	0	0:00	0:00
326	511377.68	4863817.25	Non-Participating	0:00	0	0:00	0:00
327	511380.49	4867122.86	Non-Participating	0:00	0	0:00	0:00
328	511919.63	4867891.62	Non-Participating	0:00	0	0:00	0:00
329	510106.92	4875126.21	Non-Participating	0:00	0	0:00	0:00
330	509957.99	4875215.57	Non-Participating	0:00	0	0:00	0:00
331	509838.84	4875240.39	Non-Participating	0:00	0	0:00	0:00
332	509540.98	4875523.36	Non-Participating	0:00	0	0:00	0:00
333	508513.01	4875649.50	Non-Participating	0:00	0	0:00	0:00
334	508137.19	4875249.86	Non-Participating	0:00	0	0:00	0:00
335	507954.57	4875255.16	Non-Participating	0:00	0	0:00	0:00
336	507476.85	4875245.18	Non-Participating	0:00	0	0:00	0:00
337	507291.26	4875238.55	Non-Participating	0:00	0	0:00	0:00
338	507308.94	4875273.90	Non-Participating	0:00	0	0:00	0:00
339	507133.29	4875236.34	Non-Participating	0:00	0	0:00	0:00
340	506456.95	4875177.45	Non-Participating	0:00	0	0:00	0:00
341	506392.06	4875165.44	Non-Participating	0:00	0	0:00	0:00
342	506303.13	4875506.73	Non-Participating	0:00	0	0:00	0:00
343	506056.14	4874737.23	Non-Participating	0:00	0	0:00	0:00
344	505835.16	4874164.35	Non-Participating	0:00	0	0:00	0:00
345	506443.65	4873048.96	Non-Participating	0:00	0	0:00	0:00
346	507707.14	4873655.54	Non-Participating	0:00	0	0:00	0:00
347	507746.57	4873752.32	Non-Participating	0:00	0	0:00	0:00
348	509482.74	4869911.96	Non-Participating	0:00	0	0:00	0:00
349	510177.21	4869522.86	Non-Participating	0:00	0	0:00	0:00
350	509715.75	4868523.34	Non-Participating	0:00	0	0:00	0:00
351	509715.75	4867936.59	Non-Participating	0:00	0	0:00	0:00
352	506639.54	4867805.93	Non-Participating	0:00	0	0:00	0:00
353	505981.69	4867853.87	Non-Participating	0:00	0	0:00	0:00
354	506107.06	4861179.97	Non-Participating	0:00	0	0:00	0:00
355	504354.46	4863221.55	Non-Participating	0:00	0	0:00	0:00
356	504370.17	4866942.89	Non-Participating	0:00	0	0:00	0:00
357	504454.04	4869760.35	Participating	100:46	226	0:43	33:19
358	504953.18	4872026.30	Participating	104:55	209	0:57	33:09
359	505194.11	4872241.77	Participating	15:20	75	0:23	4:57
360	504982.82	4872823.99	Non-Participating	11:59	55	0:23	3:16
361	504632.53	4874064.72	Non-Participating	16:44	56	0:33	5:19
362	504550.66	4874140.13	Non-Participating	21:48	62	0:39	6:31
363	505058.05	4874529.02	Non-Participating	7:54	37	0:20	2:16
364	505317.29	4874471.44	Non-Participating	2:44	20	0:13	0:49
365	504311.78	4875881.90	Non-Participating	0:00	0	0:00	0:00
366	503080.23	4875981.03	Non-Participating	0:00	0	0:00	0:00
367	501067.74	4868680.68	Non-Participating	10:25	38	0:24	3:42
368	501045.42	4874262.69	Non-Participating	52:43	102	0:52	16:09
369	500526.98	4876004.95	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
370	499677.17	4876262.10	Non-Participating	0:00	0	0:00	0:00
371	497251.94	4874354.41	Non-Participating	4:23	34	0:11	1:58
372	497140.70	4873107.83	Participating	20:58	82	0:29	7:36
373	499493.80	4874005.78	Participation Pending	26:26	72	0:40	9:14
374	499695.62	4871921.37	Non-Participating	70:23	152	1:01	18:38
375	495332.11	4865917.77	Non-Participating	7:18	49	0:17	2:33
376	495778.75	4872841.02	Participating	1:15	16	0:07	0:26
377	496079.55	4874600.17	Participating	6:20	46	0:13	1:49
378	493303.66	4865363.05	Non-Participating	0:00	0	0:00	0:00
379	493858.51	4865675.06	Non-Participating	0:00	0	0:00	0:00
380	494597.57	4865481.24	Non-Participating	0:00	0	0:00	0:00
381	494950.93	4865608.48	Non-Participating	1:57	19	0:09	0:41
382	494693.22	4861787.99	Non-Participating	0:00	0	0:00	0:00
383	494229.69	4862485.36	Non-Participating	0:00	0	0:00	0:00
384	493181.97	4865807.99	Non-Participating	0:00	0	0:00	0:00
385	493478.15	4866684.14	Non-Participating	0:00	0	0:00	0:00
386	494547.73	4867036.45	Non-Participating	0:00	0	0:00	0:00
387	493147.39	4867174.99	Non-Participating	0:00	0	0:00	0:00
388	494039.10	4868100.58	Non-Participating	0:00	0	0:00	0:00
389	494018.51	4868810.50	Participating	0:00	0	0:00	0:00
390	493659.28	4869128.74	Non-Participating	0:00	0	0:00	0:00
391	493009.42	4868795.04	Participating	0:00	0	0:00	0:00
392	492892.87	4868809.26	Non-Participating	0:00	0	0:00	0:00
393	492790.68	4869907.25	Participating	0:00	0	0:00	0:00
394	493362.95	4869980.97	Non-Participating	0:00	0	0:00	0:00
395	494639.05	4870297.72	Participating	2:57	20	0:13	0:59
396	493230.51	4871142.26	Non-Participating	0:00	0	0:00	0:00
397	493766.48	4871236.38	Non-Participating	0:00	0	0:00	0:00
398	493921.25	4871132.90	Non-Participating	0:00	0	0:00	0:00
399	493540.46	4872673.61	Non-Participating	0:00	0	0:00	0:00
400	494524.93	4872747.21	Non-Participating	0:00	0	0:00	0:00
401	493407.56	4872816.88	Non-Participating	0:00	0	0:00	0:00
402	493747.84	4873206.91	Non-Participating	0:00	0	0:00	0:00
403	494151.04	4873285.23	Participating	0:00	0	0:00	0:00
404	494002.17	4873709.27	Participating	0:00	0	0:00	0:00
405	494024.46	4873648.96	Participating	0:00	0	0:00	0:00
406	495243.19	4873764.68	Participating	7:43	36	0:17	3:31
407	495706.37	4874363.08	Participating	8:12	46	0:21	2:49
408	495270.39	4874448.85	Non-Participating	26:25	103	0:35	8:56
409	494786.51	4875095.87	Participating	83:05	125	1:13	29:19
410	494742.68	4874890.93	Participating	93:02	155	0:58	34:55
411	494673.38	4874964.89	Participating	88:05	147	1:05	32:11
412	493870.54	4874371.18	Participating	46:55	133	0:40	17:43
413	494159.74	4874451.58	Participating	100:13	201	1:02	34:04
414	493136.16	4874000.60	Participating	4:15	24	0:16	1:27
415	494807.37	4875552.26	Participating	84:02	124	0:53	25:41
416	495595.18	4875646.56	Participation Pending	1:29	15	0:09	0:27
417	493717.24	4875917.78	Non-Participating	23:46	150	0:18	8:57
418	494099.39	4876121.20	Participating	21:15	122	0:21	8:17
419	493086.55	4876093.83	Participating	16:10	84	0:21	4:43
420	492917.55	4875943.58	Non-Participating	42:47	163	0:27	14:21
421	492824.93	4874336.74	Participating	1:54	16	0:10	0:40
422	493045.90	4873720.17	Participating	4:04	26	0:14	1:27
423	492516.61	4873491.63	Non-Participating	0:00	0	0:00	0:00
424	492393.91	4872911.32	Participating	0:00	0	0:00	0:00
425	492485.00	4872667.59	Participating	0:00	0	0:00	0:00
426	492280.30	4872422.45	Participating	0:00	0	0:00	0:00
427	492886.93	4871221.63	Non-Participating	0:00	0	0:00	0:00
428	493003.05	4871142.66	Non-Participating	0:00	0	0:00	0:00
429	492012.71	4870131.27	Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
430	491814.62	4869462.51	Participating	0:00	0	0:00	0:00
431	492354.77	4868912.11	Participating	0:00	0	0:00	0:00
432	492373.27	4868475.96	Non-Participating	0:00	0	0:00	0:00
433	492178.63	4867809.55	Non-Participating	0:00	0	0:00	0:00
434	492842.51	4867801.89	Non-Participating	0:00	0	0:00	0:00
435	491772.81	4867258.11	Non-Participating	0:00	0	0:00	0:00
436	492683.89	4866290.27	Non-Participating	0:00	0	0:00	0:00
437	492560.24	4865883.35	Non-Participating	0:00	0	0:00	0:00
438	493165.10	4862890.93	Non-Participating	0:00	0	0:00	0:00
439	493590.90	4862204.60	Non-Participating	0:00	0	0:00	0:00
440	499494.35	4875986.15	Non-Participating	0:00	0	0:00	0:00
441	509739.94	4875483.39	Non-Participating	0:00	0	0:00	0:00
442	499516.46	4866307.27	Non-Participating	0:00	0	0:00	0:00
443	512055.62	4871144.22	Non-Participating	0:00	0	0:00	0:00
444	507243.76	4875236.34	Non-Participating	0:00	0	0:00	0:00
445	508298.59	4873512.15	Non-Participating	0:00	0	0:00	0:00
446	490229.89	4872596.92	Non-Participating	0:00	0	0:00	0:00
447	489847.36	4872269.25	Non-Participating	0:00	0	0:00	0:00
448	488635.42	4877561.29	Non-Participating	0:00	0	0:00	0:00
449	488219.84	4877375.84	Non-Participating	0:00	0	0:00	0:00
450	488227.59	4877664.18	Non-Participating	0:00	0	0:00	0:00
451	487845.93	4879211.82	Non-Participating	0:00	0	0:00	0:00
452	486858.06	4879271.46	Non-Participating	0:00	0	0:00	0:00
453	486750.57	4879405.48	Non-Participating	0:00	0	0:00	0:00
454	487445.96	4879108.89	Non-Participating	0:00	0	0:00	0:00
455	487500.71	4879138.87	Non-Participating	0:00	0	0:00	0:00
456	486363.48	4879172.96	Non-Participating	0:00	0	0:00	0:00
457	487110.32	4877460.18	Non-Participating	0:00	0	0:00	0:00
458	486739.40	4877456.16	Non-Participating	0:00	0	0:00	0:00
459	486738.89	4877554.33	Non-Participating	0:00	0	0:00	0:00
460	486756.68	4878037.63	Non-Participating	0:00	0	0:00	0:00
461	486660.03	4877806.42	Non-Participating	0:00	0	0:00	0:00
462	485834.32	4879132.42	Non-Participating	0:00	0	0:00	0:00
463	485809.66	4879170.03	Non-Participating	0:00	0	0:00	0:00
464	486256.72	4877643.56	Non-Participating	0:00	0	0:00	0:00
465	485959.87	4877465.90	Non-Participating	0:00	0	0:00	0:00
466	484581.56	4877648.78	Non-Participating	0:00	0	0:00	0:00
467	483815.76	4877785.78	Non-Participating	0:00	0	0:00	0:00
468	485477.21	4877647.07	Non-Participating	0:00	0	0:00	0:00
469	485584.47	4877637.05	Non-Participating	0:00	0	0:00	0:00
470	485555.94	4877595.45	Non-Participating	0:00	0	0:00	0:00
471	485553.87	4877635.12	Non-Participating	0:00	0	0:00	0:00
472	485326.16	4879324.31	Non-Participating	0:00	0	0:00	0:00
473	485052.32	4879054.82	Non-Participating	0:00	0	0:00	0:00
474	485117.12	4878621.98	Non-Participating	0:00	0	0:00	0:00
475	488227.48	4878434.34	Non-Participating	0:00	0	0:00	0:00
476	488294.10	4878419.31	Non-Participating	0:00	0	0:00	0:00
477	488578.50	4878448.47	Non-Participating	0:00	0	0:00	0:00
478	488238.28	4878729.90	Non-Participating	0:00	0	0:00	0:00
479	488802.63	4879306.04	Non-Participating	0:00	0	0:00	0:00
480	489444.23	4879207.74	Non-Participating	0:00	0	0:00	0:00
481	489545.45	4879212.95	Non-Participating	0:00	0	0:00	0:00
482	489635.56	4878759.90	Non-Participating	0:00	0	0:00	0:00
483	490495.82	4879286.80	Non-Participating	0:00	0	0:00	0:00
484	490977.06	4879298.11	Non-Participating	0:00	0	0:00	0:00
485	490949.78	4879137.82	Non-Participating	0:00	0	0:00	0:00
486	491460.25	4878431.59	Non-Participating	0:00	0	0:00	0:00
487	491713.80	4878334.91	Non-Participating	0:00	0	0:00	0:00
488	491806.50	4879142.21	Non-Participating	0:00	0	0:00	0:00
489	492039.41	4879331.55	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
490	492860.00	4879226.20	Non-Participating	0:00	0	0:00	0:00
491	493142.48	4879036.43	Non-Participating	0:00	0	0:00	0:00
492	492758.53	4879319.56	Non-Participating	0:00	0	0:00	0:00
493	494040.55	4879209.90	Non-Participating	0:00	0	0:00	0:00
494	494946.88	4878858.40	Non-Participating	0:00	0	0:00	0:00
495	494631.87	4878070.88	Non-Participating	0:00	0	0:00	0:00
496	494622.23	4878130.23	Non-Participating	0:00	0	0:00	0:00
497	495153.30	4877779.20	Non-Participating	0:00	0	0:00	0:00
498	494779.88	4877690.16	Non-Participating	0:00	0	0:00	0:00
499	494656.56	4877212.33	Non-Participating	1:37	16	0:09	0:29
500	493010.05	4877412.07	Participating	24:10	104	0:29	5:57
501	493292.00	4877317.09	Participation Pending	9:10	51	0:21	2:40
502	493253.70	4877817.21	Non-Participating	9:16	37	0:19	2:03
503	492754.95	4877751.84	Non-Participating	0:00	0	0:00	0:00
504	492937.93	4877693.98	Non-Participating	0:00	0	0:00	0:00
505	492333.63	4877666.52	Non-Participating	0:00	0	0:00	0:00
506	492251.72	4877503.81	Participating	0:00	0	0:00	0:00
507	492234.18	4877555.41	Participating	0:00	0	0:00	0:00
508	492209.17	4877379.83	Participating	0:00	0	0:00	0:00
509	491204.57	4877592.32	Non-Participating	16:53	78	0:24	4:59
510	490993.10	4877604.29	Non-Participating	10:31	84	0:18	3:13
511	490950.33	4877852.19	Non-Participating	10:00	52	0:16	2:56
512	489835.40	4877912.18	Non-Participating	0:00	0	0:00	0:00
513	489914.98	4877880.09	Non-Participating	0:00	0	0:00	0:00
514	490320.50	4876915.99	Non-Participating	5:06	37	0:15	1:45
515	490345.19	4876928.97	Non-Participating	5:30	38	0:15	1:54
516	489824.65	4877177.26	Non-Participating	0:00	0	0:00	0:00
517	489798.47	4877241.24	Non-Participating	0:00	0	0:00	0:00
518	488326.68	4876849.62	Non-Participating	0:00	0	0:00	0:00
519	488211.66	4877034.73	Non-Participating	0:00	0	0:00	0:00
520	486597.05	4876484.54	Non-Participating	0:00	0	0:00	0:00
521	485139.90	4876925.87	Non-Participating	0:00	0	0:00	0:00
522	485112.68	4876718.66	Non-Participating	0:00	0	0:00	0:00
523	485111.73	4876886.12	Non-Participating	0:00	0	0:00	0:00
524	484576.48	4877381.31	Non-Participating	0:00	0	0:00	0:00
525	484604.14	4877406.38	Non-Participating	0:00	0	0:00	0:00
526	484415.46	4876945.29	Non-Participating	0:00	0	0:00	0:00
527	484482.97	4876529.89	Non-Participating	0:00	0	0:00	0:00
528	484133.35	4876454.25	Non-Participating	0:00	0	0:00	0:00
529	483354.68	4876911.14	Non-Participating	0:00	0	0:00	0:00
530	483340.51	4876941.40	Non-Participating	0:00	0	0:00	0:00
531	483284.50	4877111.89	Non-Participating	0:00	0	0:00	0:00
532	483894.45	4877038.60	Non-Participating	0:00	0	0:00	0:00
533	483805.65	4877165.29	Non-Participating	0:00	0	0:00	0:00
534	500183.35	4876832.93	Non-Participating	0:00	0	0:00	0:00
535	498032.98	4876897.85	Non-Participating	0:00	0	0:00	0:00
536	497876.00	4876576.62	Non-Participating	0:00	0	0:00	0:00
537	496003.73	4876090.86	Participating	0:00	0	0:00	0:00
538	483371.66	4876260.99	Non-Participating	0:00	0	0:00	0:00
539	483342.50	4876216.88	Non-Participating	0:00	0	0:00	0:00
540	483353.94	4876115.55	Non-Participating	0:00	0	0:00	0:00
541	483356.50	4875964.09	Non-Participating	0:00	0	0:00	0:00
542	483610.07	4875926.75	Non-Participating	0:00	0	0:00	0:00
543	484347.49	4875779.83	Non-Participating	0:00	0	0:00	0:00
544	484122.70	4876211.77	Non-Participating	0:00	0	0:00	0:00
545	484639.57	4876183.37	Non-Participating	0:00	0	0:00	0:00
546	485040.33	4875536.46	Non-Participating	0:00	0	0:00	0:00
547	485950.14	4875850.27	Non-Participating	0:00	0	0:00	0:00
548	485922.83	4875490.30	Non-Participating	0:00	0	0:00	0:00
549	485570.32	4875343.66	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
550	486758.93	4875870.36	Non-Participating	0:00	0	0:00	0:00
551	486732.47	4875847.61	Non-Participating	0:00	0	0:00	0:00
552	487379.99	4875967.61	Non-Participating	0:00	0	0:00	0:00
553	487414.85	4875979.00	Non-Participating	0:00	0	0:00	0:00
554	486752.22	4876287.93	Non-Participating	0:00	0	0:00	0:00
555	488220.58	4875677.44	Non-Participating	0:00	0	0:00	0:00
556	488332.16	4876043.35	Participating	0:00	0	0:00	0:00
557	489116.44	4875427.96	Non-Participating	0:00	0	0:00	0:00
558	489070.22	4875417.85	Non-Participating	0:00	0	0:00	0:00
559	489141.82	4875405.73	Non-Participating	0:00	0	0:00	0:00
560	488998.60	4876062.19	Participating	0:00	0	0:00	0:00
561	489826.70	4875987.32	Non-Participating	0:00	0	0:00	0:00
562	490243.39	4876075.04	Non-Participating	5:02	39	0:13	1:46
563	490277.50	4875981.51	Non-Participating	5:51	43	0:14	2:06
564	490318.56	4876072.58	Non-Participating	6:09	43	0:14	2:11
565	490841.49	4875989.47	Non-Participating	25:14	131	0:21	8:55
566	491021.44	4876062.81	Participation Pending	31:09	142	0:23	10:20
567	491885.42	4875936.91	Participation Pending	6:07	58	0:10	2:06
568	492288.14	4875939.17	Participating	4:28	38	0:11	1:18
569	485068.52	4874814.15	Non-Participating	0:00	0	0:00	0:00
570	485049.92	4874303.42	Non-Participating	0:00	0	0:00	0:00
571	485562.84	4875163.93	Non-Participating	0:00	0	0:00	0:00
572	485226.22	4873854.62	Non-Participating	0:00	0	0:00	0:00
573	484962.06	4873636.11	Non-Participating	0:00	0	0:00	0:00
574	485076.63	4873384.34	Non-Participating	0:00	0	0:00	0:00
575	485248.40	4873345.47	Non-Participating	0:00	0	0:00	0:00
576	485233.04	4873372.20	Non-Participating	0:00	0	0:00	0:00
577	484992.60	4872278.33	Non-Participating	0:00	0	0:00	0:00
578	484936.10	4872282.95	Non-Participating	0:00	0	0:00	0:00
579	485379.31	4872761.19	Non-Participating	0:00	0	0:00	0:00
580	486198.35	4872740.10	Non-Participating	0:00	0	0:00	0:00
581	486676.17	4872464.77	Non-Participating	0:00	0	0:00	0:00
582	486655.64	4873090.69	Non-Participating	0:00	0	0:00	0:00
583	487877.11	4873120.91	Non-Participating	0:00	0	0:00	0:00
584	488112.71	4872671.02	Non-Participating	0:00	0	0:00	0:00
585	489802.42	4873070.99	Non-Participating	0:00	0	0:00	0:00
586	490903.77	4872050.05	Non-Participating	0:00	0	0:00	0:00
587	491158.49	4872615.01	Non-Participating	0:00	0	0:00	0:00
588	491617.71	4872744.89	Non-Participating	0:00	0	0:00	0:00
589	491351.60	4872844.56	Non-Participating	0:00	0	0:00	0:00
590	491439.59	4872911.18	Non-Participating	0:00	0	0:00	0:00
591	486316.80	4874665.05	Non-Participating	0:00	0	0:00	0:00
592	487443.29	4874431.59	Non-Participating	0:00	0	0:00	0:00
593	488227.77	4874362.55	Participating	0:00	0	0:00	0:00
594	488176.73	4874445.52	Non-Participating	0:00	0	0:00	0:00
595	488313.23	4874925.37	Participating	0:00	0	0:00	0:00
596	488330.19	4874908.78	Participating	0:00	0	0:00	0:00
597	490542.51	4874927.42	Participating	5:25	41	0:14	1:54
598	490484.06	4874350.37	Participating	0:00	0	0:00	0:00
599	490667.31	4874464.80	Participating	2:15	20	0:10	0:48
600	489910.19	4874274.68	Participating	0:00	0	0:00	0:00
601	489305.30	4874280.67	Participating	0:00	0	0:00	0:00
602	489395.90	4874448.33	Participating	0:00	0	0:00	0:00
603	491911.47	4874443.00	Participating	22:18	83	0:25	8:16
604	491551.67	4874626.99	Participating	40:56	120	0:32	15:10
605	491452.04	4874745.89	Participating	20:02	72	0:29	7:06
606	490742.07	4874350.00	Non-Participating	2:57	25	0:11	1:05
607	492196.54	4873592.10	Participating	0:00	0	0:00	0:00
608	491538.28	4873118.40	Non-Participating	0:00	0	0:00	0:00
609	490427.30	4873185.69	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
610	490308.00	4873855.52	Non-Participating	0:00	0	0:00	0:00
611	489807.12	4873557.35	Non-Participating	0:00	0	0:00	0:00
612	488849.73	4874109.24	Non-Participating	0:00	0	0:00	0:00
613	488302.06	4873557.83	Non-Participating	0:00	0	0:00	0:00
614	487911.15	4873636.20	Non-Participating	0:00	0	0:00	0:00
615	487684.01	4873459.47	Non-Participating	0:00	0	0:00	0:00
616	487514.01	4873755.84	Non-Participating	0:00	0	0:00	0:00
617	487184.42	4873945.73	Non-Participating	0:00	0	0:00	0:00
618	486591.04	4874277.89	Non-Participating	0:00	0	0:00	0:00
619	486670.36	4873699.15	Non-Participating	0:00	0	0:00	0:00
620	486755.87	4873650.47	Non-Participating	0:00	0	0:00	0:00
621	486727.45	4871753.50	Non-Participating	0:00	0	0:00	0:00
622	486094.94	4871309.02	Non-Participating	0:00	0	0:00	0:00
623	486638.09	4871400.01	Non-Participating	0:00	0	0:00	0:00
624	486672.02	4870622.68	Non-Participating	0:00	0	0:00	0:00
625	486655.48	4870232.51	Non-Participating	0:00	0	0:00	0:00
626	487378.63	4870881.50	Non-Participating	0:00	0	0:00	0:00
627	487448.24	4871236.67	Non-Participating	0:00	0	0:00	0:00
628	487697.00	4871268.04	Non-Participating	0:00	0	0:00	0:00
629	488319.13	4871047.52	Non-Participating	0:00	0	0:00	0:00
630	487859.22	4870334.28	Non-Participating	0:00	0	0:00	0:00
631	488100.93	4870340.68	Non-Participating	0:00	0	0:00	0:00
632	488931.40	4870482.89	Non-Participating	0:00	0	0:00	0:00
633	489465.02	4870612.47	Non-Participating	0:00	0	0:00	0:00
634	489473.93	4870174.17	Non-Participating	0:00	0	0:00	0:00
635	489918.83	4870357.95	Non-Participating	0:00	0	0:00	0:00
636	490477.39	4870317.69	Non-Participating	0:00	0	0:00	0:00
637	491440.93	4870296.94	Participating	0:00	0	0:00	0:00
638	491691.36	4870338.51	Non-Participating	0:00	0	0:00	0:00
639	491742.59	4870251.31	Non-Participating	0:00	0	0:00	0:00
640	490556.45	4870428.90	Non-Participating	0:00	0	0:00	0:00
641	490729.74	4870543.54	Non-Participating	0:00	0	0:00	0:00
642	492088.16	4871151.03	Participating	0:00	0	0:00	0:00
643	492101.16	4871308.61	Non-Participating	0:00	0	0:00	0:00
644	491583.87	4871268.58	Non-Participating	0:00	0	0:00	0:00
645	491466.08	4871036.24	Non-Participating	0:00	0	0:00	0:00
646	490182.63	4871392.80	Non-Participating	0:00	0	0:00	0:00
647	490146.04	4871128.30	Non-Participating	0:00	0	0:00	0:00
648	489684.58	4871207.32	Non-Participating	0:00	0	0:00	0:00
649	489742.38	4869647.95	Non-Participating	0:00	0	0:00	0:00
650	490330.39	4868981.77	Non-Participating	0:00	0	0:00	0:00
651	490439.21	4869028.96	Non-Participating	0:00	0	0:00	0:00
652	491759.63	4869590.01	Non-Participating	0:00	0	0:00	0:00
653	491515.95	4869809.52	Non-Participating	0:00	0	0:00	0:00
654	490718.55	4869035.68	Non-Participating	0:00	0	0:00	0:00
655	491214.49	4868921.13	Non-Participating	0:00	0	0:00	0:00
656	491144.65	4868793.54	Non-Participating	0:00	0	0:00	0:00
657	490586.54	4867989.99	Non-Participating	0:00	0	0:00	0:00
658	490772.60	4868329.90	Non-Participating	0:00	0	0:00	0:00
659	490521.01	4868392.32	Non-Participating	0:00	0	0:00	0:00
660	490399.71	4868828.19	Non-Participating	0:00	0	0:00	0:00
661	490132.35	4868300.15	Non-Participating	0:00	0	0:00	0:00
662	489421.01	4868140.33	Non-Participating	0:00	0	0:00	0:00
663	487623.14	4868576.03	Non-Participating	0:00	0	0:00	0:00
664	487782.58	4867705.95	Non-Participating	0:00	0	0:00	0:00
665	488410.14	4867926.75	Non-Participating	0:00	0	0:00	0:00
666	490006.54	4867558.26	Non-Participating	0:00	0	0:00	0:00
667	489786.08	4867239.58	Non-Participating	0:00	0	0:00	0:00
668	489471.01	4866930.92	Non-Participating	0:00	0	0:00	0:00
669	489407.69	4866850.23	Non-Participating	0:00	0	0:00	0:00

Table B-1: Shadow Flicker Modeling Results

Receptor ID	Coordinates NAD83 UTM Zone 15N (meters)		Participation Status	Worst-Case Shadow Flicker - Annual	Worst-Case Shadow Flicker Days - Annual	Worst-Case Shadow Flicker Hours - Daily	Expected Shadow Flicker Hours - Annual
	X (Easting)	Y (Northing)		(HH:MM/year)	(Days/year)	(HH:MM/day)	(HH:MM/year)
670	489550.29	4866777.40	Non-Participating	0:00	0	0:00	0:00
671	489177.54	4866889.51	Non-Participating	0:00	0	0:00	0:00
672	489191.30	4866647.84	Non-Participating	0:00	0	0:00	0:00
673	489312.09	4866497.79	Non-Participating	0:00	0	0:00	0:00
674	489313.39	4866375.23	Non-Participating	0:00	0	0:00	0:00
675	489310.25	4866131.82	Non-Participating	0:00	0	0:00	0:00
676	489861.71	4865984.83	Non-Participating	0:00	0	0:00	0:00
677	489395.33	4866310.51	Non-Participating	0:00	0	0:00	0:00
678	490197.73	4866693.01	Non-Participating	0:00	0	0:00	0:00
679	490217.54	4866649.68	Non-Participating	0:00	0	0:00	0:00
680	490017.33	4865967.73	Non-Participating	0:00	0	0:00	0:00
681	490278.87	4865979.10	Non-Participating	0:00	0	0:00	0:00
682	490410.02	4866045.09	Non-Participating	0:00	0	0:00	0:00
683	490085.49	4864761.25	Non-Participating	0:00	0	0:00	0:00
684	489923.58	4864746.23	Non-Participating	0:00	0	0:00	0:00
685	489842.93	4865195.32	Non-Participating	0:00	0	0:00	0:00
686	492242.97	4868718.98	Non-Participating	0:00	0	0:00	0:00
687	492201.39	4868471.14	Participating	0:00	0	0:00	0:00
688	491286.85	4866494.23	Non-Participating	0:00	0	0:00	0:00
689	491009.28	4865891.24	Non-Participating	0:00	0	0:00	0:00
690	491637.21	4866020.30	Non-Participating	0:00	0	0:00	0:00
691	492326.88	4865129.44	Non-Participating	0:00	0	0:00	0:00
692	491378.79	4865103.88	Non-Participating	0:00	0	0:00	0:00
693	491360.33	4865074.29	Non-Participating	0:00	0	0:00	0:00
694	492846.71	4863545.15	Non-Participating	0:00	0	0:00	0:00
695	491647.96	4864076.25	Non-Participating	0:00	0	0:00	0:00
696	490594.15	4864686.77	Non-Participating	0:00	0	0:00	0:00
697	492988.35	4862968.51	Non-Participating	0:00	0	0:00	0:00
698	493649.83	4863248.87	Non-Participating	0:00	0	0:00	0:00
699	494269.33	4863513.13	Non-Participating	0:00	0	0:00	0:00
700	493677.47	4863383.00	Non-Participating	0:00	0	0:00	0:00
701	493669.38	4863482.76	Non-Participating	0:00	0	0:00	0:00
702	483374.01	4877839.13	Non-Participating	0:00	0	0:00	0:00
703	483734.01	4879213.02	Non-Participating	0:00	0	0:00	0:00