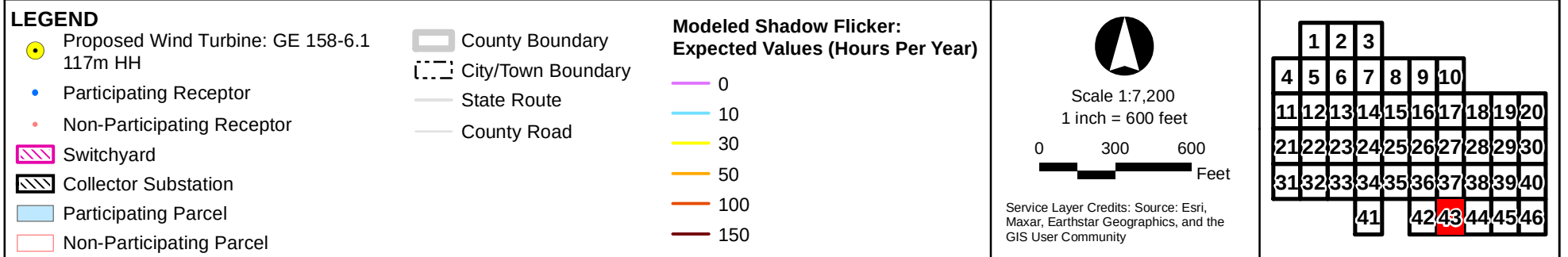


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LEGEND

- Proposed Wind Turbine: GE 158-6.1 117m HH
- Participating Receptor
- Non-Participating Receptor
- Switchyard
- Collector Substation
- Participating Parcel
- Non-Participating Parcel

Modeled Shadow Flicker: Expected Values (Hours Per Year)

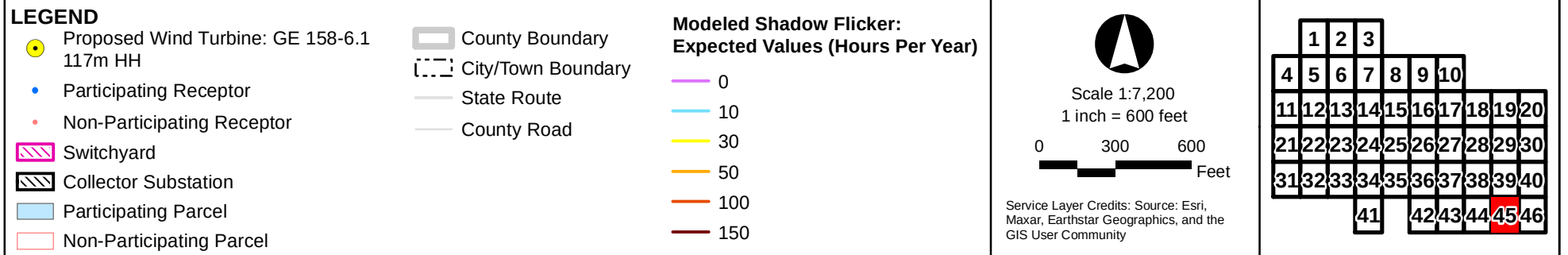
- 0
- 10
- 30
- 50
- 100
- 150

Scale 1:7,200
1 inch = 600 feet

0 300 600 Feet

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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						41	42	43	44
							45	46	





5.2.4 Cumulative Shadow Flicker Modeling Results – GE 158-6.1

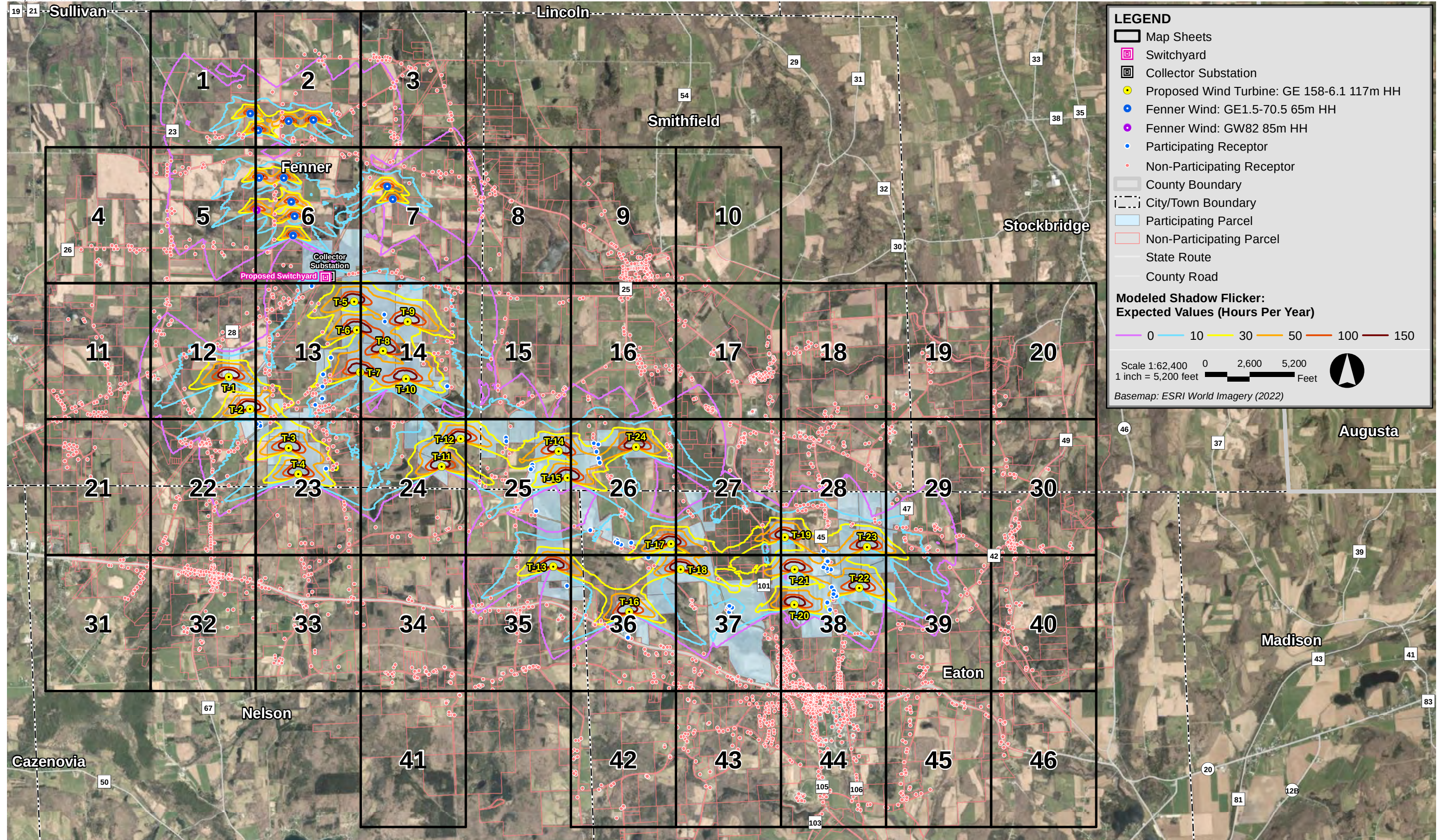
The proposed Hoffman Falls Wind Project will be located in Madison County, NY. Adjacent to the proposed Project is the existing Fenner Wind Farm in Madison County, NY. Due to these existing wind turbines, the potential exists for cumulative shadow flicker impacts at specific receptors. To assess the potential cumulative shadow flicker impacts, a cumulative shadow flicker analysis was performed for a select number of wind turbines. Following §1100-2.8(c)(1) within Exhibit 7: Noise and Vibration, the cumulative shadow flicker analysis included all existing wind turbines and existing sensitive receptors within a two (2)-mile radius from any wind turbine proposed by the Hoffman Falls Wind Project. As a result, the same sensitive modeling receptor dataset specified in Section 5.1 with a total of 2,333 receptors was used for the cumulative shadow flicker analysis. For the existing Fenner Wind Project, a total of twelve (12) wind turbines are contained within a two (2)-mile radius of the Hoffman Falls Wind Project. Eleven (11) of these Fenner Wind Project wind turbines are GE 1.5-70.5 wind turbines. The GE 1.5-70.5 wind turbine model contains a rotor diameter of 70.5 meters (231 feet) and a hub height of 65 meters (213 feet). The twelfth wind turbine associated with the Fenner Wind Project is a Goldwind model GW82. The Goldwind GW82 wind turbine contains a rotor diameter of 82 meters (269 feet) and a hub height of 85 meters (279 feet). These specifications for the Fenner Wind Farm turbines were provided by Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR).

The cumulative shadow flicker analysis was carried out using WindPRO version 3.6.366 and following the same methodology as laid out in Section 5.1. With the worst-case wind turbine proposed by the Applicant being the GE 158-6.1 wind turbine, the GE 158-6.1 has been used for the Hoffman Falls Wind Project in the cumulative shadow flicker analysis. Table D-1 in Appendix D presents the modeling results of expected shadow flicker for the Project layout using the GE 158-6.1 turbine combined with the expected shadow flicker results of the existing Fenner Wind turbines. Appendix D includes sixteen tables, D-1a through D-1p, which presents expected hours per year of shadow flicker at the 2,333 receptors included in the cumulative shadow flicker analysis sorted by receptor ID and expected flicker and broken out by receptor category and participation. These tables show the expected flicker from the Hoffman Falls Wind Project turbines, expected flicker from the Fenner Wind Farm turbines, and expected cumulative flicker at each individual receptor from both projects.

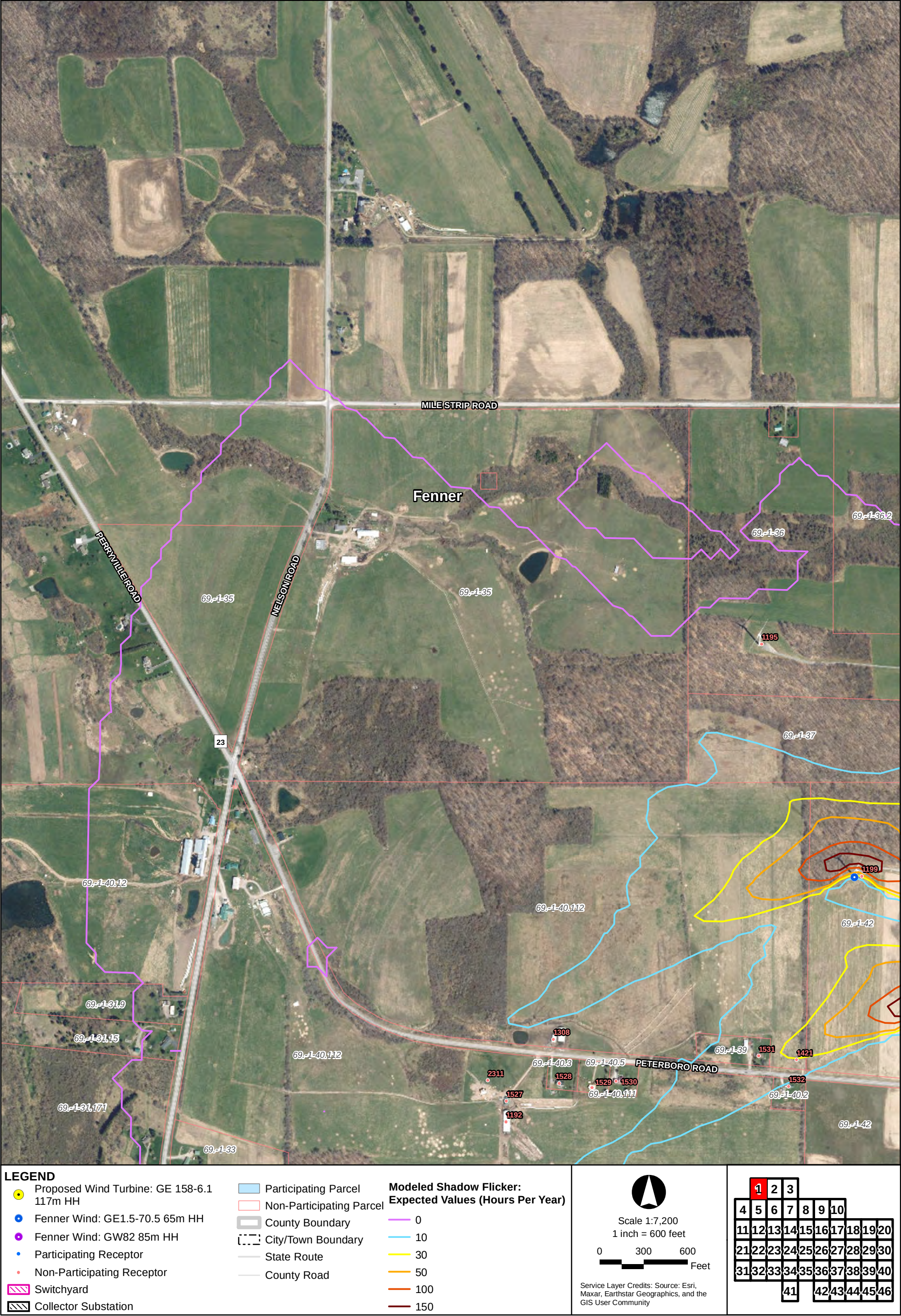
The maximum expected annual duration of cumulative shadow flicker at a residential receptor (#548) on a participating parcel is 61 hours, 46 minutes. The maximum expected annual duration of cumulative shadow flicker at a residential receptor (#1173) on a non-participating parcel is 61 hours, 8 minutes. Modeled shadow flicker impacts at these residential receptors were entirely driven by the proposed Hoffman Falls Wind Project with no contribution from the existing Fenner Wind Farm. In total, there are only two residential receptors (#1882 & #1883) on a non-participating parcel where shadow flicker is modeled to occur from both the proposed Hoffman Falls Wind Project and the existing Fenner Wind Farm. Neither of these two non-participating residential receptors are expected to exceed 30 hours per year, due to the cumulative shadow flicker impacts (#1882- 9 hours, 53 minutes (8 hours, 39 minutes: Hoffman Falls Wind; 1 hour, 16

minutes: Fenner Wind); #1883- 7 hours, 50 minutes (6 hours, 34 minutes: Hoffman Falls Wind; 1 hour, 20 minutes: Fenner Wind)). Figure D-1 shows cumulative shadow flicker contours over aerial imagery of the Project Area.

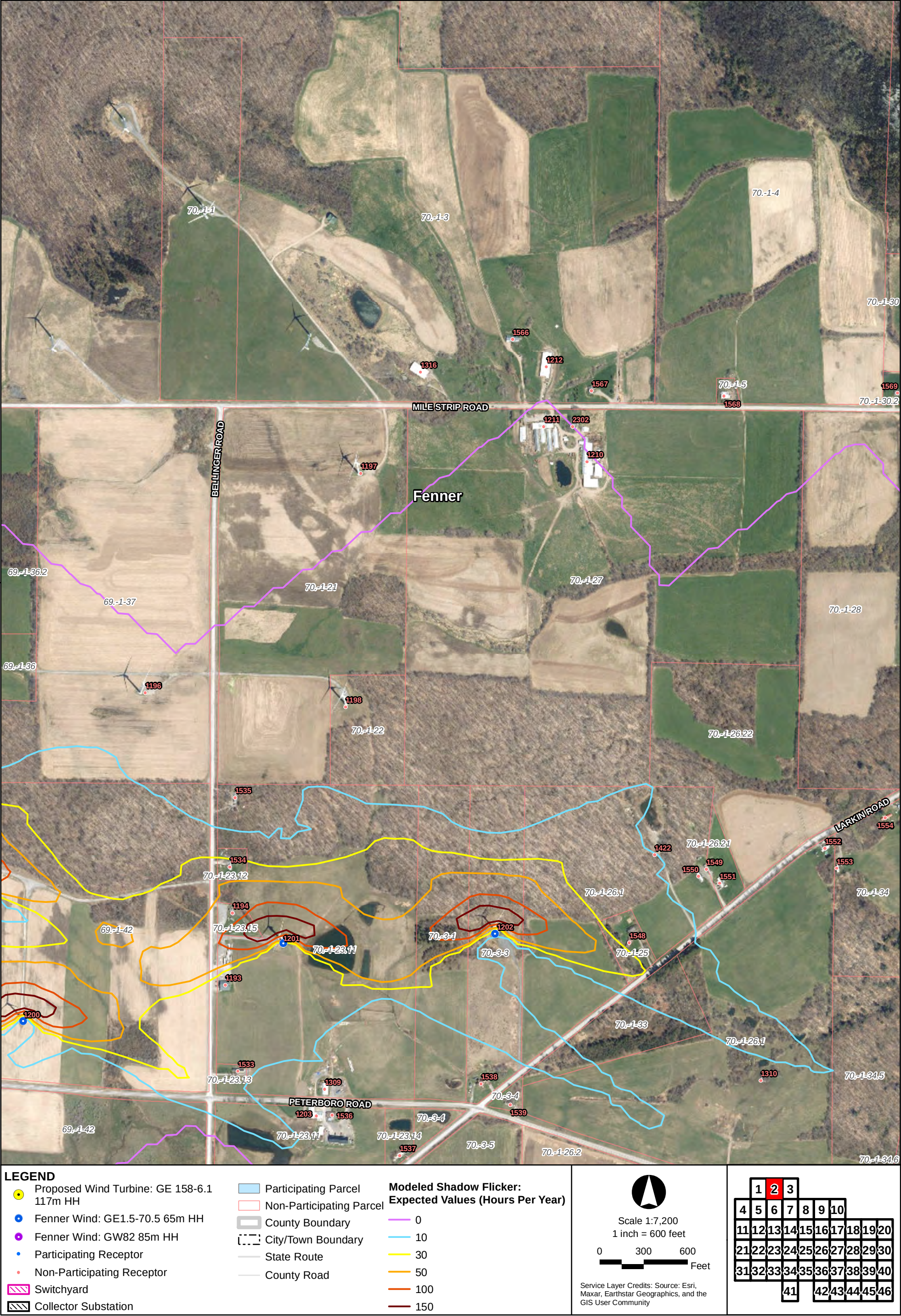
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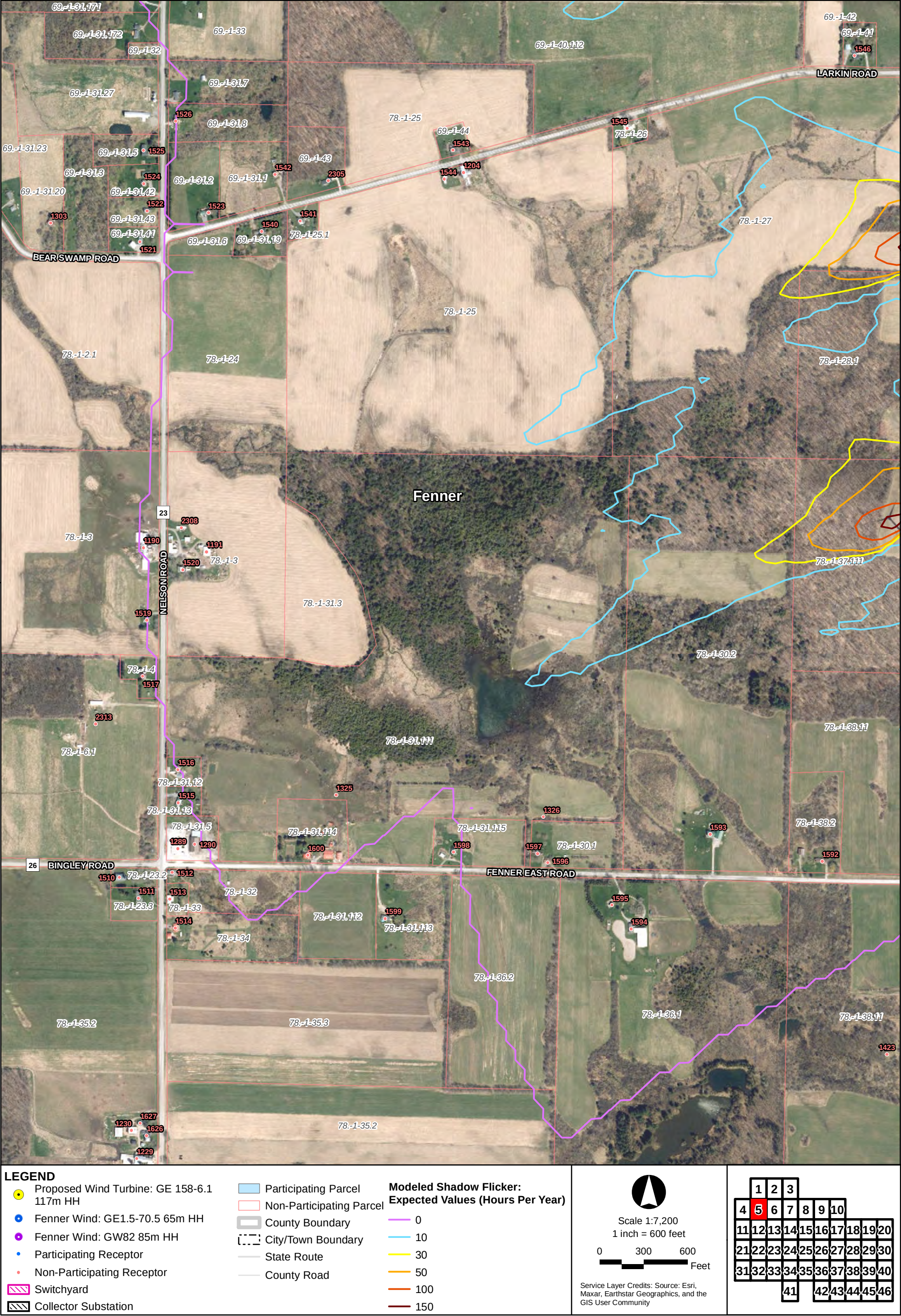
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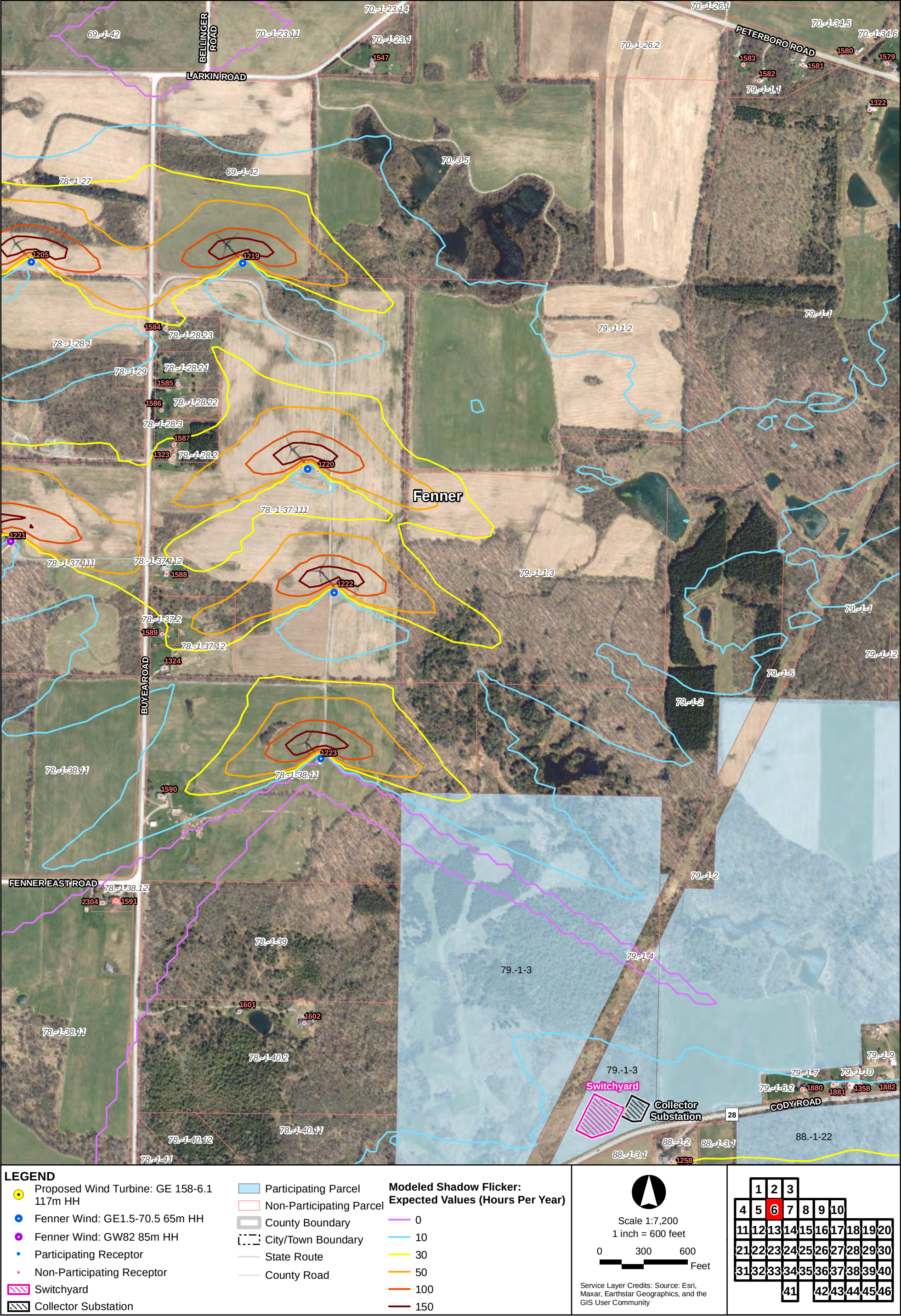
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LEGEND

- Proposed Wind Turbine: GE 158-6.1 117m HH
- Fenner Wind: GE1.5-70.5 65m HH
- Fenner Wind: GW82 85m HH
- Participating Receptor
- Non-Participating Receptor
- Switchyard
- Collector Substation

- Participating Parcel
- Non-Participating Parcel
- County Boundary
- City/Town Boundary
- State Route
- County Road

Modeled Shadow Flicker: Expected Values (Hours Per Year)

- 0
- 10
- 30
- 50
- 100
- 150

Scale 1:7,200
1 inch = 600 feet

0 300 600 Feet

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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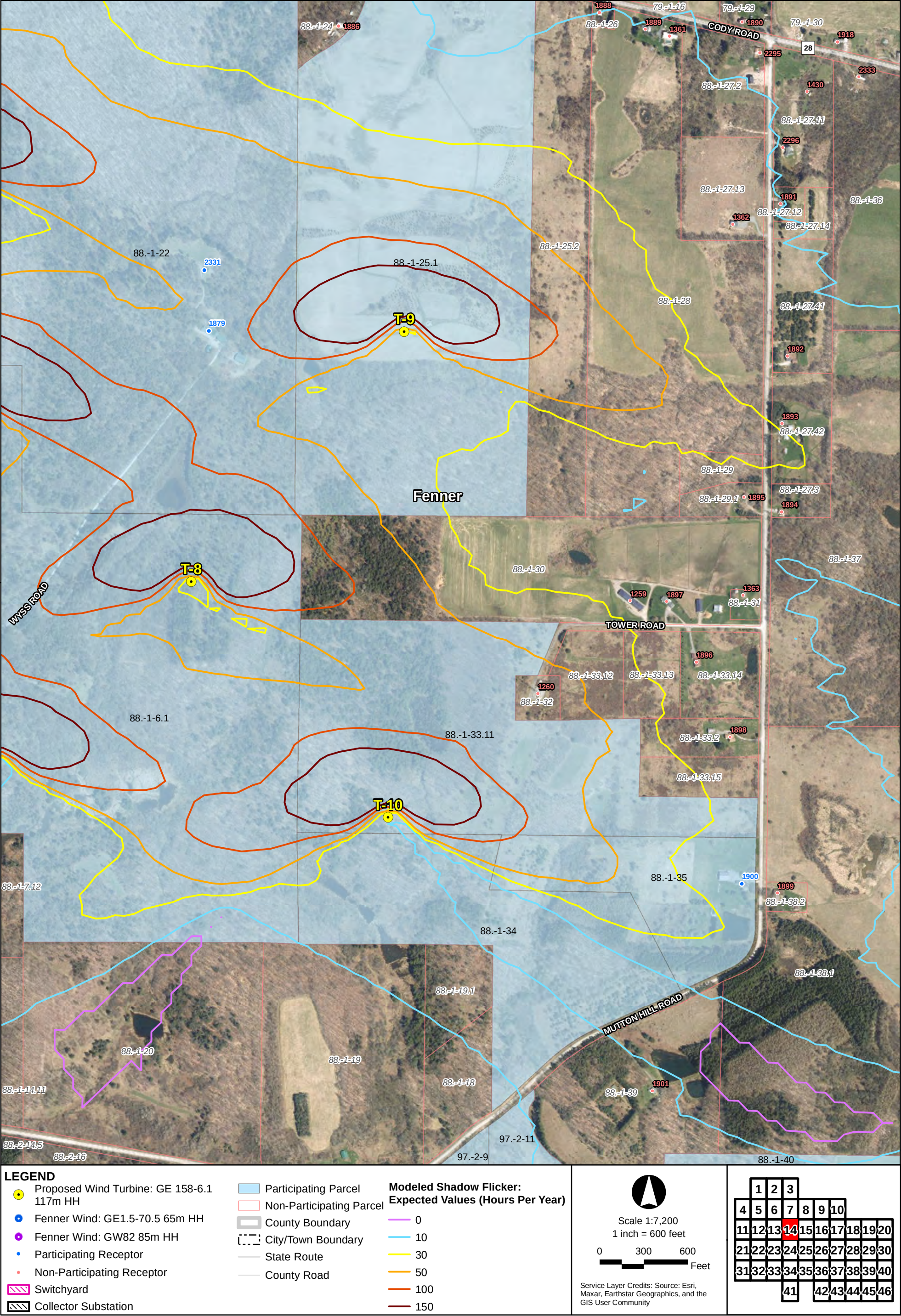
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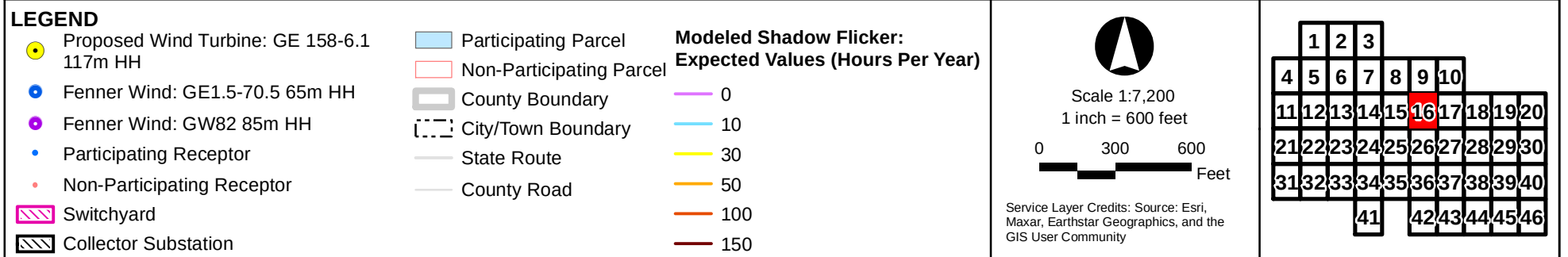


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LEGEND

- Proposed Wind Turbine: GE 158-6.1 117m HH
- Fenner Wind: GE1.5-70.5 65m HH
- Fenner Wind: GW82 85m HH
- Participating Receptor
- Non-Participating Receptor
- Switchyard
- Collector Substation

- Participating Parcel
- Non-Participating Parcel
- County Boundary
- City/Town Boundary
- State Route
- County Road

Modeled Shadow Flicker: Expected Values (Hours Per Year)

- 0
- 10
- 30
- 50
- 100
- 150

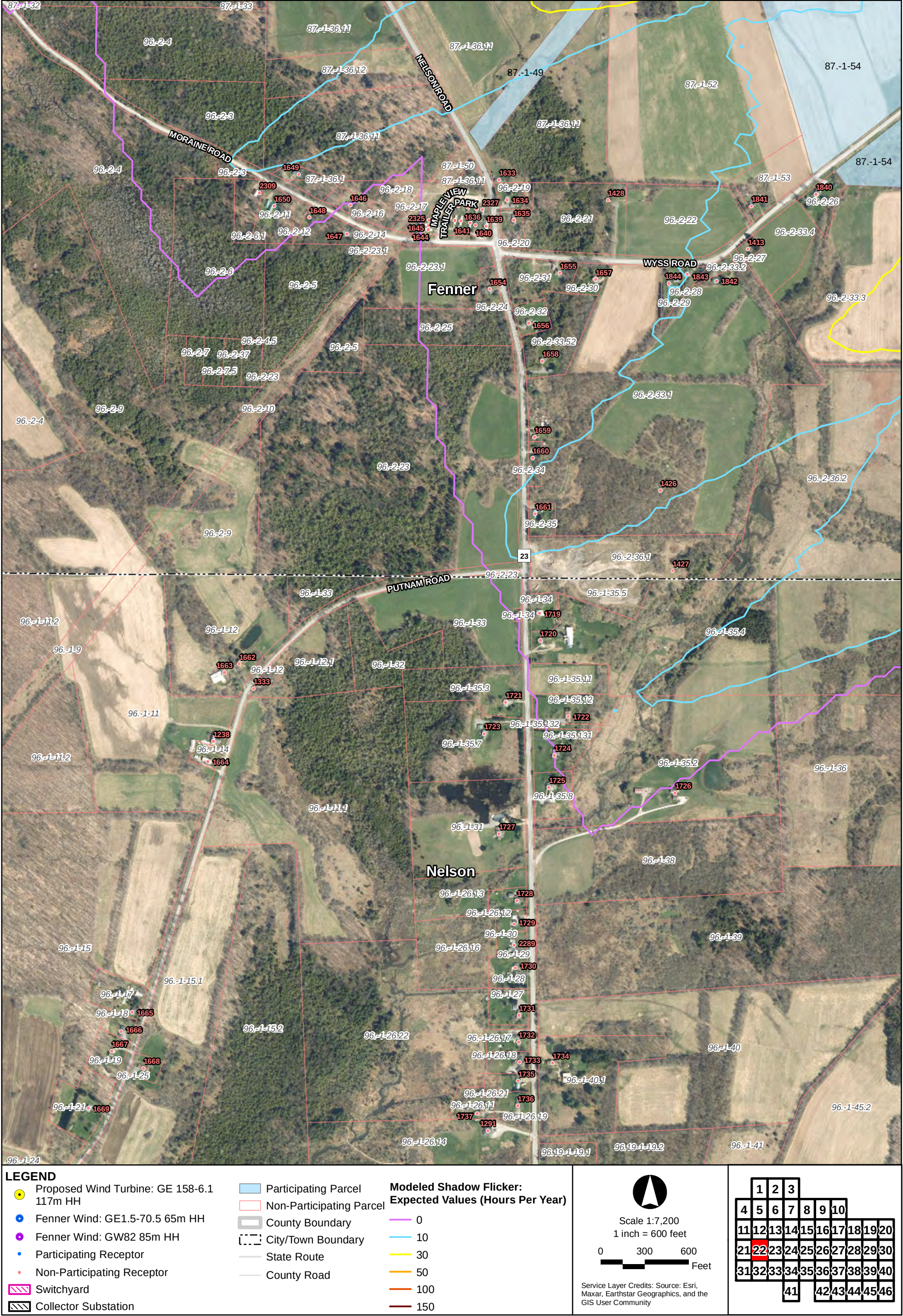
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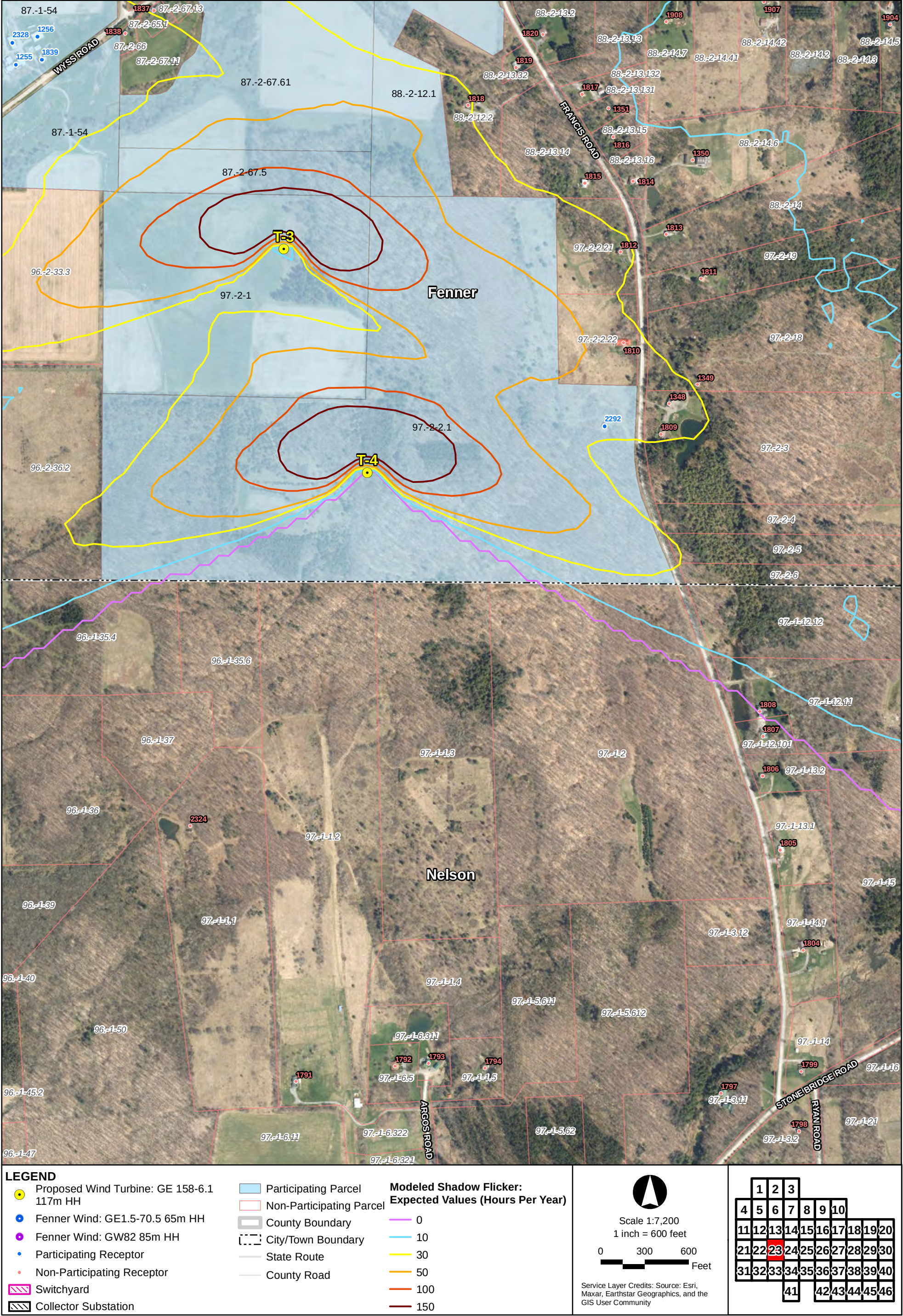
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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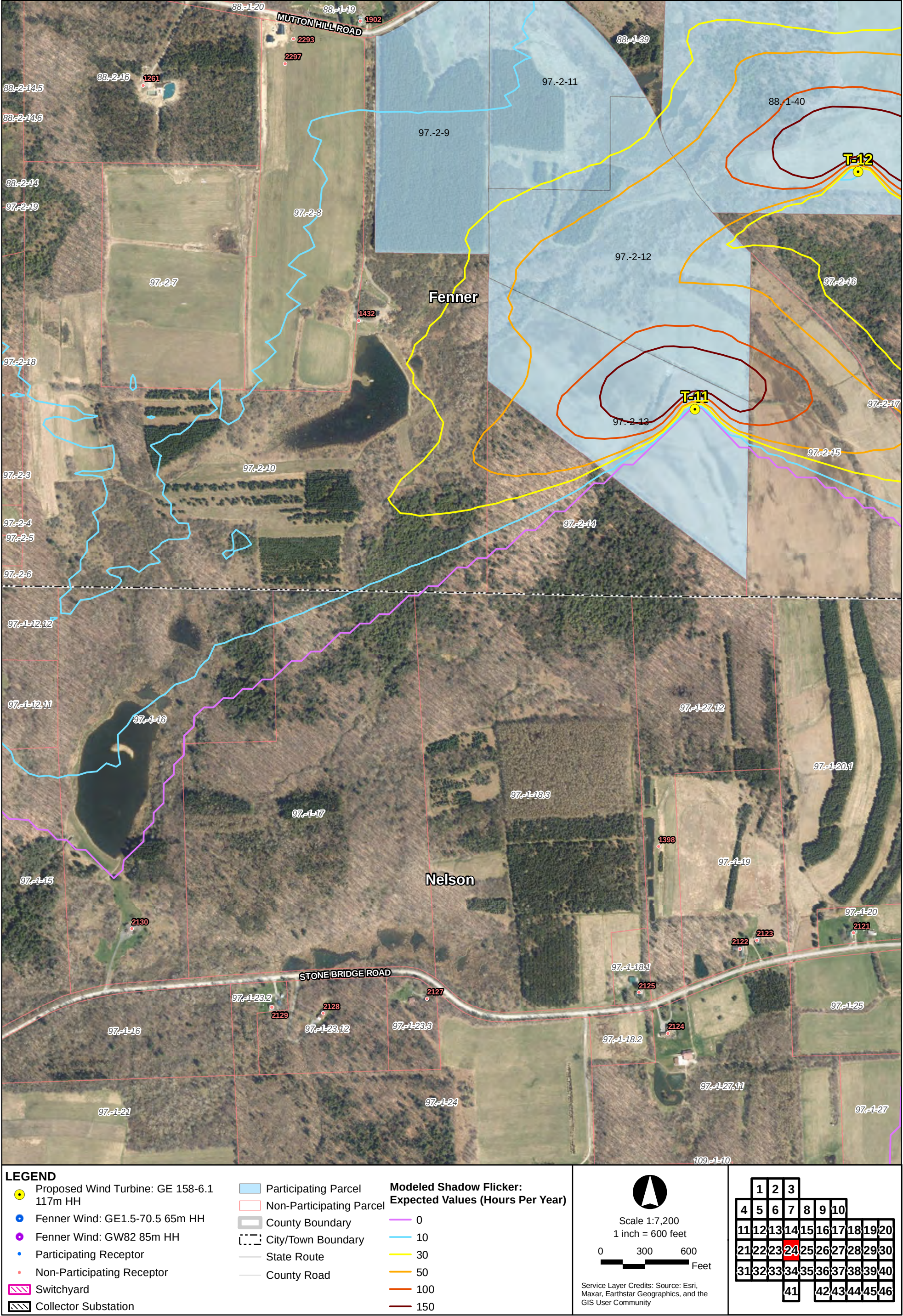
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LEGEND

- Proposed Wind Turbine: GE 158-6.1 117m HH
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Modeled Shadow Flicker: Expected Values (Hours Per Year)

- 0
- 10
- 30
- 50
- 100
- 150

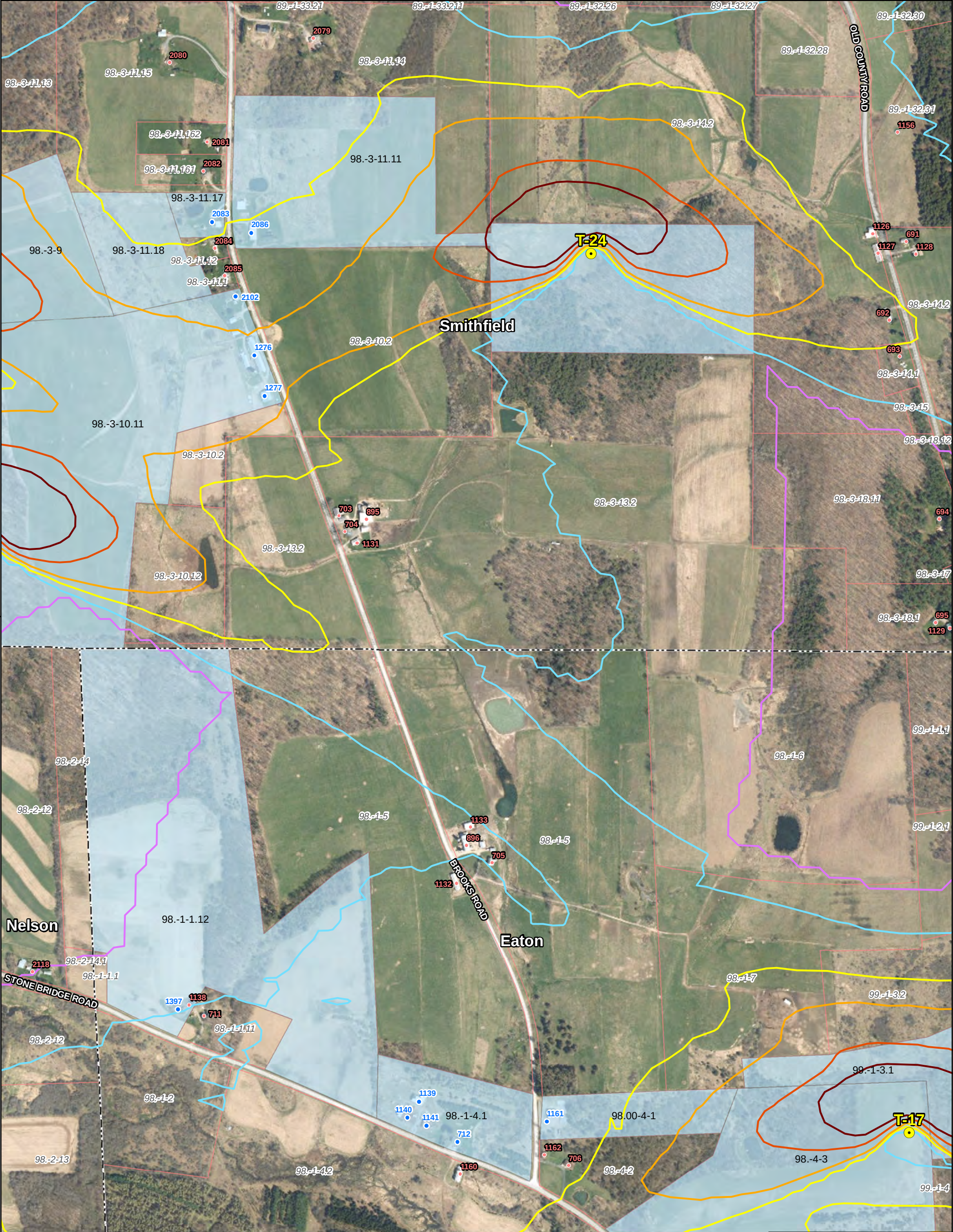
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1 inch = 600 feet

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Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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LEGEND

● Proposed Wind Turbine: GE 158-6.1 117m HH

● Fenner Wind: GE1.5-70.5 65m HH

● Fenner Wind: GW82 85m HH

● Participating Receptor

● Non-Participating Receptor

▨ Switchyard

▨ Collector Substation

■ Participating Parcel

□ Non-Participating Parcel

▬ County Boundary

▬ City/Town Boundary

▬ State Route

▬ County Road

Modeled Shadow Flicker: Expected Values (Hours Per Year)

0

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30

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100

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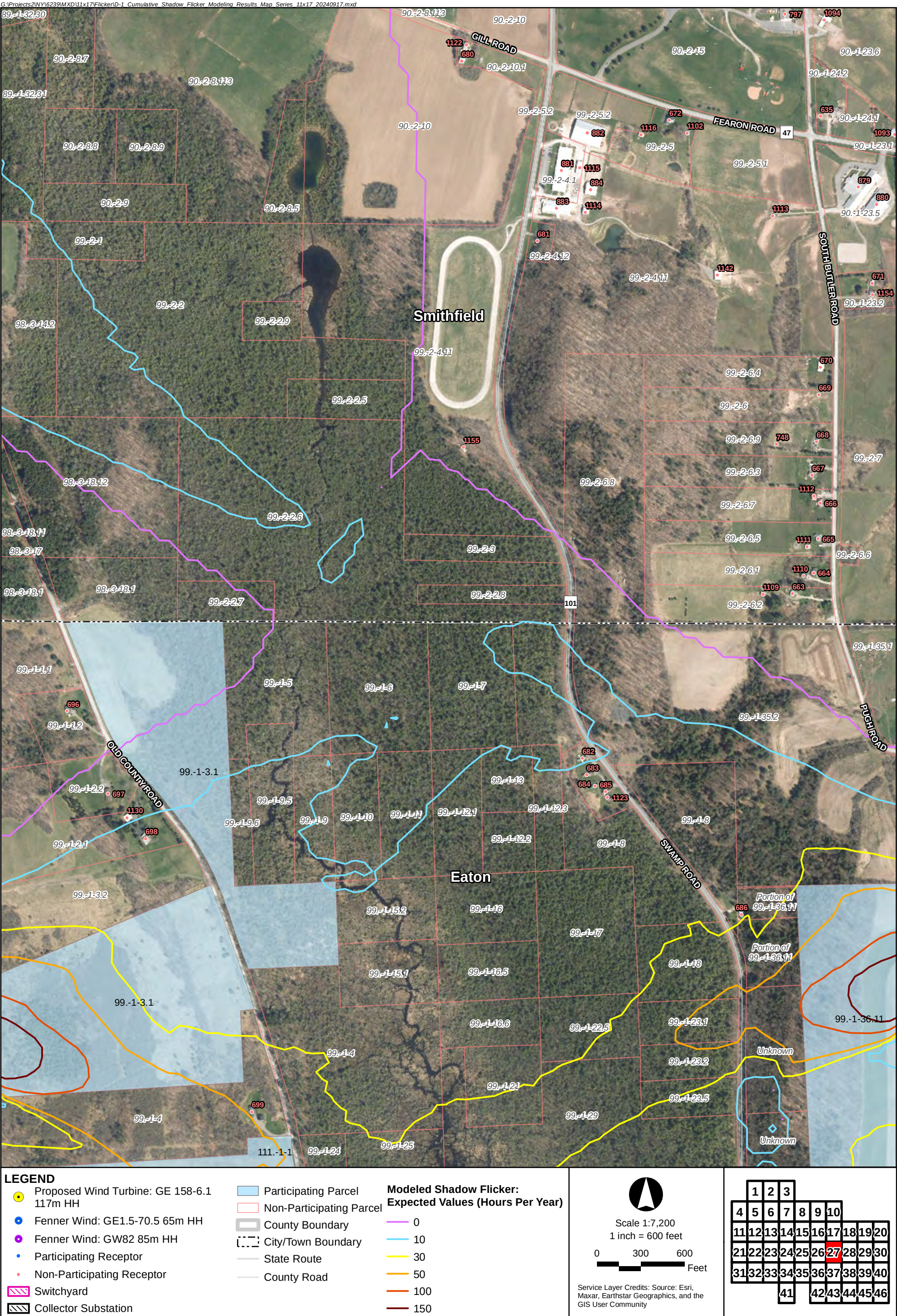
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1 inch = 600 feet

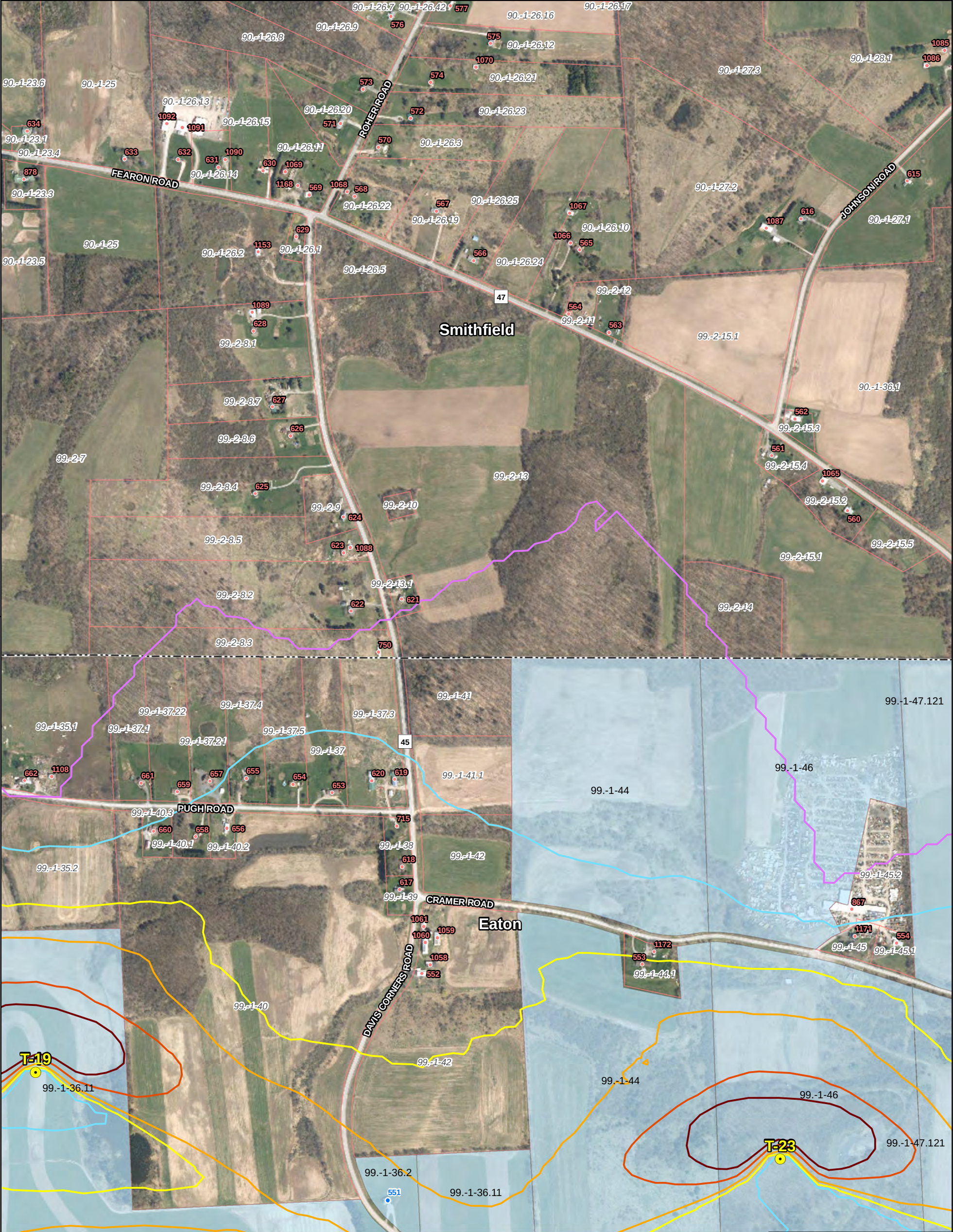
0 300 600 Feet

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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LEGEND

● Proposed Wind Turbine: GE 158-6.1 117m HH

● Fenner Wind: GE1.5-70.5 65m HH

● Fenner Wind: GW82 85m HH

● Participating Receptor

● Non-Participating Receptor

▨ Switchyard

▨ Collector Substation

▭ Participating Parcel

▭ Non-Participating Parcel

▭ County Boundary

▭ City/Town Boundary

▭ State Route

▭ County Road

**Modeled Shadow Flicker:
Expected Values (Hours Per Year)**

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Scale 1:7,200
1 inch = 600 feet

0 300 600 Feet

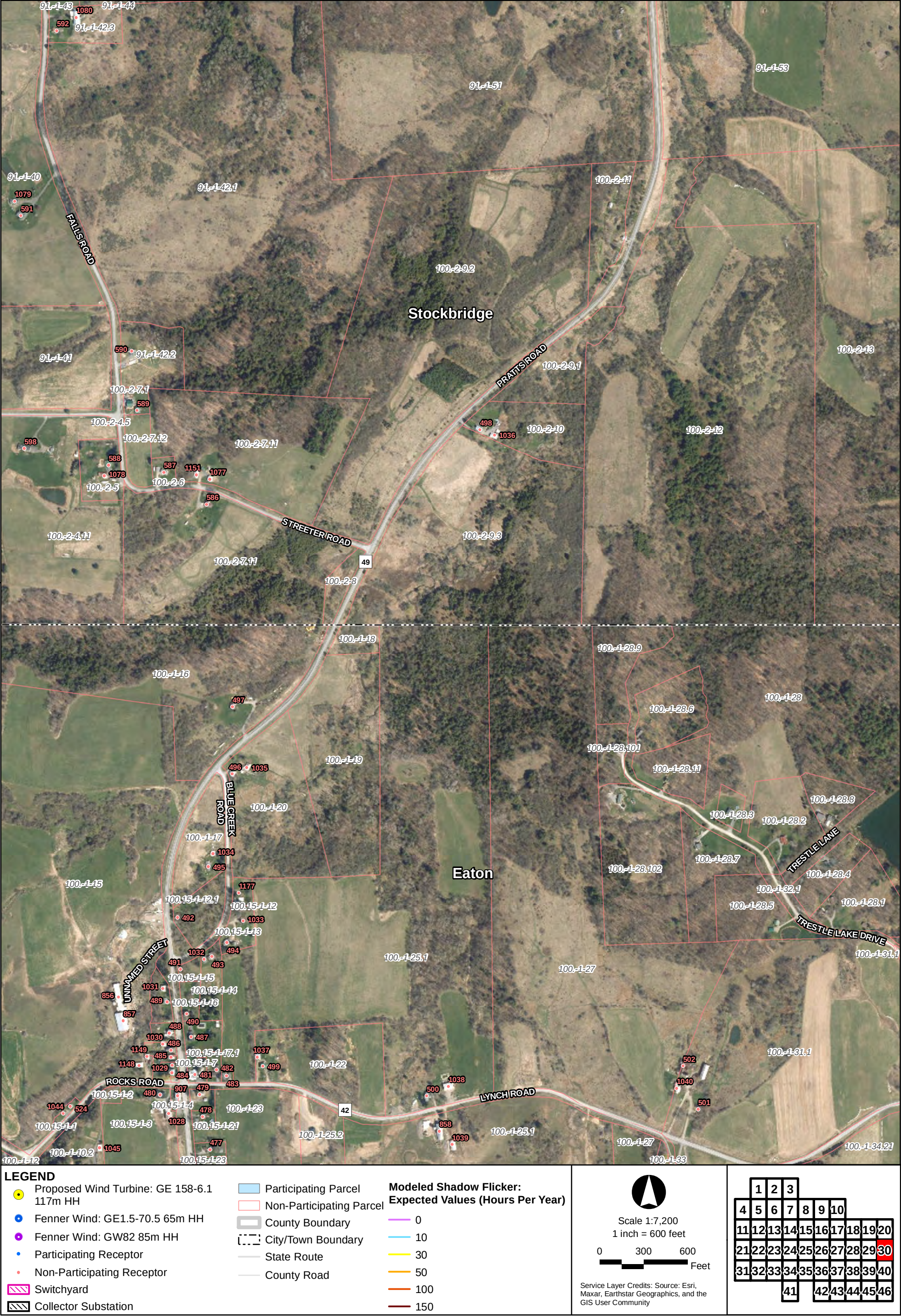
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LEGEND

● Proposed Wind Turbine: GE 158-6.1 117m HH

● Fenner Wind: GE1.5-70.5 65m HH

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Scale 1:7,200
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0 300 600 Feet

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LEGEND

Proposed Wind Turbine: GE 158-6.1
117m HH

Fenner Wind: GE1.5-70.5 65m HH

Fenner Wind: GW82 85m HH

Participating Receptor

Non-Participating Receptor

Switchyard

Collector Substation

Participating Parcel

Non-Participating Parcel

County Boundary

City/Town Boundary

State Route

County Road

**Modeled Shadow Flicker:
Expected Values (Hours Per Year)**

0

10

30

50

100

150

Scale 1:7,200
1 inch = 600 feet

0 300 600 Feet

Service Layer Credits: Source: Esri,
Maxar, Earthstar Geographics, and the
GIS User Community

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LEGEND

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- 0
- 10
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Scale 1:7,200
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LEGEND

● Proposed Wind Turbine: GE 158-6.1
117m HH

● Fenner Wind: GE1.5-70.5 65m HH

● Fenner Wind: GW82 85m HH

● Participating Receptor

● Non-Participating Receptor

▨ Switchyard

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▨ County Boundary

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▨ County Road

**Modeled Shadow Flicker:
Expected Values (Hours Per Year)**

— 0

— 10

— 30

— 50

— 100

— 150

Scale 1:7,200
1 inch = 600 feet

0 300 600 Feet

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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