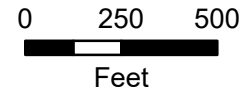
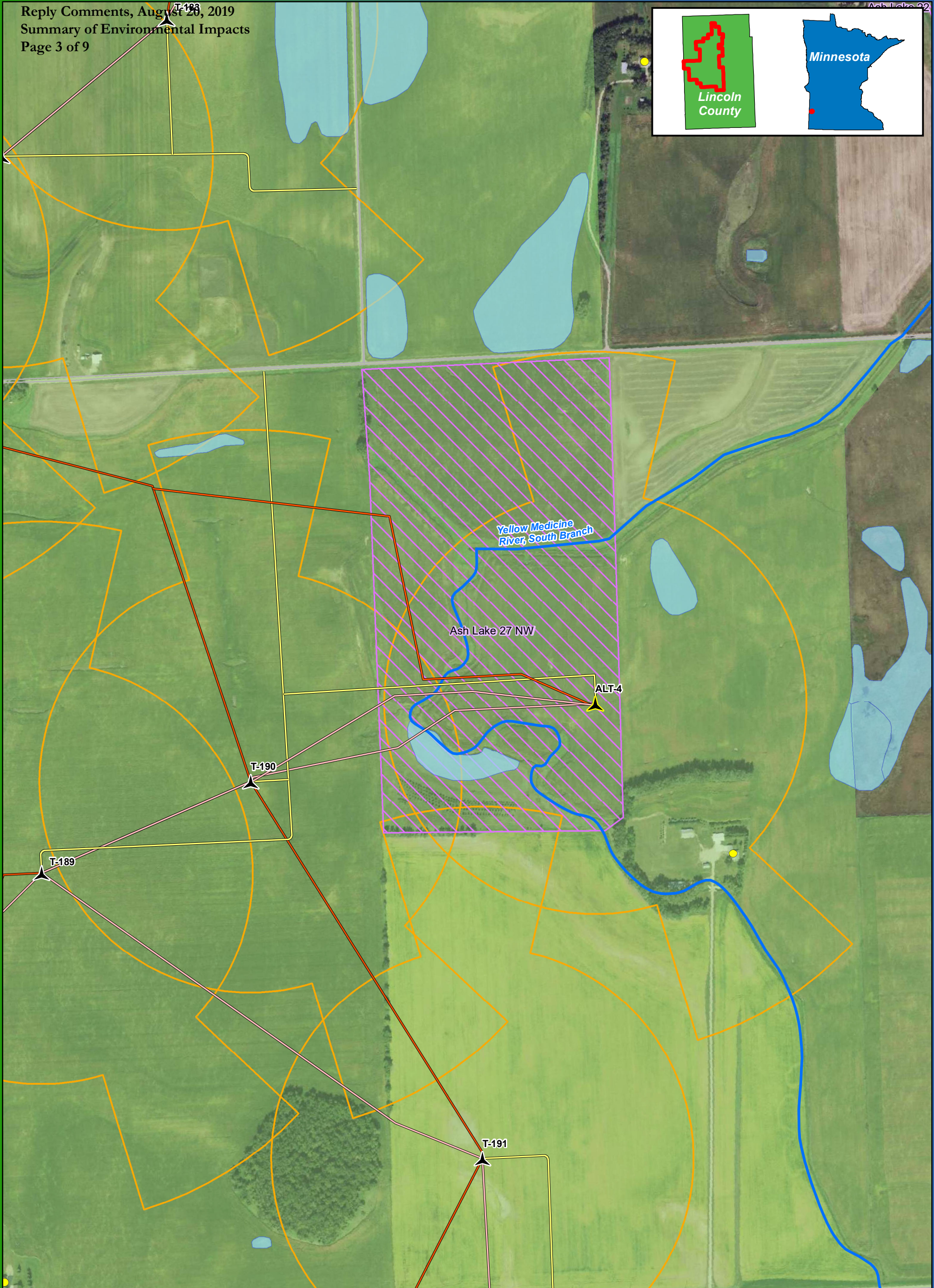
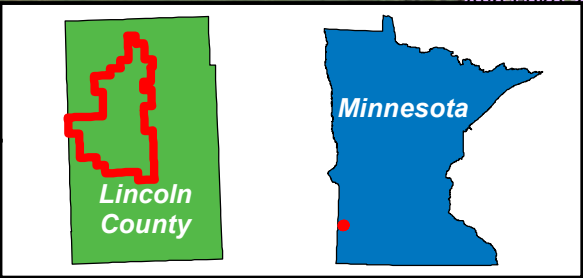


Summary of Environmental Impacts: Removal of T-101, Addition of Alt-4, and T-109 changing from a V120 to a V110

Environmental Section	Removal of T-101	Addition of Alt-4	T-109: change from V120 to V110
8.1: Demographics	-	-	-
8.2: Land Use	-	-	-
8.3: Noise	Total noise at the nearest receptor (a participant) is modeled at 49 dBA (L ₅₀)	Total noise at the nearest receptor (a participant) is modeled at 50 dBA (L ₅₀)	Total noise at the nearest receptor (a participant) is modeled at 42 dBA (L ₅₀)
8.4: Visual	Shadow flicker at the nearest receptor (a participant) is modeled at 14:55 hr/year	Shadow flicker at the nearest receptor (a participant) is modeled at 14:39 hr/year	Shadow flicker at the nearest receptor (a non-participant) is modeled at 5:14 hr/year
8.5: Public Infrastructure	-	-	-
8.6: Cultural and Archaeological Resources	-	-	-
8.7: Recreation	-	-	-
8.8: Public Health and Safety	-	-	-
8.9 Hazardous Materials	-	-	-
8.10: Land-based Economies	-	-	-
8.11: Tourism	-	-	-
8.12: Local Economies	-	-	-
8.13: Topography	-	-	-
8.14: Soils	-	-	-
8.15: Geologic and Groundwater Resources	-	-	-
8.16: Surface Waters and Floodplain Resources	-	The access route to Alt-4 would cross PWI watercourse Yellow Medicine River, South Branch (M-055-146-042). The access would be culverted and Xcel Energy will coordinate with the Minnesota Department of Natural Resources for Public Waters Crossing license	-
8.17: Wetlands	-	There are NWI mapped wetlands associated with the PWI crossing. Xcel Energy had previously completed wetland delineations in its evaluation of this alternate	-

Summary of Environmental Impacts: Removal of T-101, Addition of Alt-4, and T-109 changing from a V120 to a V110

Environmental Section	Removal of T-101	Addition of Alt-4	T-109: change from V120 to V110
		site, and will permit any wetland impacts with the USACE.	
8.18: Vegetation	-	Ash Lake 27 Site of Biodiversity Significance (SOBS) below the minimum threshold; based on 2016 NLCD land cover data and recent aerial photography, this 80-acre parcel is currently row crops. There are no DNR mapped native prairie or native plant communities associated with this SOBS.	-
8.19: Wildlife	-	-	-
8.20: Rare and Unique Resources	-	-	-
“-“denotes no change from the Site Permit Amendment filing			



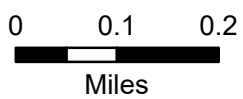
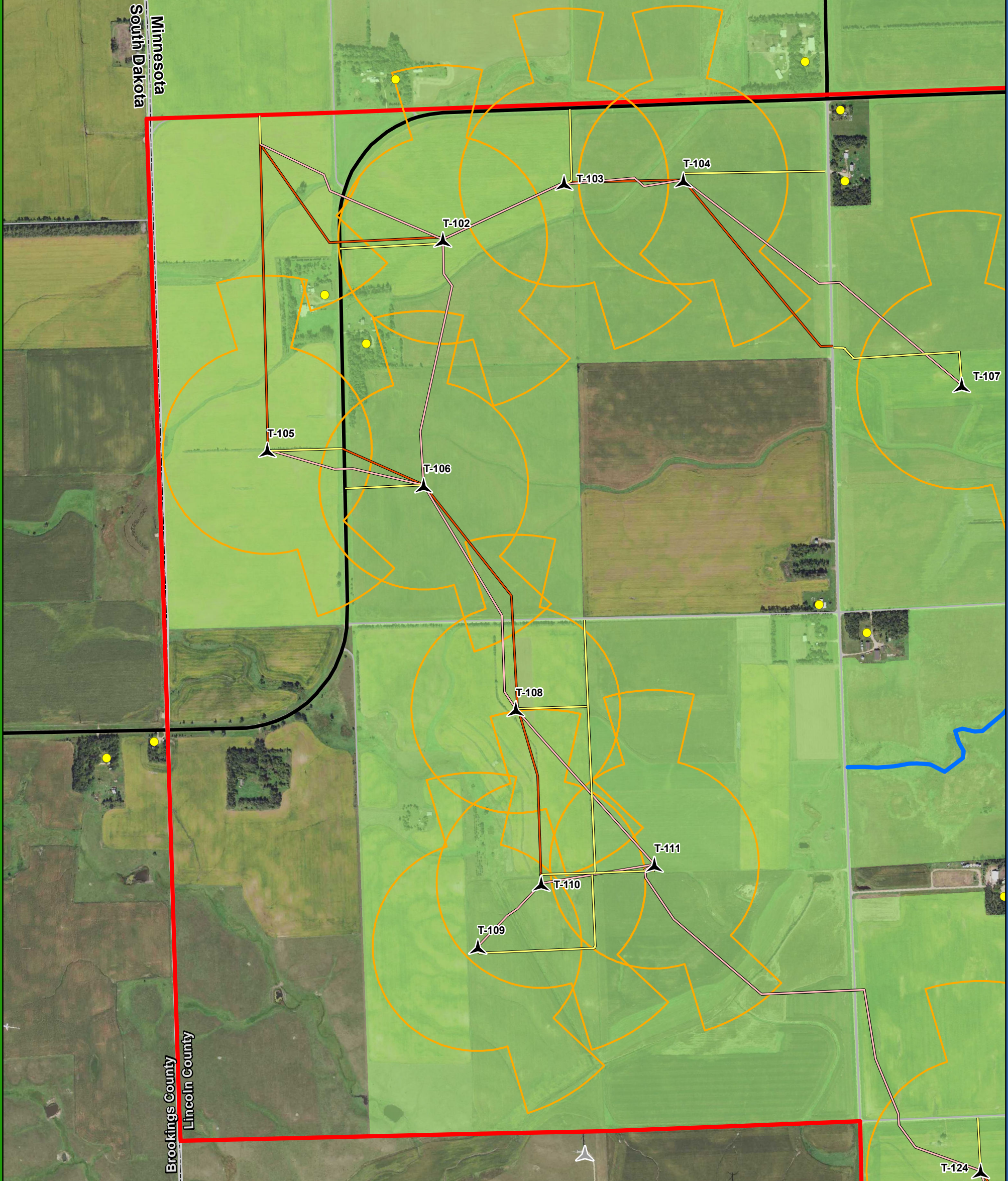
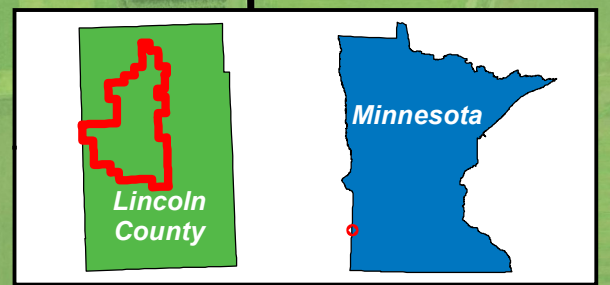
Turbine ALT-4 Addition Vestas V110/V120

Blazing Star Wind Farm 2 Lincoln County, MN

44.460125, -96.336861

* Turbines are not to scale

- Preliminary Turbine Location
- Alternate Turbine Location
- Access Road
- Collection Line
- Crane Path
- Public Waters Inventory (PWI)
- Residential Structures within 1 Mile (excluding cities of Hendricks and Ivanhoe)
- 3x5 Wind Access Buffer
- Participants within 1 Mile
- MDNR NWI Wetland
- Site of Biodiversity Significance (SOBS)**
- Status = Below



Imagery Source: National Geographic World Map
Data Source: Geronimo Energy, MN DNR, Census, Lincoln Co.

Turbine T-101 Removal Vestas V110/V120

Blazing Star Wind Farm 2 Lincoln County, MN

44.460125, -96.336861

* Turbines are not to scale

- Preliminary Turbine Location
- Existing Turbine Location
- Access Road
- Collection Line
- Crane Path
- Public Waters Inventory (PWI)
- Residential Structures within 1 Mile (excluding cities of Hendricks and Ivanhoe)
- Project Area Boundary
- 3x5 Wind Access
- Participants within 1 Mile



MEMO

TO: Brie Anderson (Merjent)
FROM: Ryan Haac
Eddie Duncan, INCE Bd. Cert.
DATE: August 19, 2019
SUBJECT: Updated sound propagation modeling results for Blazing Star 2

Xcel Energy recently updated the wind turbine layout for Blazing Star 2 (Project). To confirm compliance with state and local standards, we reviewed the new turbine layout, and updated the Project's sound propagation model. As discussed below, we found that all residences remain below 50 dBA L₅₀ for both turbine-only sound level and combined sound level (turbine plus background sound).

The layout changes reflected in this memo are as follows:

- Removed T-101 (Vestas V110)
- Added Alt-4 (Vestas V120)
- Changed the turbine model of T-109 from the Vestas V120 to the Vestas V110

As was the case in the Project's Noise Compliance Report¹, the Project still consists of ten Vestas V110s and ninety Vestas V120s. The location of all turbines in the project, including the changes indicated above, are provided in Figure 1.

Based on the model previously reported in the Noise Compliance Report¹ for the Project, modeled sound levels at residences near T-101 (removed) and T-109 (changed from V120 to V110) only decreased in sound level. Modeled sound levels increased at residences near the new turbine (ALT-4), but turbine-only and turbine plus background (combined) L₅₀ sound levels meet the 50 dBA L₅₀ limit set out in Minnesota Rules Chapter 7030. A summary of the results for the residences closest to the new turbine (ALT-4) is provided in Table 1.

¹ RSG, Noise Compliance Report, Blazing Star Wind Farm 2, June 11, 2019.

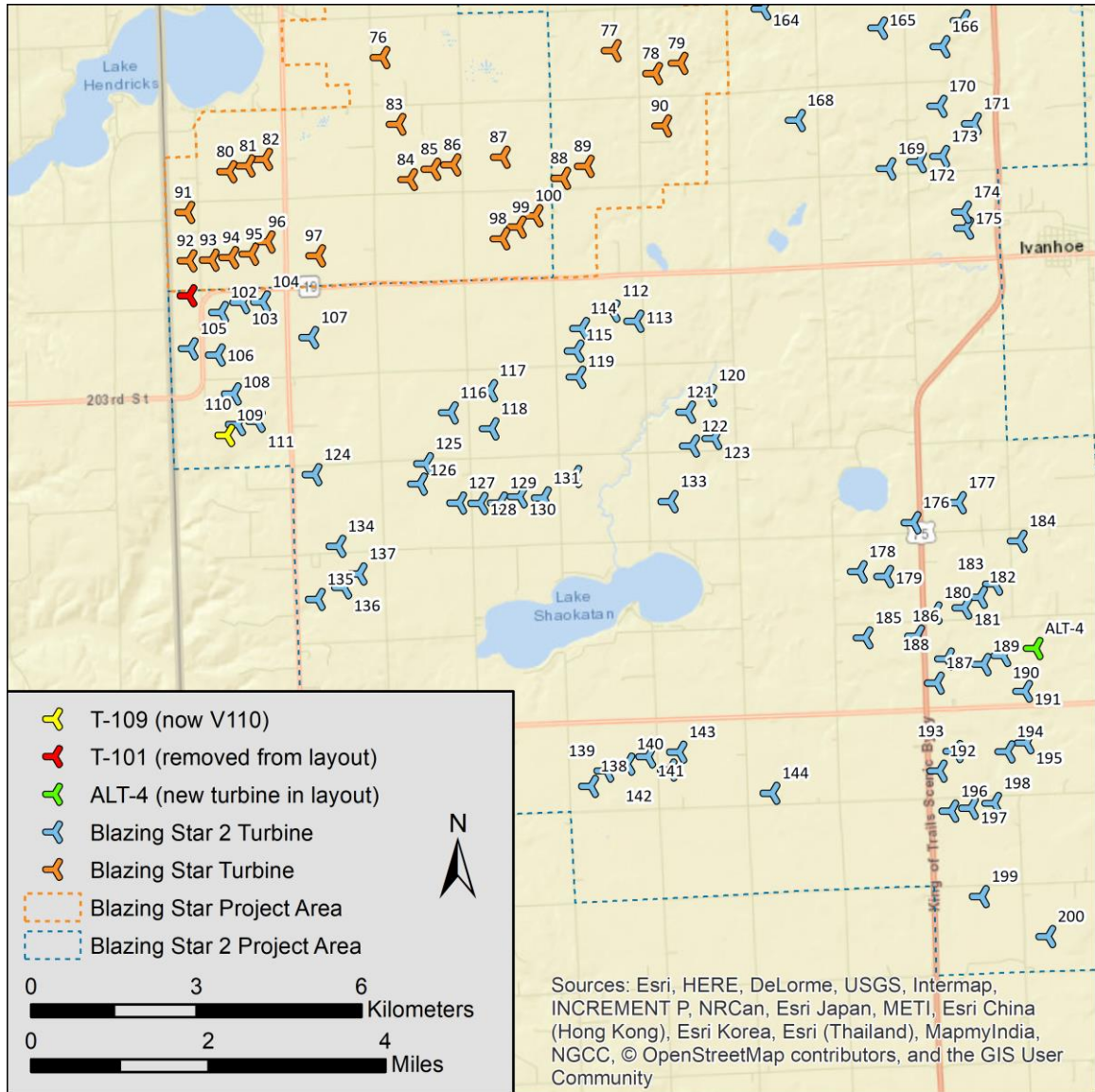


FIGURE 1: MAP OF MODIFICATIONS TO WIND TURBINE SOUND PROPAGATION MODEL



TABLE 1: CHANGES IN PROJECTED SOUND LEVELS AT THE ELEVEN CLOSEST RESIDENCES TO THE NEW WIND TURBINE (ALT-4). THE COMBINED L50 INCLUDES THE CONTRIBUTION OF THE UPDATED PROJECT LAYOUT AND THE PROJECT-WIDE NIGHTTIME BACKGROUND L50 OF 35 DBA (TABLE 4 IN NOISE COMPLIANCE REPORT¹)

Receiver ID	Parcel Status	Prior Layout Turbine-only L ₅₀ (dBA)	Updated Turbine-only L ₅₀ (dBA)	Increase in Turbine-only Sound Level (dB)	Updated Background + Turbine L ₅₀ (dBA)
140	Participant	45	50	4	50
128	Participant	48	48	0	48
130	Non-Participant	44	45	1	45
157	Participant	48	48	0	48
162	Participant	48	48	0	48
205	Participant	48	49	0	49
209	Participant	50	50	0	50
374	Non-Participant	38	39	1	40
375	Non-Participant	35	35	1	38
376	Non-Participant	38	39	1	40
377	Non-Participant	39	39	1	41

MEMO

TO: Brie Anderson, Merjent

From: Jay Haley, P.E.

DATE: August 17, 2019

Subject: Blazing Star 2, LLC Shadow Flicker Effects from Turbine Moves

The Blazing Star 2 shadow flicker analysis was updated to include the turbine array changes listed below:

T101 – Removed

T109 – Changed from a V120 to a V110

Alt-1 – Removed

The results of the updated analysis indicate that there were reductions in shadow flicker hours at 7 of the 8 receptors affected by the turbine moves. There were 6 non-participating receptors, 5 of which showed decreased shadow flicker hours, one that showed an increase from 4 hours and 56 minutes to 5 hours and 31 minutes, and 2 participating receptors which both showed a decrease. The highest number of hours of shadow flicker at a non-participating receptor remains the same at 25 hours and 32 minutes.

Based on these results, the conclusions in the original study dated 4/15/19 remain the same and are restated below:

Conclusions

The conservative results of this study indicate that for the 215 receptors modeled, 13 measured more than 30 hours per year at participating landowners' occupied

residences with none measuring over 25 hours and 32 minutes or more per year of realistic shadow flicker at a non-participating landowner's occupied residence. The shadow flicker impact on the receptors was calculated from turbines within 1 mile with reductions due to turbine operational time, turbine operational direction and sunshine probabilities included. This shadow flicker analysis is based on a number of conservative assumptions including:

- No credit was taken for the blocking effects of trees or buildings.
- The receptors were omni-directional rather than modeling specific facades of buildings.

The overall effect of using these conservative assumptions indicate that realistically, the number of hours of shadow flicker that would be observed will be less than those predicted by this study.