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Mobile Phone Carrier Report

High Noon Solar Energy Center

Prepared on Behalf of
High Noon Solar
Energy LLC

June 3, 2022

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1. Introduction

Comsearch has developed and maintains comprehensive technical databases containing information on licensed mobile phone carriers across the US. Mobile phone carriers operate in multiple frequency bands and are often referred to as Advanced Wireless Service (AWS), Personal Communication Service (PCS), 700 MHz Band, Wireless Communications Service (WCS), and Cellular. They hold licenses on an area-wide basis which are typically comprised of several counties.

This report focuses on the potential impact of a proposed solar farm on mobile phone operations in and around the project area. High Noon Solar Energy LLC is proposing to construct and place in utility service the High Noon Solar Energy Center, an electric generation facility located in Columbia County, Wisconsin. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 300 MW ac (387 MW dc). A two-mile transmission line is also proposed within the project area of interest.

2. Summary of Results

Methodology

Our mobile phone analysis was performed using Comsearch's proprietary carrier database, which is derived from a variety of sources including the Federal Communications Commission (FCC). Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. Then we compiled a list of all mobile phone carriers in the main counties that intersect the solar farm. A depiction of the proposed solar farm in Columbia County, Wisconsin appears below.

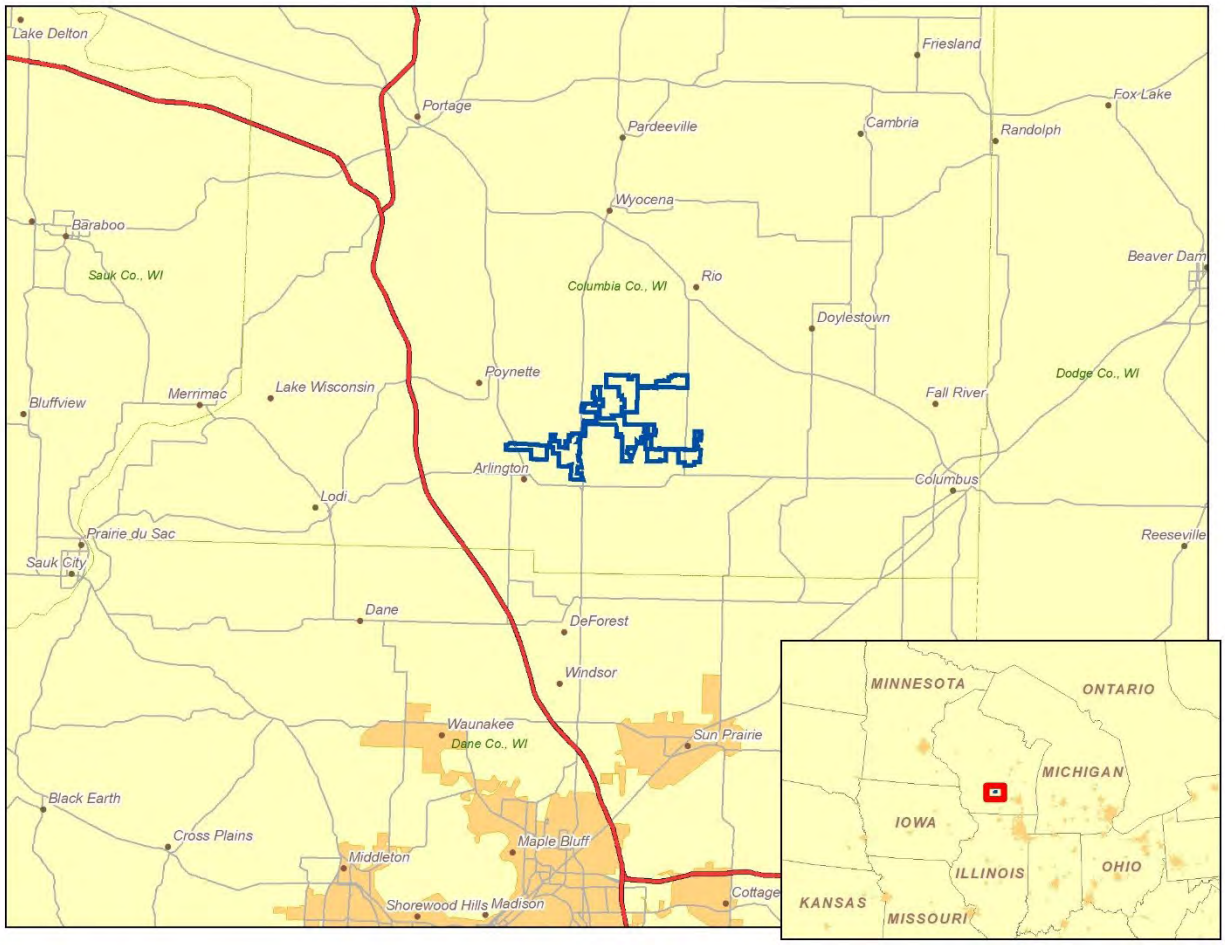

Figure 1: Counties that intersect the Solar Farm

Results
The High Noon Solar Energy Center is located in Columbia County, WI. We have identified the type of service, channel block, market ID and FCC callsign for each carrier in the county of interest. A description of the various service types and geographic market areas is below with a summary table on the following page.

AWS
AWS licensees won their spectrum in an auction that started in August 2006. The licensees are authorized by 734 Cellular Market Areas (CMA) for Block A, 176 Economic Areas (BEA) for Blocks B and C, and 12 Regional Economic Area Groupings (REAG) for Blocks D, E and F. This spectrum at 1.7 and 2.1 GHz was allocated for mobile broadband and advanced wireless services. Partitioning and leases are permitted in the band.

Cellular
Licensees are authorized by Metropolitan and Rural Statistical Areas, also known as CMAs. Unserved areas can be covered by licensees other than the original A or B block licensee. To determine the most realistic coverage, we compiled the Cellular Geographic Service Areas (CGSA) from the 32 dBu contours defined by Part 22.911(a) of the FCC rules. Mobile services are provided at 800 MHz and partitioning and leases are permitted in the band.

PCS
There have been nine auctions for this band, with the last one being held in August 2008. Licensees are authorized by 51 Major Trading Areas (MTA) for Blocks A and B, 493 Basic Trading Areas (BTA) for Blocks C through F, and 176 Economic Areas (EA) for Block G. This band has been heavily partitioned and disaggregated both by counties and by smaller polygons within counties (known as undefined areas or partial counties). The 1.9 GHz PCS carriers provide mobile services and leases are permitted in the band.

700 MHz Band
Originally used for analog television broadcasting, this band consists of an upper and lower band, each having its own set of frequency blocks. There have been three auctions in this band with the last one (Auction 73) being held in 2008 and mobile phone carriers eventually winning licenses for Blocks A, B, and C of the Lower 700 MHz band and Block C of the Upper 700 MHz band. Licensees are authorized by 176 Economic Areas (EA) for Lower Block A, 734 Cellular Market Areas (CMA) for Lower Blocks B and C, and 12 Regional Economic Area Groupings (REAG) for Upper Block C. Partitioning and leases are permitted in the band.

WCS
Mobile services provided in the 2.3 GHz band occupy frequency blocks above and below the spectrum allocated for Satellite Digital Audio Radio Service (SDARS) from 2320 MHz to 2345 MHz. WCS licensees are authorized by 52 Major Economic Areas (MEA) for Blocks A and B and 12 Regional Economic Area Groupings (REAG) for Blocks C and D. Partitioning and leases are permitted in the band.

Service[1]	Mobile Phone Carrier	Channel Block	County	ST	Market ID	Callsign
700 MHz	US Cellular	Lower A	Columbia	WI	BEA104	WQLE671
700 MHz	AT&T	Lower B	Columbia	WI	CMA716	WQJU649
700 MHz	AT&T	Lower C	Columbia	WI	CMA716	WPWV452
700 MHz	AT&T	Lower D	Columbia	WI	EAG704	WPZA238
700 MHz	DISH Network	Lower E	Columbia	WI	BEA104	WQJZ246
700 MHz	Verizon	Upper C	Columbia	WI	REA003	WQJQ691
AWS	Verizon	A	Columbia	WI	CMA716	WQGB354
AWS	US Cellular	B	Columbia	WI	BEA104	WQGV765
AWS	AT&T	C	Columbia	WI	BEA104	WRKX555
AWS	T-Mobile	D	Columbia	WI	REA003	WRKX558
AWS	T-Mobile	E	Columbia	WI	REA003	WQGB376
AWS	T-Mobile	F	Columbia	WI	REA003	WQPZ970
Cellular	US Cellular	A	Columbia	WI	CMA716	KNKN274
Cellular	AT&T	B	Columbia	WI	CMA716	KNKN325
Cellular	Verizon	B	Columbia	WI	CMA716	KNKN326
PCS	T-Mobile	A	Columbia	WI	MTA020	KNLF239
PCS	AT&T	A	Columbia	WI	MTA020	WQFU971
PCS	T-Mobile	A	Columbia	WI	MTA020	WQJJ973
PCS	Verizon	B	Columbia	WI	MTA020	KNLF240
PCS	US Cellular	C	Columbia	WI	BTA272	KNLF401
PCS	AT&T	D	Columbia	WI	BTA272	WQFU969
PCS	Verizon	E	Columbia	WI	BTA272	KNLH214
PCS	US Cellular	F	Columbia	WI	BTA272	KNLG200
PCS	T-Mobile	G	Columbia	WI	BEA104	WQKT212
WCS	AT&T	A	Columbia	WI	MEA017	KNLB217
WCS	AT&T	B	Columbia	WI	MEA017	KNLB206
WCS	AT&T	C	Columbia	WI	REA003	WPQL711
WCS	AT&T	D	Columbia	WI	REA003	WQDM396

Table 1: Mobile Phone Carriers in the Solar farm

[1] AWS: Advanced Wireless Service at 1.7/2.1 GHz
CELL: Cellular Service at 800 MHz
PCS: Personal Communication Service at 1.9 GHz
700 MHz: Commercial Mobile Phone at 700 MHz
WCS: Wireless Communication Service at 2.3 GHz

FCC-Licensed Sites

For competitive and confidentiality reasons, most mobile phone carriers' individual sites are not licensed with the FCC. However, in the cellular band, if a base station extends the existing Cellular Geographic Service Area (CGSA), then it must be recorded with the FCC. We identified one cellular site near the High Noon Solar Energy Center area of interest. Figure 2 on the next page depicts its location in relation to the area of interest and Table 2 contains the technical parameters on the FCC license.

Callsign	Licensee	Structure Height to Tip (m)	Location Address	Latitude (NAD83)	Longitude (NAD83)
KNKN325	AT&T	61.0	W4705 SAMPSON ROAD (79653)	43.412639	-89.235000

Table 2: FCC-Licensed Mobile Phone Sites

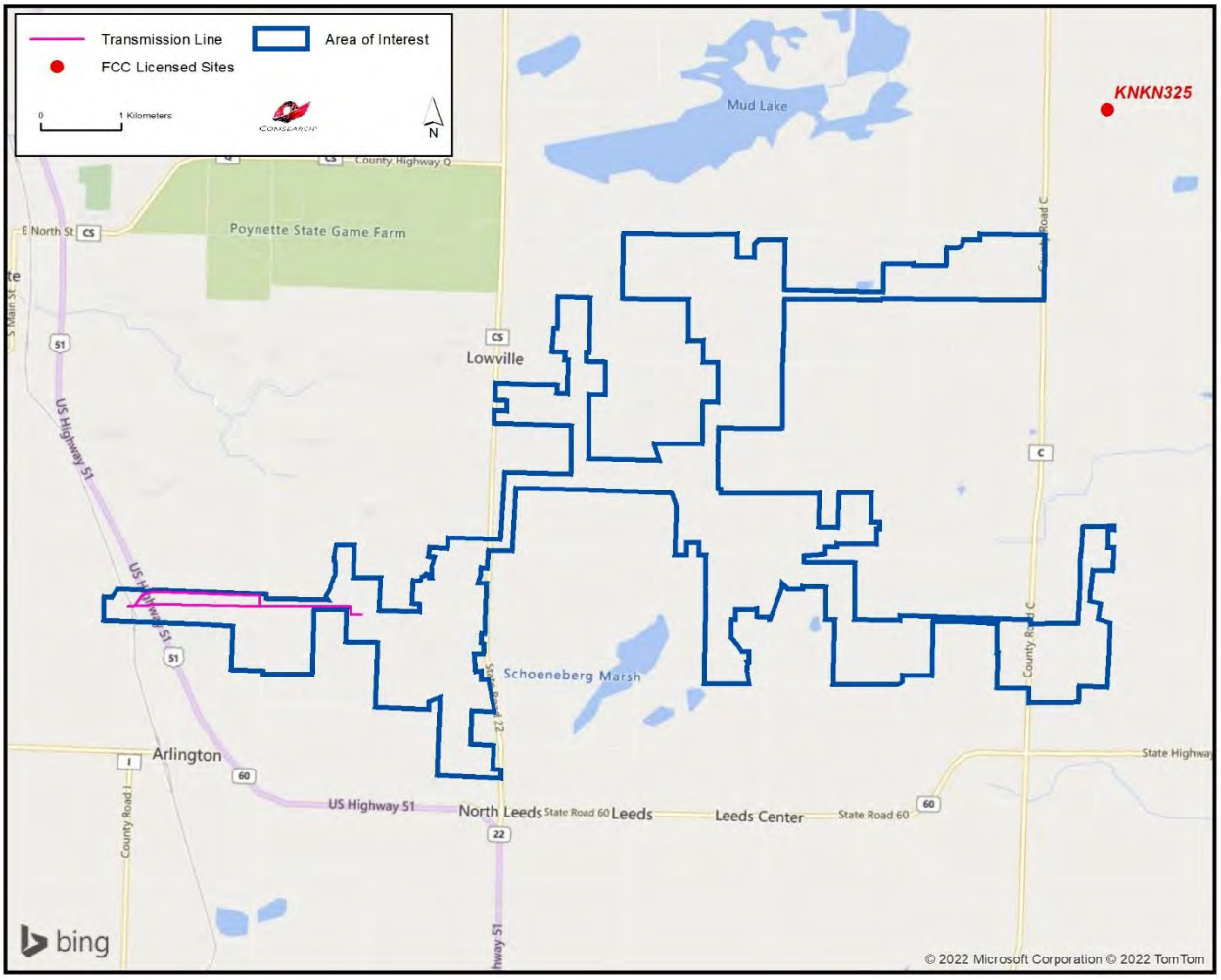

Figure 2: FCC-Licensed Mobile Phone Site near the Area of Interest

Impact Assessment and Distance Setback Requirements

Mobile cellular phone networks are typically unaffected by the presence of a solar farm or transmission line because they are designed to operate reliably in a non-line-of-sight (NLOS) environment using multiple base transmitter stations or cell towers that cover a large geographic area. Additionally, these networks are designed with coverage overlap such that if a mobile unit is unable to make a connection to one base station, the network would handoff the mobile unit to an adjacent base station to maintain the connection. Consequently, any signal blockage caused by the solar farm or transmission line does not materially degrade the reception because the end user would receive signals from neighboring transmitter locations. Therefore, reliable mobile phone service is made possible even in places that are congested with larger structures such as downtown urban areas, and we do not anticipate any significant harmful effect to mobile phone services in the solar farm project area.

3. Recommendation

For the cellular towers located within the project area, no setback distance is required from an interference standpoint due to the higher frequencies in which they operate within the UHF band. Electromagnetic interference (EMI) from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations (PCS) located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency operation of the inverter, EMI does not normally extend above 1 MHz. Based on the frequency range for the mobile phone licenses identified in the area from 700 MHz – 2.3 GHz, we do not anticipate any harmful interference impact on mobile phone operations due to EMI from the High Noon Solar Energy Center. No mitigation techniques or additional recommendations are required.

4. Contact Us

For questions or information regarding the Mobile Phone Carrier Report, please contact:

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AM and FM Radio Report

High Noon Solar Energy Center

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June 2, 2022

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Table of Contents

1. Introduction

High Noon Solar Energy LLC is proposing to construct and place in utility service the High Noon Solar Project, an electric generation facility located in Columbia County, Wisconsin. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 300 MW ac (387 MW dc) and a transmission line. Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the High Noon Solar Energy Center.

2. Summary of Results

AM Radio Analysis

Comsearch found eleven database records[1] for AM stations within approximately 30 kilometers of the project solar farm, as shown in Table 1 and Figure 1. The closest AM station to the project is WHFA, licensed out of Poynette, WI, and located 1.32 km to the west of the project AOI. The "Required Separation Distance" column is based on the type of broadcast antenna (directional vs. non-directional) and frequency that is employed at each station which is discussed in Section 3.

ID	Call Sign	Status[2]	Frequency (kHz)	Transmit ERP[3] (kW)	Operation Time	Latitude (NAD 83)	Longitude (NAD 83)	Required Separation Distance[4] (km)	Distance to AOI (km)
1	WHFA	LIC	1240	1.0	Daytime	43.360544	-89.402342	0.24	1.32
2	WHFA	LIC	1240	1.0	Nighttime	43.360544	-89.402342	0.24	1.32
3	WTTN	LIC	1580	0.8	Critical Hours	43.334156	-89.165947	1.90	5.63
4	WTTN	LIC	1580	0.004	Nighttime	43.334156	-89.165947	1.90	5.63
5	WTTN	LIC	1580	5.0	Daytime	43.334711	-89.165669	1.90	5.63
6	WEZY	LIC	1350	1.0	Daytime	43.528317	-89.433731	0.22	17.31
7	WEZY	LIC	1350	0.041	Nighttime	43.528317	-89.433731	0.22	17.31
8	WNWC	LIC	1190	4.8	Daytime	43.159994	-89.215392	2.52	20.75
9	WNWC	LIC	1190	0.021	Nighttime	43.159994	-89.215392	2.52	20.75
10	WBEV	LIC	1430	1.0	Nighttime	43.428603	-88.892608	2.10	28.37
11	WBEV	LIC	1430	1.0	Daytime	43.428603	-88.892608	2.10	28.37

Table 1: AM Radio Stations within 30 Kilometers of Solar Farm

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

[2] LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

[3] ERP = Transmit Effective Radiated Power.

[4] The required separation distance is based on the lesser of 10 wavelengths or 3 kilometers for directional antennas and 1 wavelength for non-directional antennas.

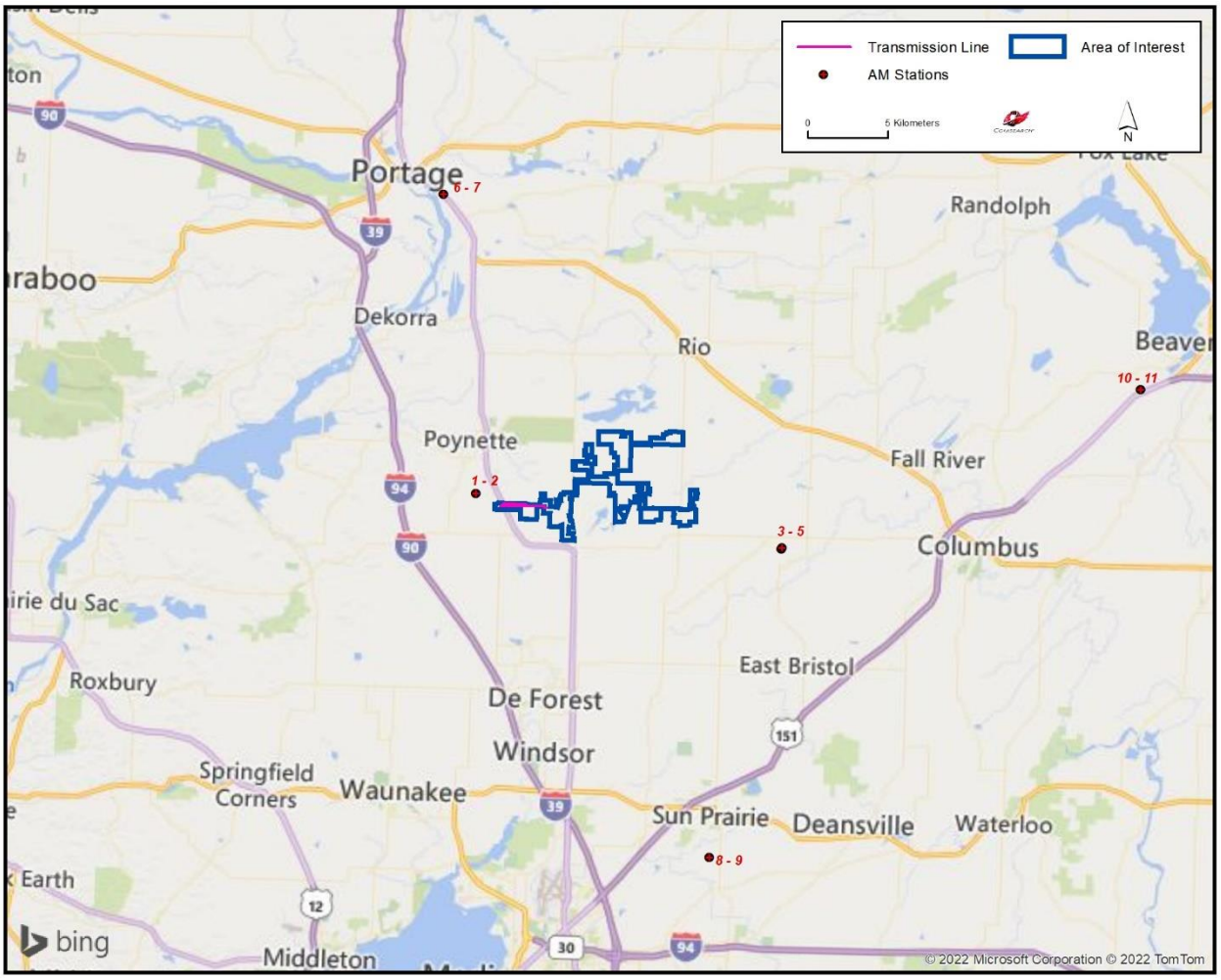

Figure 1: AM Radio Stations within 30 Kilometers of Solar Farm

FM Radio Analysis

Comsearch determined that there were twenty-seven database records for FM stations within 30 kilometers of the solar farm, as listed in Table 2. Twenty-one of these stations are currently licensed and operating, eight of which are translator stations, six are low power stations and two are auxiliary (backup) stations that broadcast with limited range. The closest FM station to the project is W245DQ, licensed out of Deforest, WI, located 8.85 km to the south of the project AOI.

ID	Call Sign	Status[5]	Service[6]	Frequency (MHz)	Transmit ERP[7] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to AOI (km)
1	W245DQ	FX	CP	96.9	0.25	43.256417	-89.341083	8.85
2	WJWD	FM	LIC	90.3	9.9	43.344444	-89.102889	10.53
3	WJWD	FM	CP	90.3	9.7	43.344444	-89.102778	10.54
4	WMHX	FM	LIC	105.1	6.0	43.222194	-89.300389	12.78
5	WQWA-LP	FL	LIC	88.1	0.1	43.370528	-89.053417	14.50
6	-	FM	CP	91.1	8.0	43.370556	-89.053333	14.51
7	WDDC	FM	LIC	100.1	3.1	43.528306	-89.433722	17.31
8	WLSP-LP	FL	LIC	103.5	0.022	43.175083	-89.228972	19.01
9	WXXM	FM	LIC	92.1	3.7	43.169444	-89.260667	19.21
10	W284CW	FX	LIC	104.7	0.25	43.169444	-89.260667	19.21
11	W224EG	FX	LIC	92.7	0.25	43.169417	-89.260667	19.21
12	WPSA-LP	FL	LIC	93.5	0.1	43.554417	-89.425667	19.43
13	WJQM	FM	LIC	93.1	6.0	43.159444	-89.215389	20.81
14	W258CM	FX	CP	99.5	0.25	43.138694	-89.373611	22.13
15	WCNP	FM	LIC	89.5	6.5	43.427833	-89.651917	22.88
16	WTLX	FM	LIC	100.5	6.0	43.134417	-89.399000	22.98
17	W253DH	FX	CP	98.5	0.21	43.427778	-89.653889	23.03
18	W271DQ	FX	CP	102.1	0.25	43.427778	-89.653889	23.03
19	WOLX-FM	FM	LIC	94.9	37.0	43.427750	-89.654000	23.04
20	WOLX-FM	FS	LIC	94.9	32.0	43.427750	-89.654000	23.04
21	W259BC	FX	LIC	99.7	0.25	43.430528	-89.653722	23.12
22	WMAD	FM	LIC	96.3	5.1	43.212222	-89.599833	23.22
23	WMAD	FS	LIC	96.3	4.0	43.212222	-89.599833	23.22
24	W258CM	FX	LIC	99.5	0.12	43.111361	-89.363444	25.05
25	WVMO-LP	FL	LIC	98.7	0.1	43.063556	-89.339611	30.26

Table 2: FM Radio Stations within 30 Kilometers of Solar Farm

[5] LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit.

[6] FM = FM broadcast station; FX = FM translator station; FL = Low-power FM station; FS = FM auxiliary (backup) station; FB = FM booster station.

[7] ERP = Transmit Effective Radiated Power.

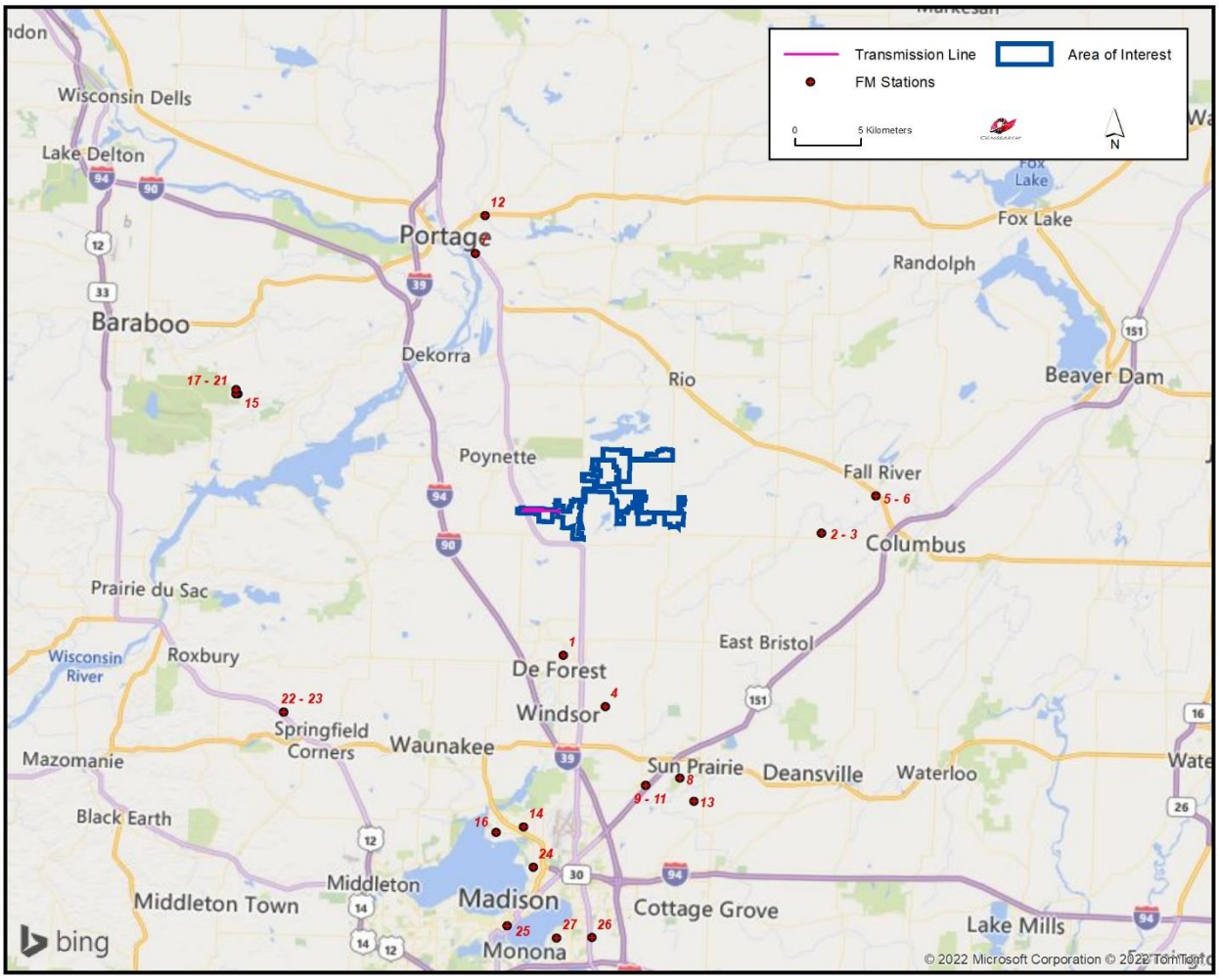

Figure 2: FM Radio Stations within 30 Kilometers of Solar Farm

3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from the solar farm. The closest AM station to the project area is WHFA, with a required separation distance of 0.24 km and which is located at a separation distance of approximately 1.32 kilometers. All other AM stations are located 5.63 km or further from the project AOI. Since station WHFA is located outside of the required separation distance and no other stations were found within 3 kilometers of the project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

The coverage of FM stations is generally not susceptible to interference caused by large objects, such as solar farms, especially when they are sited in the far-field region of the radiating FM antenna. The nearest operational FM station to the High Noon Solar Project, W245DQ, is located 8.85 km from the proposed project AOI and as such, should not be subject to interference. The remaining FM stations identified in Table 2 are all located further than 10.53 km away from the solar farm and therefore outside the range of potential impact, as shown in Figure 2.

Unlike AM and FM stations which transmit signals and thus require an exclusion distance in order to avoid distorting the radiation pattern of their broadcast antenna, radio units receive the signals and thus are susceptible to potential reception issues due to electromagnetic interference (EMI). Electromagnetic interference from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations (PCS) located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency (60 Hz) operation of the PV inverter, EMI from solar farms does not normally extend above 1 MHz. Furthermore, Title 47 Part 15B of the FCC rules and regulations provide guidelines that specify the maximum field strength limits for the emissions from unintentional radiators such as inverters.

Therefore, radio units that could be affected by EMI from a solar farm would be AM radios, which operate between 0.5 and 1.6 MHz. The degree of degradation to AM reception would be a function of the separation distance of the AM radio from the inverters of the solar farm and the strength of the received signal. However, to the extent that the inverters used throughout the proposed facility are FCC Part 15B compliant, this degradation would be no different than what occurs when a car radio passes under or near existing high voltage transmission lines that interconnect utility companies and their sub stations throughout the state.

4. Recommendations

No recommendation for mitigation is necessary for the proposed solar farm, as the location of the solar arrays and proposed transmission towers meet or exceed the required distance separation from all licensed AM and FM broadcast stations near the High Noon Solar Project Area.

5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:

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Web site:	www.comsearch.com

Solar Power GeoPlanner™

Microwave Study

High Noon Solar Energy Center

Prepared on Behalf of
High Noon Solar
Energy LLC

June 3, 2022

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1. Introduction

Microwave bands that may be affected by the solar farms operate over a wide frequency range (900 MHz – 23 GHz). Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of a proposed solar farm on licensed, proposed, and applied non-federal government microwave systems.

2. Project Overview

The proposed High Noon Energy Center is located in Columbia County, Wisconsin. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 300 MW ac (387 MW dc). A two mile transmission line is also proposed within the area of interest.

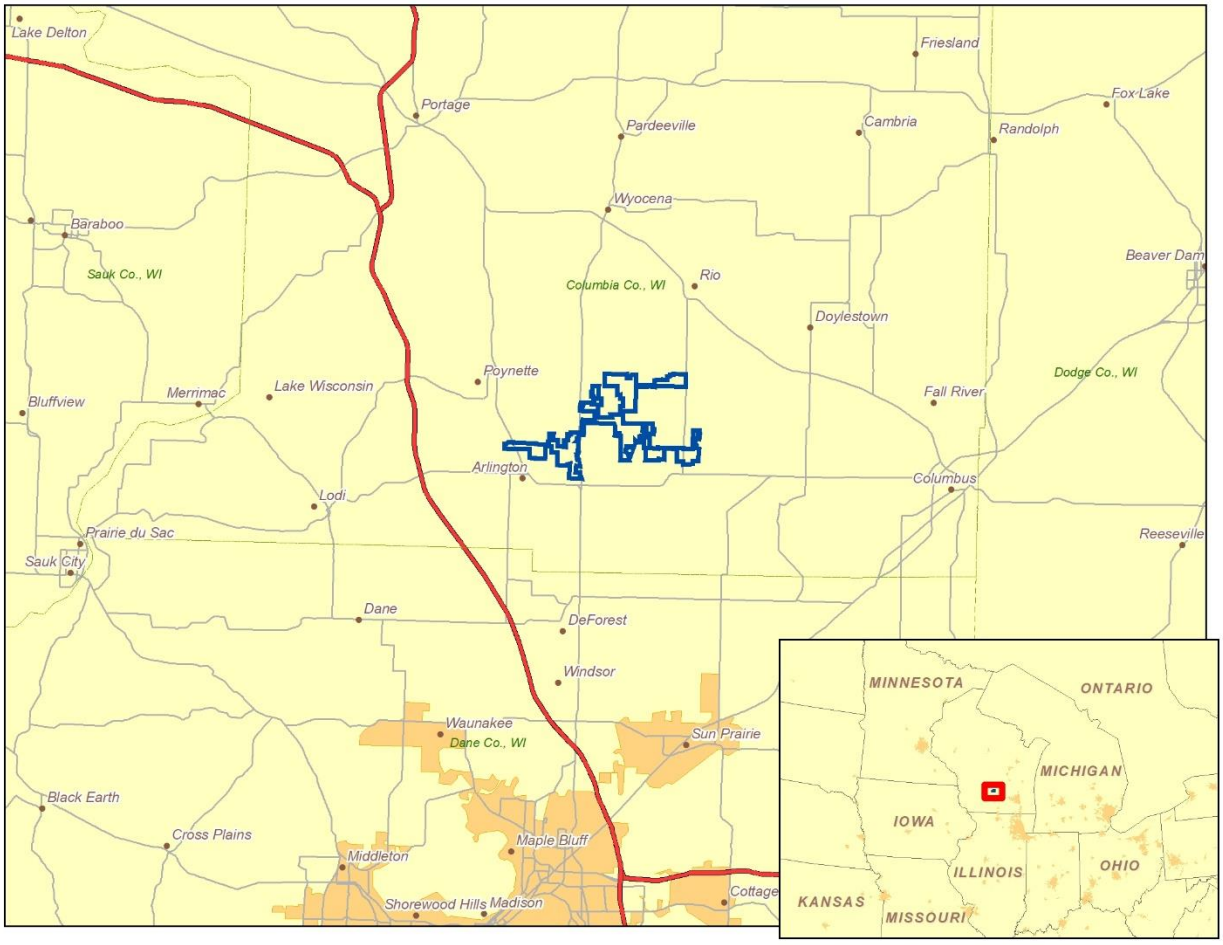


Figure 1: Area of Interest

3. Two-Dimensional Fresnel Zone Analysis

Methodology

Our obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz[1]. First, we determined all microwave paths within one mile of the proposed solar farm[2] and listed them in Table 1. These paths and the solar farm area of interests are shown in Figure 2 below.

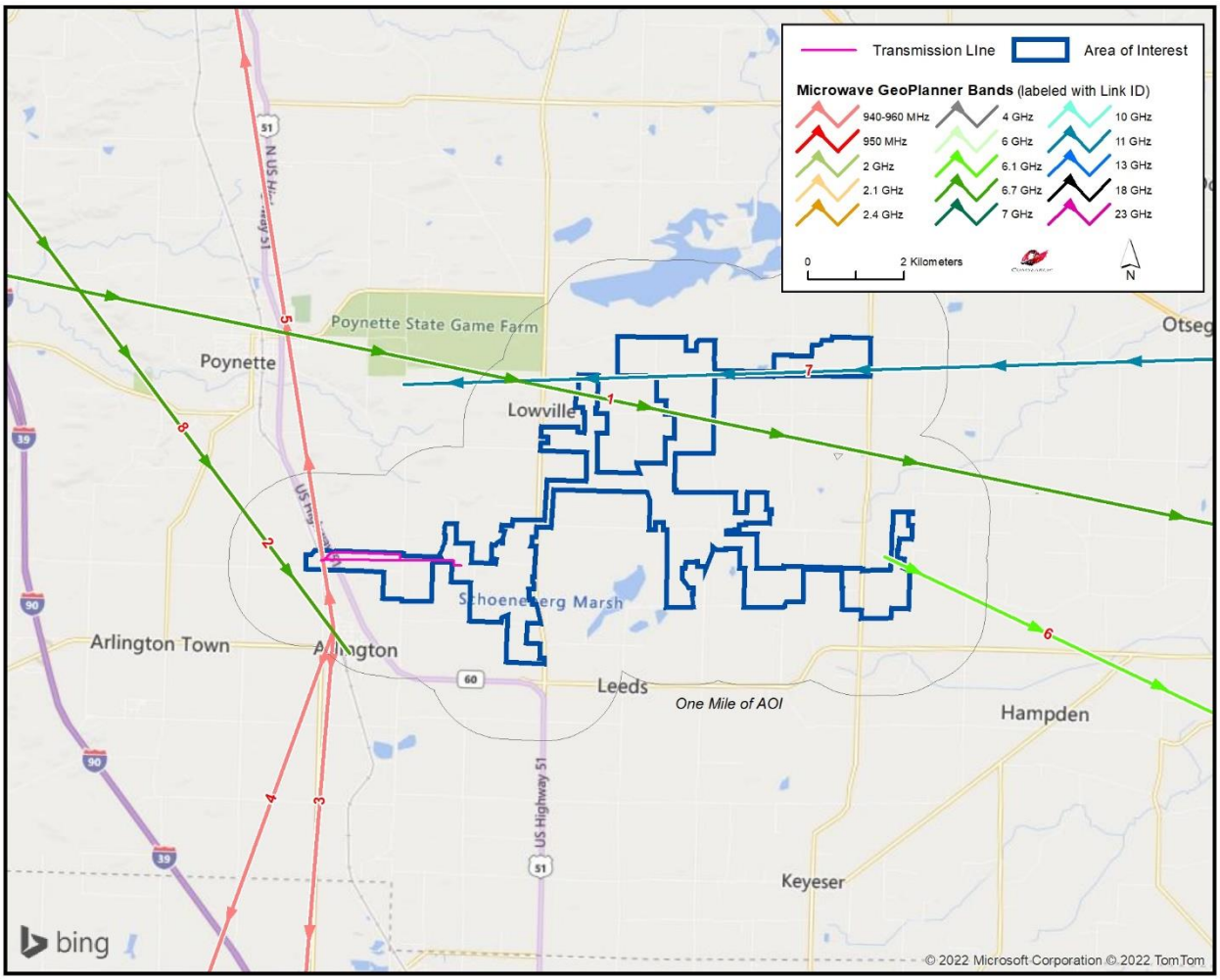


Figure 2: Microwave Paths within One Mile of the Area of Interest

[1] Please note that this analysis does not include unlicensed microwave paths or federal government paths that are not registered with the FCC.

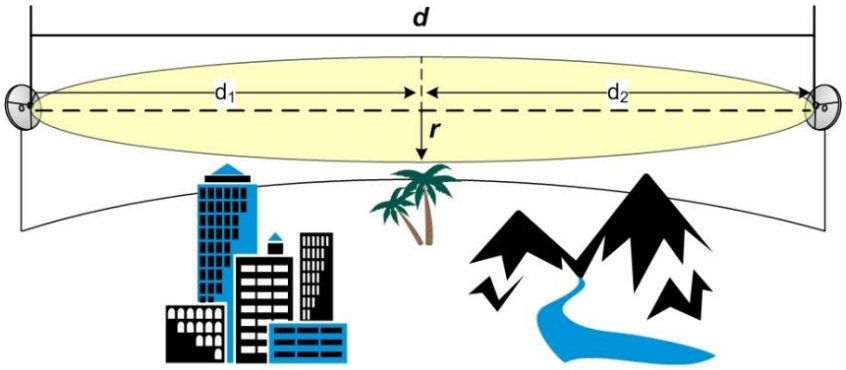
[2] We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license.

ID	Status	Callsign 1	Callsign 2	Band	Path Length (km)	Licensee
1	Questionable	KSG52	WQES987	6.7 GHz	51.52	Wisconsin, State of
2	Questionable	WNTK823	WQOY894	940-960 MHz	22.55	Columbia, County of
3	Licensed	WNTY664	WNTY657	940-960 MHz	18.17	Madison Gas and Electric Company
4	Questionable	WNTY664	WNTY659	940-960 MHz	9.75	Madison Gas and Electric Company
5	Questionable	WNTY664	WNTY658	940-960 MHz	16.45	Madison Gas and Electric Company
6	Licensed	WQHJ443	WPSF656	6.1 GHz	15.66	US Cellular Operating Company, LLC (WI)
7	Licensed	WRDZ492	WRDZ493	11 GHz	21.51	Bertram Communications
8	Licensed	WRFC440	WRFC446	6.7 GHz	22.55	Columbia, County of

Table 1: Summary of Microwave Paths within One Mile of the Area of Interest
(See enclosed mw_geopl.xlsx for more information and
GP_dict_matrix_description.xls for detailed field descriptions)

Next, we calculated the 1st Fresnel zone for each path based on the following formula:

$$r \cong 17.3\sqrt{\frac{n}{F_{GHz}}\left(\frac{d_1 d_2}{d_1 + d_2}\right)}$$



Where,
- r = Fresnel zone radius at a specific point in the microwave path, meters
- n = Fresnel zone number, 1
- F_{GHz} = Frequency of microwave system, GHz
- d_1 = Distance from antenna 1 to a specific point in the microwave path, kilometers
- d_2 = Distance from antenna 2 to a specific point in the microwave path, kilometers

In general, the 1st Fresnel zone (i.e., n = 1) is the area where the planned structures should be avoided in order to maintain clear line-of-sight (LOS) between the two endpoints of the microwave beam path. Likewise, Comsearch recommends that an area directly in front of each microwave antenna should be avoided. This corresponds to the Consultation Zone which measures 1 kilometer along the main beam of the antenna and 24 ft (7.3 meters) wide. A depiction of the individual Fresnel and Consultation Zones is shown in Figure 3, and is also included in the enclosed shapefiles[3,4].

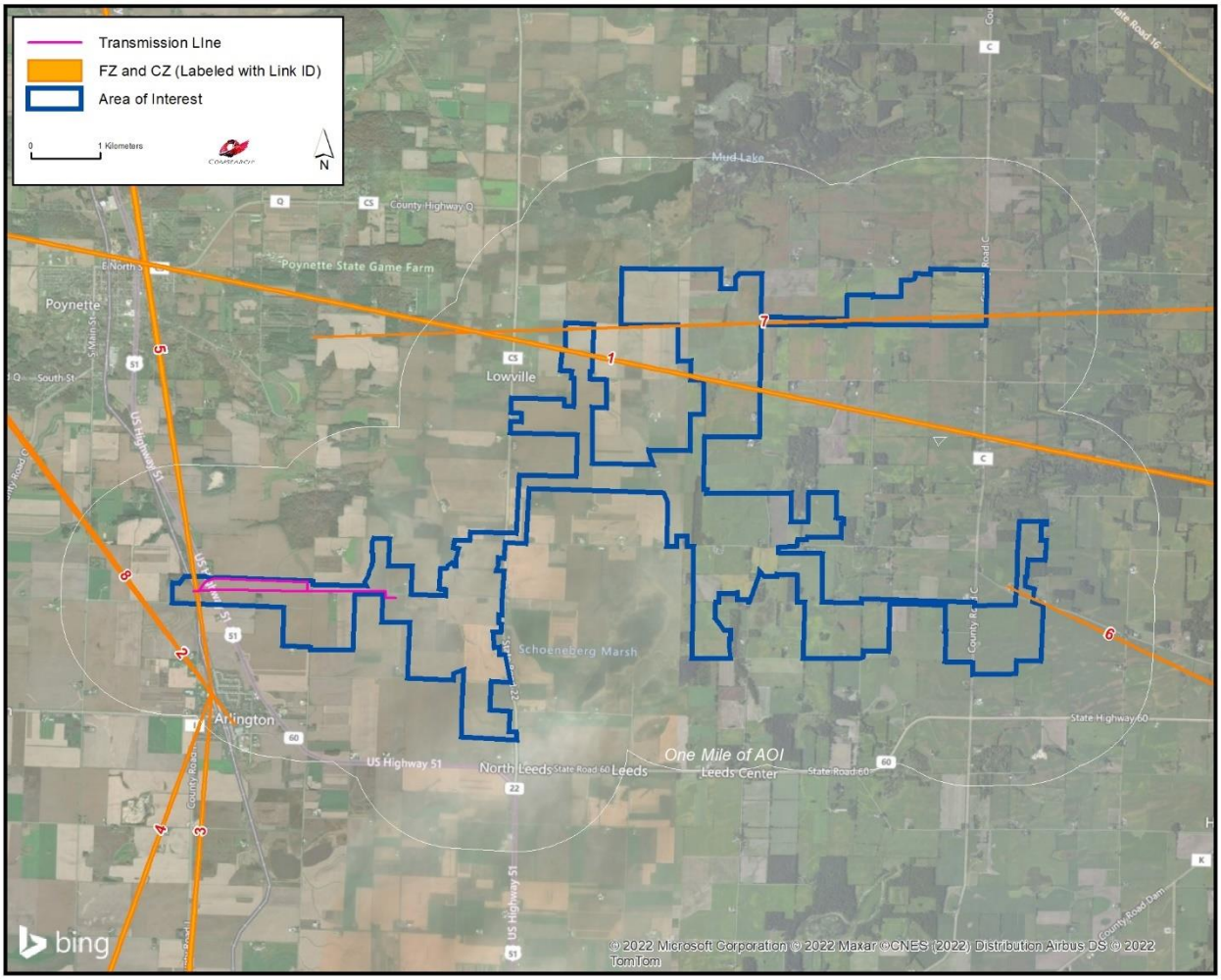


Figure 3: Fresnel Zones and Consultation Zones within One Mile of the Area of Interest

[3] The ESRI® shapefiles enclosed are in NAD 83 UTM Zone 16 projected coordinate system.

[4] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

4. Three-Dimensional Fresnel Zone Analysis

Our two-dimensional analysis in the previous section identified eight microwave paths within one mile of the proposed solar farm. This section further analyzes those paths with respect to their Fresnel zones in the vertical dimension. We determine whether they would achieve three-dimensional clearance by taking into consideration the terrain elevation profile between the two endpoints of each affected microwave beam path inside the project area of interest.

To do this calculation we used USGS 1/3 arcsecond terrain elevation data to get elevation measurements along each path at 10-meter intervals. For each of these locations we also calculated the height of the top and bottom of the Fresnel Zone bounds. This is the height in which obstructions should be avoided at the particular location. Figure 4 below shows the lowest Fresnel Zone heights in meters for each measuring point along the path centerlines. The lowest measured Fresnel zone within the Area of Interest was determined to be 17.5 meters above ground level.

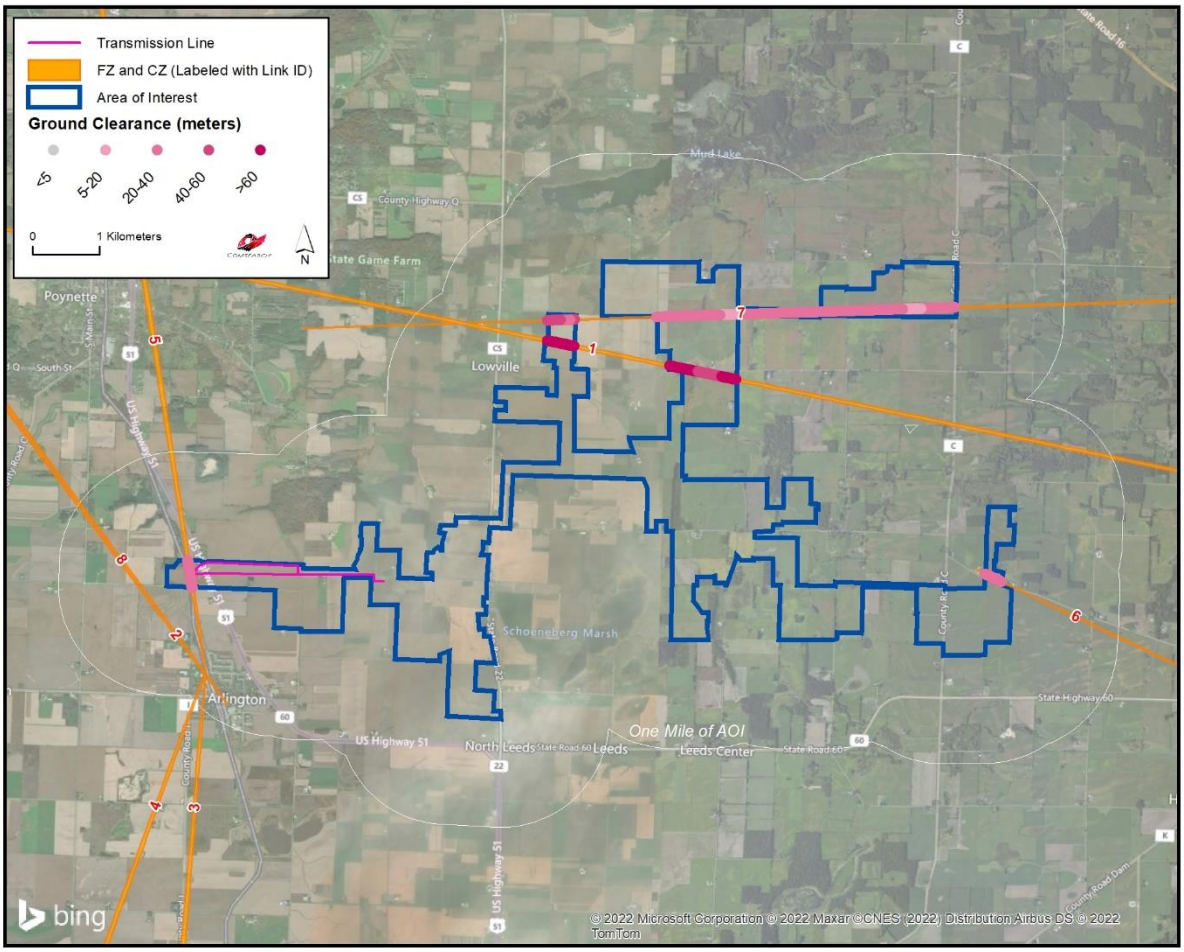


Figure 4: Terrain Elevation Points along Paths in AOI

5. Conclusion

Our study identified eight microwave paths within one mile of the High Noon Solar Energy Center area of interest. The Fresnel Zones and Consultation Zones for these microwave paths were calculated and mapped. The lower edge of the zones for all paths were found to be at least 17 meters (55 feet) above ground level throughout the project area. The solar panels have a maximum height of 15 feet. Therefore, all proposed solar array structures within the defined project area (AOI) have sufficient vertical clearance and avoid the risk of obstructing or causing harmful interference to the microwave paths in and around the project area.

Transmission lines generally do not affect the operation of microwave paths, as their attenuation loss is considered insignificant. On the other hand, transmission tower structures are considered to cause higher signal attenuation losses with more significant reflective and scattering properties and therefore were the primary focus of this study. The closest support structure is approximately 17 meters away from the Fresnel Zone. (See Figure 5 below) Therefore this structure will clear the beam path as long as its width is less than 60 feet (34 meters)

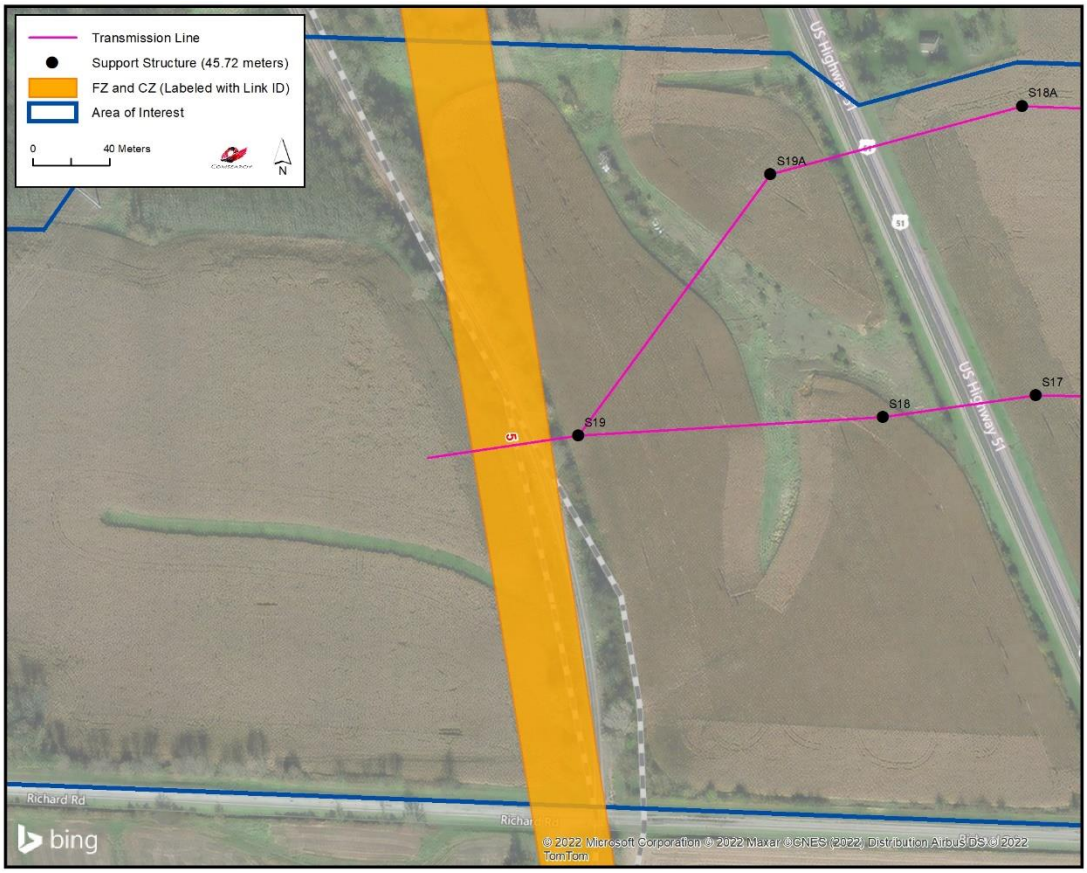


Figure 5: Proposed Transmission Line and Fresnel Zone for Path 5

6. Contact

For questions or information regarding the Microwave Study, please contact:

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Web site:	www.comsearch.com

GeoPlanner™

Over-the-Air TV Analysis

High Noon Solar Energy Center

Prepared on Behalf of
High Noon Solar Energy LLC

June 3, 2022

COMSEARCH®
A CommScope Company

Table of Contents

1. Introduction

Over-the-air (OTA) television stations broadcast signals from terrestrially-based facilities directly to television receivers. Comsearch identified those OTA stations whose service could potentially be affected by a proposed solar farm. High Noon Solar Energy LLC is proposing to construct and place in utility service the High Noon Solar Project, an electric generation facility located in located in Columbia County, Wisconsin. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 300 MW ac (387 MW dc). A transmission line is also planned within the project area of interest which will be examined in this report.

Comsearch examined the coverage of the OTA stations identified and the communities in the area that could potentially have degraded television reception due to the location of the solar farm.

2. Summary of Results

The proposed solar farm project area and local communities are depicted in Figure 1 below.

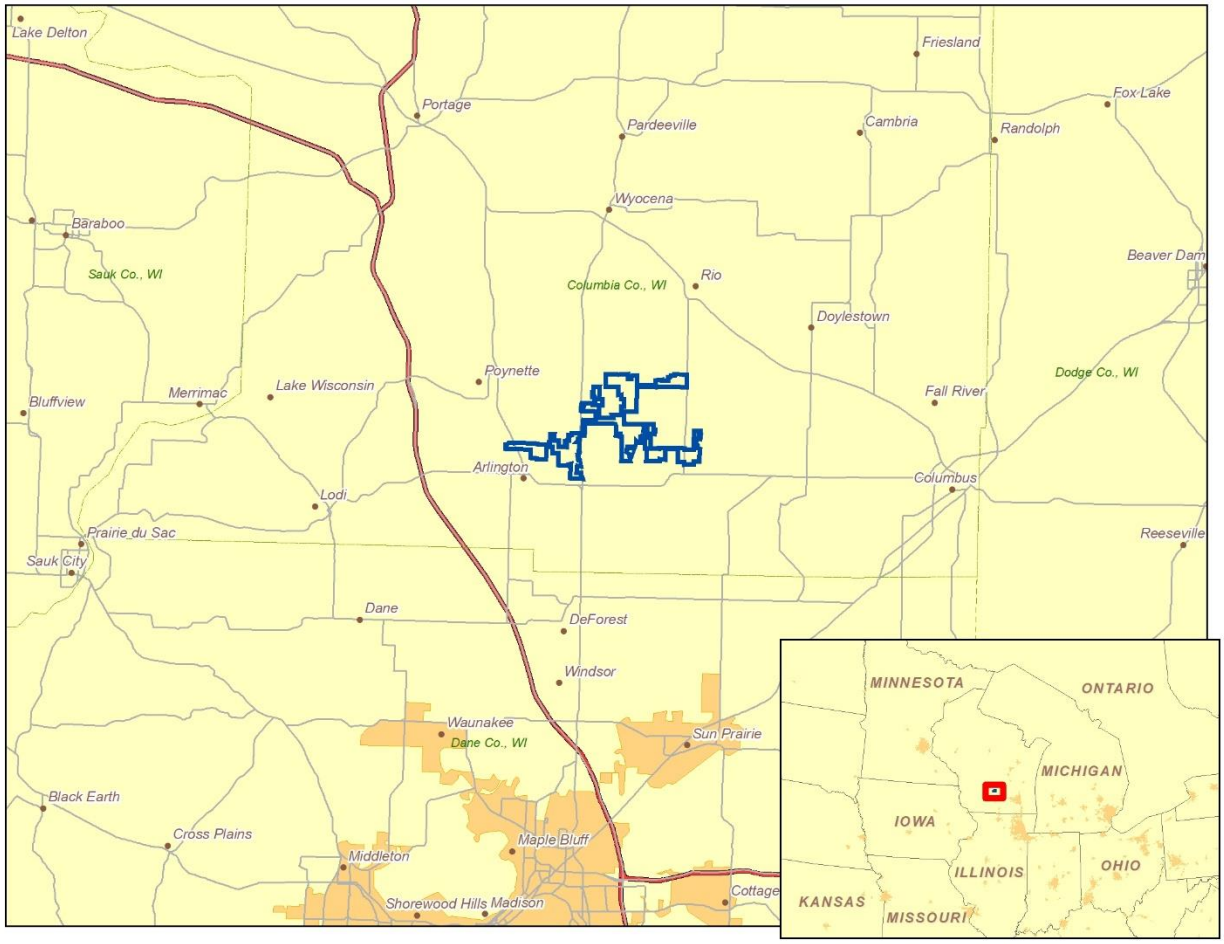

Figure 1: Solar Farm Project Area and Local Communities

To begin the analysis, Comsearch compiled all OTA television stations[1] within 100 kilometers of the solar farm. TV stations at a distance of 100 kilometers or less are the most likely to provide OTA coverage to the project area and neighboring communities. These stations are listed in Table 1 below, and a plot depicting their locations is provided in Figure 2. There are a total of 22 database records for stations within approximately 100 kilometers of the solar farm. Of these stations, only 16 are currently licensed and operating, and eight of which are low-power stations or translators. Translator stations are low-power stations that receive signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna.

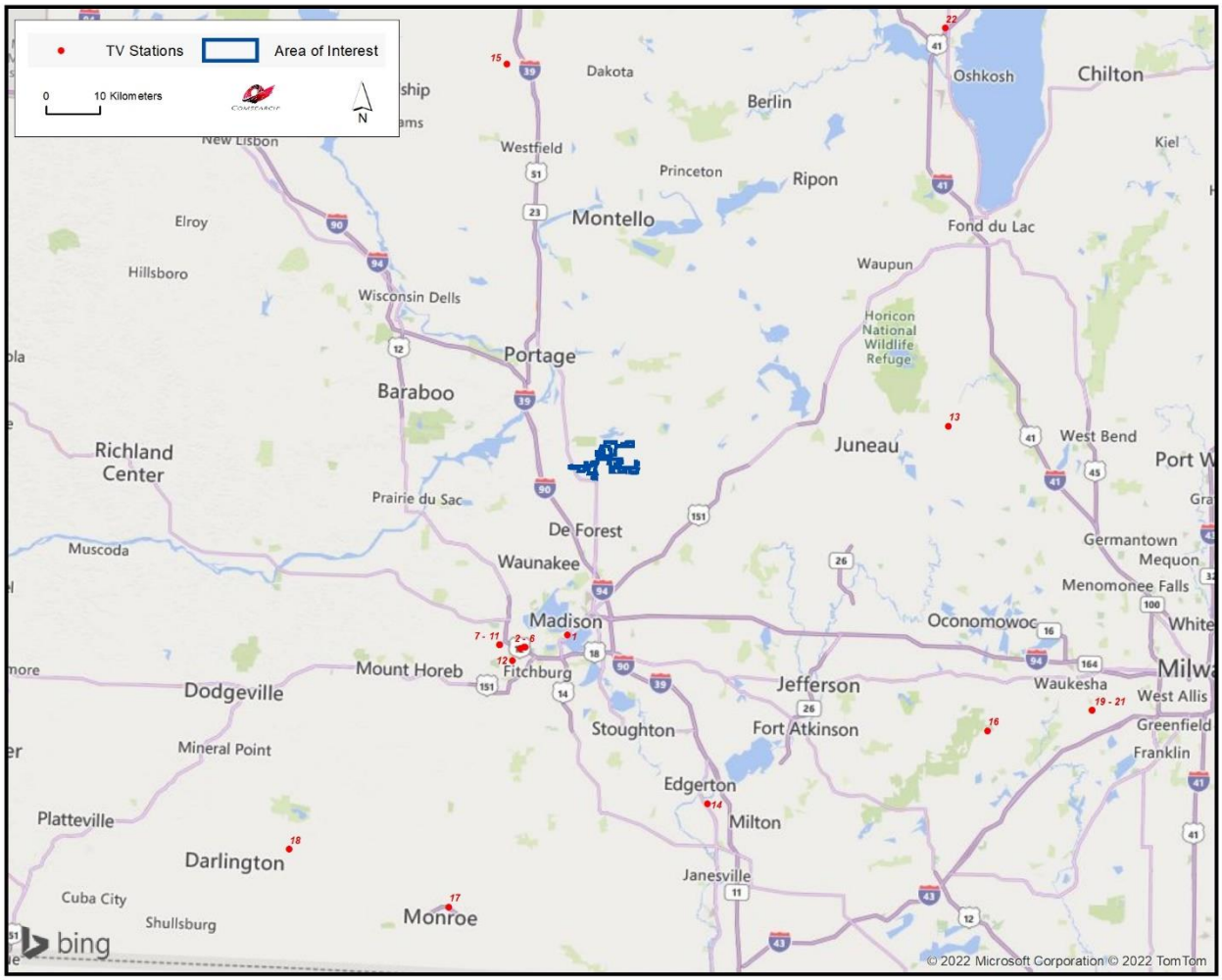

Figure 2: Plot of OTA TV Stations within 100 Kilometers of Solar Farm

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the TV station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

ID	Call Sign	Status	Service[2]	Channel	Transmit ERP[3] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Project Area (km)
1	W08CK	LIC	LPA	8	0.036	43.074972	-89.381222	29.23
2	WZCK-LD	LIC	LPD	24	15.0	43.052500	-89.476667	33.52
3	WMWD-LD	LIC	LPD	15	15.0	43.052500	-89.478333	33.57
4	W23BW-D	LIC	DCA	23	11.81	43.052500	-89.478333	33.57
5	W23BW-D	CP	DCA	23	15.0	43.052500	-89.478333	33.57
6	WMTV	LIC	DTV	19	155.0	43.050833	-89.486944	33.99
7	WISC-TV	LIC	DTV	11	46.9	43.055833	-89.535000	34.85
8	WMSN-TV	LIC	DTV	18	440.0	43.055833	-89.535000	34.85
9	WHA-TV	LIC	DTV	20	200.0	43.055833	-89.535000	34.85
10	WIFS	LIC	DTV	21	175.0	43.055833	-89.535000	34.85
11	WKOW	LIC	DTV	26	800.0	43.055833	-89.535000	34.85
12	WISC-TV	APP	DRT	25	15.0	43.030000	-89.504722	36.65
13	WWRS-TV	LIC	DTV	34	504.0	43.436500	-88.526083	57.73
14	WISC-TV	APP	DRT	22	15.0	42.800556	-89.054444	62.40
15	W29ET-D	LIC	LPT	29	4.0	44.020222	-89.558694	71.66
16	WDMW-LD	LIC	LPD	24	0.25	42.931389	-88.424722	80.38
17	W35DY-D	CP	LPT	35	2.0	42.617056	-89.631389	83.44
18	K17OO-D	CP	LPD	17	3.0	42.704167	-89.995000	87.40
19	WTAS-LD	LIC	LPD	23	15.0	42.968056	-88.188917	94.79
20	WDMW-LD	CP	LPD	24	15.0	42.968056	-88.188917	94.79
21	WTAS-LP	LIC	LPA	47	39.7	42.968056	-88.188917	94.79
22	W21EF-D	LIC	LPT	21	7.86	44.098194	-88.549250	95.79

Table 1: OTA TV Stations within 100 Kilometers of Solar Farm

[2] Definitions of service and status codes:
DCA - Digital Class A
DRT - Digital Replacement Translator
DT - ETL testing
DTS - Distributed Transmission System
DTV - Full Service Television
DTX - Digital TV Auxiliary
LPA - Low Power Analog TV
LPD - Low Power Digital TV
LPT - Digital TV Translator
LPX - Analog TV Translator
TS - Legacy Service for Analog TV Auxiliary
TV - Analog TV legacy

LIC – Licensed and operational station
CP – Construction permit granted
APP – Application for construction permit, not yet operational
STA – Special transmit authorization, usually granted by FCC for temporary operation
AMD - Amendment

[3] ERP = Transmit Effective Radiated Power

3. Impact Assessment

Typically, solar farms do not cause electromagnetic interference (EMI) to OTA television reception. If any, the most likely source of EMI are the photovoltaic (PV) inverters that are installed at every Power Conversion Station (PSC) throughout the solar farm. These PV inverters convert the direct current (DC) current output of a solar array into alternating current (AC) that can be fed into a commercial electrical grid. However, Title 47 Part 15B of the FCC rules and regulations provide guidelines for grid-tied PV inverters such that their EMI emissions are controlled to within certain limits and thereby avoid contaminating the AC grid voltage. And due to the low frequency (60 Hz) operation of the PV inverters, EMI from these devices does not normally extend above 1 MHz which would be well below the frequency of operation for OTA television.

Transmission lines also do not typically create reception problems for digital television signals. However, if the transmission lines are not well maintained, corona and arcing may occur at the insulators or conductor connectors, creating broadband noise. Corona discharge takes place when a localized electric field from a transmission line is highly concentrated and ionizes the air near the conductors and thereby generates noise. This is a phenomenon that usually occurs during foul weather at various points that are randomly distributed along transmission lines operating at 345 kV and higher. On the other hand, a gap discharge takes place at small "gaps" between mechanically connected metal parts which, in turn, can spark and form an electric arc across the gap, also generating noise. Typically, this affects low-voltage lines due to loose wire and hardware connections that are on wooden poles. In any case, the interfering signal is amplitude-modulated and can propagate at distances that extend up to around 500 feet. The frequency range of the noise produced by corona discharge extends up to 100 MHz, whereas that produced by gap discharge can reach up to the GHz range.

Due to the frequency range of the noise potentially generated by poorly maintained transmission lines, it could cause interference to television receivers in residences that are located near the line route, particularly homes that are within approximately 500 feet of the transmission line.

Based on a contour analysis of the licensed stations within 100 kilometers of the transmission line, it was determined that the eight full-power digital stations and two low power digital stations[4], identified on the next page in Table 2, have service contours that overlap with the transmission line project area and thus serve viewers that may be located within the range of potential impact as described above.

[4] In addition to its primary broadcast facility, station WKOW is licensed separately for an auxiliary facility (ID 6 in Table 2), the service contour of which also intersects the transmission line.

ID	Call Sign	Status	Service[5]	Channel	Transmit ERP[6] (kW)	Latitude (NAD 83)	Longitude (NAD 83)	Distance to Project Area (km)
2	WZCK-LD	LIC	LPD	24	15.0	43.052500	-89.476667	33.52
3	WMWD-LD	LIC	LPD	15	15.0	43.052500	-89.478333	33.57
4	W23BW-D	LIC	DCA	23	11.81	43.052500	-89.478333	33.57
6	WMTV	LIC	DTV	19	155.0	43.050833	-89.486944	33.99
7	WISC-TV	LIC	DTV	11	46.9	43.055833	-89.535000	34.85
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9	WHA-TV	LIC	DTV	20	200.0	43.055833	-89.535000	34.85
10	WIFS	LIC	DTV	21	175.0	43.055833	-89.535000	34.85
11	WKOW	LIC	DTV	26	800.0	43.055833	-89.535000	34.85
13	WWRS-TV	LIC	DTV	34	504.0	43.436500	-88.526083	57.73

Table 2: Licensed Off-Air TV Stations Subject to Degradation

[5] Definitions of service and status codes:
ACA - Analog Class A
DCA - Digital Class A
DRT - Digital Replacement Translator
DT - ETL testing
DTS - Distributed Transmission System
DTV - Full Service Television
DTX - Digital TV Auxiliary
LPA - Low Power Analog TV
LPD - Low Power Digital TV
LPT - Digital TV Translator
LPX - Analog TV Translator
TS - Legacy Service for Analog TV Auxiliary
TV - Analog TV legacy

LIC – Licensed and operational station
CP – Construction permit granted
CP MOD – Modification of construction permit
APP – Application for construction permit, not yet operational
STA – Special transmit authorization, usually granted by FCC for temporary operation
AMD - Amendment

[6] ERP = Transmit Effective Radiated Power

4. Recommendations

If possible, the PV inverters of a power conversion station (PCS) should be installed away from residential areas to reduce the likelihood of EMI to households that may rely on OTA television service. At minimum, a setback distance of 500 feet from any household is recommended. In the unlikely event that EMI is observed at a certain household following the construction of the solar farm, a high-gain directional antenna may be employed, preferably outdoors, and oriented towards the signal origin to mitigate the potential impact on OTA TV signal reception.

In order to prevent interference to television broadcast reception in the homes near the transmission line, there should be an effective quality control maintenance program in effect for the useful life period of the transmission line's operation. In the unlikely event that interference is observed in any of the TV service areas, a high-gain directional antenna may be employed, preferably outdoors, and oriented towards the signal origin in order to mitigate the interference.

Both cable service and direct broadcast satellite service will be unaffected by the presence of the solar farm and may be offered to those residents who can show that their OTA TV reception has been disrupted by the presence of the solar farm after it is installed.

5. Contact

For questions or information regarding the Over-the-Air TV Analysis, please contact:

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GeoPlanner™

Doppler Weather Radar Study

High Noon Solar Energy Center

Prepared on Behalf of
High Noon Solar Energy LLC

June 3, 2022

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Table of Contents

1. Introduction

The purpose of this document is to describe the research, calculations, and analysis performed to assess the impact of the proposed High Noon Solar Energy Center on the operation of Doppler Weather Radar Systems owned and operated by television stations and commercial interests within the vicinity of the project. This study was performed for High Noon Solar Energy LLC.

2. Project Area

The proposed High Noon Project is located in Columbia County, Wisconsin. The facility will generate electricity using silicon photovoltaic (PV) modules fixed to single axis solar trackers. It will have an installed capacity of up to 300 MW ac (387 MW dc). The proposed solar panels have a maximum height of 15 feet.

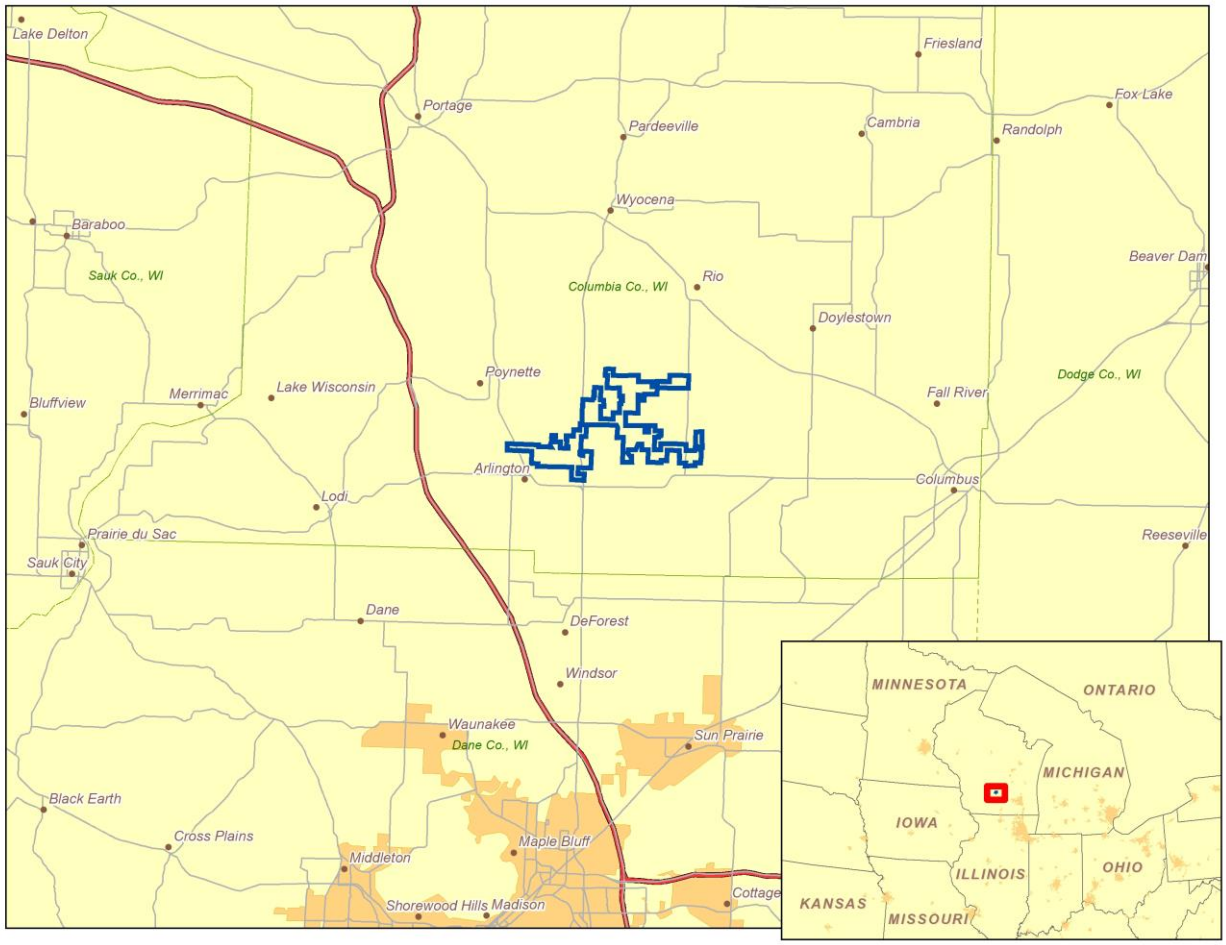

Figure 1: Location of High Noon in the State of Wisconsin

3. Technical Data

Based on a preliminary analysis of the terrain within the vicinity of the project and taking into account the maximum height of the solar panels, a reasonable search radius for radar systems was established at 250 kilometers from the center of the project area. Tables 1 and 2 contain the technical parameters of the commercial Doppler radar systems located within 250 kilometers of the project, including ownership and geographical data[1]. A depiction of the location of the Doppler radar systems with respect to the project boundaries appears in Figure 2.

ID	Call Sign	Frequency (MHz)	Ground Elevation (m)	Antenna Height (m)	Output Power (Watts)	Distance to the Project Area (km)
1	WPMF490	5350.0-5460.0	304.0	42.0	200	31.30
2	KKR988	5350.0-5460.0	285.0	23.0	225	92.26
3	KZP310	5350.0-5460.0	201.2	61.8	220	104.65
4	WQAZ631	5450.0-5600.0	229.0	26.7	421000	124.54
5	WPQA376	5500.0-5600.0	218.8	27.5	350000	151.18
6	WQCX459	5350.0-5460.0	201.2	31.0	200	152.56
7	WQVG967	2900.0-2950.0	270.0	41.5	1000000	168.38
8	KCO707	5350.0-5460.0	205.0	20.0	175	179.47
9	WPYY795	3500.0-3550.0	219.1	31.2	329587	192.85
10	WQGW693	5450.0-5500.0	221.9	12.5	1000000	217.11
11	WZL495	5485.0-5560.0	271.0	26.0	250000	231.36

Table 1: Technical Data for Commercial Interest and Television Station Doppler Radar Systems within 250 Kilometers of the High Noon

ID	Call Sign	Owner- Operator	Location	Latitude (NAD83)	Longitude (NAD83)
1	WPMF490	Gray Television Licensee, LLC	MIDDLETON, WI	43.088889	-89.528722
2	KKR988	WISN Hearst Television Inc.	MENOMONEE FALLS, WI	43.175000	-88.121194
3	KZP310	FOX TELEVISION STATIONS, LLC	BROWN DEER, WI	43.180750	-87.963972
4	WQAZ631	Nexstar Media Inc.	LITTLE CHUTE, WI	44.296889	-88.317778

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

ID	Call Sign	Owner- Operator	Location	Latitude (NAD83)	Longitude (NAD83)
5	WPQA376	Gray Television Licensee, LLC	ONEIDA, WI	44.512778	-88.162889
6	WQCX459	Scripps Broadcasting Holdings LLC	ASHWAUBENON, WI	44.490861	-88.092222
7	WQVG967	WLS Television, Inc.	LILY LAKE, IL	41.937500	-88.477917
8	KCO707	United Airlines, Inc.	ELK GROVE TOWNSHIP, IL	42.035028	-87.955611
9	WPYY795	NBC Telemundo License LLC	NAPERVILLE, IL	41.779167	-88.225000
10	WQGW693	FOX TELEVISION STATIONS, LLC	LOCKPORT, IL	41.613250	-88.014528
11	WZL495	Gray Television Licensee LLC	EAU CLAIRE, WI	44.799694	-91.466556

Table 2: Location and Ownership of Commercial Interest and Television Station Doppler Radar Systems within 250 Kilometers of the High Noon Solar Project

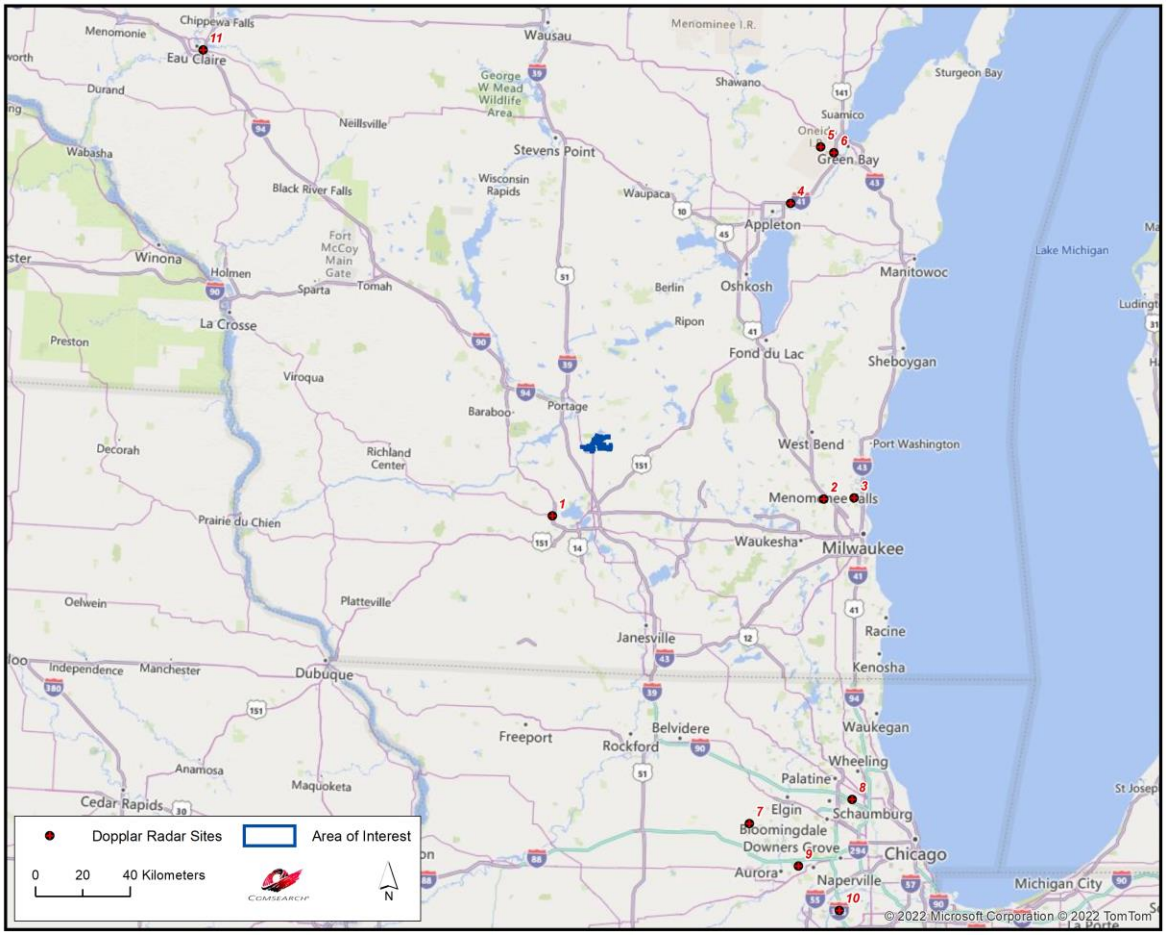

Figure 2: Location of Doppler Radar Systems within 250 Kilometers of the High Noon Solar Project

4. Impact Assessment

The technical approach to determine the potential impact of the solar project on the Doppler radar systems in the area is to calculate whether the proposed solar panels are in line-of-sight (LOS) of the radar systems. The solar panels of the High Noon Solar Project have the potential to block radar coverage and produce false targets if the panels are in line-of-sight of the radar systems' transmitted signals.

To verify the presence or absence of LOS conditions between the High Noon and the Doppler radar systems identified in Section 3, LOS coverage plots were generated for each of the radar systems. These plots identify the geographical regions that have LOS to a given radar by taking into account the height of the radar antenna, the maximum height of the proposed solar panels, the curvature of the earth, and potential refractivity in the atmosphere. The plots may be referenced in the Appendix section of this report.

According to the LOS coverage plots (see Appendix), the effective terrain elevations would block LOS between the 11 radar antennas and the solar project area. Moreover, obstruction due to land clutter (i.e., buildings, trees, etc.) would further impede line-of-sight conditions. Therefore, LOS conditions would not exist between the radars and the solar panels.

Based on their geographical locations, Comsearch determined the separation distance from each radar to the nearest point along the proposed transmission line. Of the eleven Doppler Weather radar locations identified the nearest one is more than 31 kilometers from the transmission line. Due to the distance separating the Doppler radars from the transmission line project, no harmful impact due to EMI is anticipated.

5. Conclusions

Based on the analysis described in this report, none of the 11 Doppler radar systems in the vicinity of the High Noon Solar Project could be impacted by the project's planned solar panels and transmission line.

6. Contact

For questions or information regarding the Doppler Radar Study, please contact:

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Telephone: 703-726-5656
Fax: 703-726-5595
Email: dmeyer@comsearch.com
Web site: www.comsearch.com

Appendix

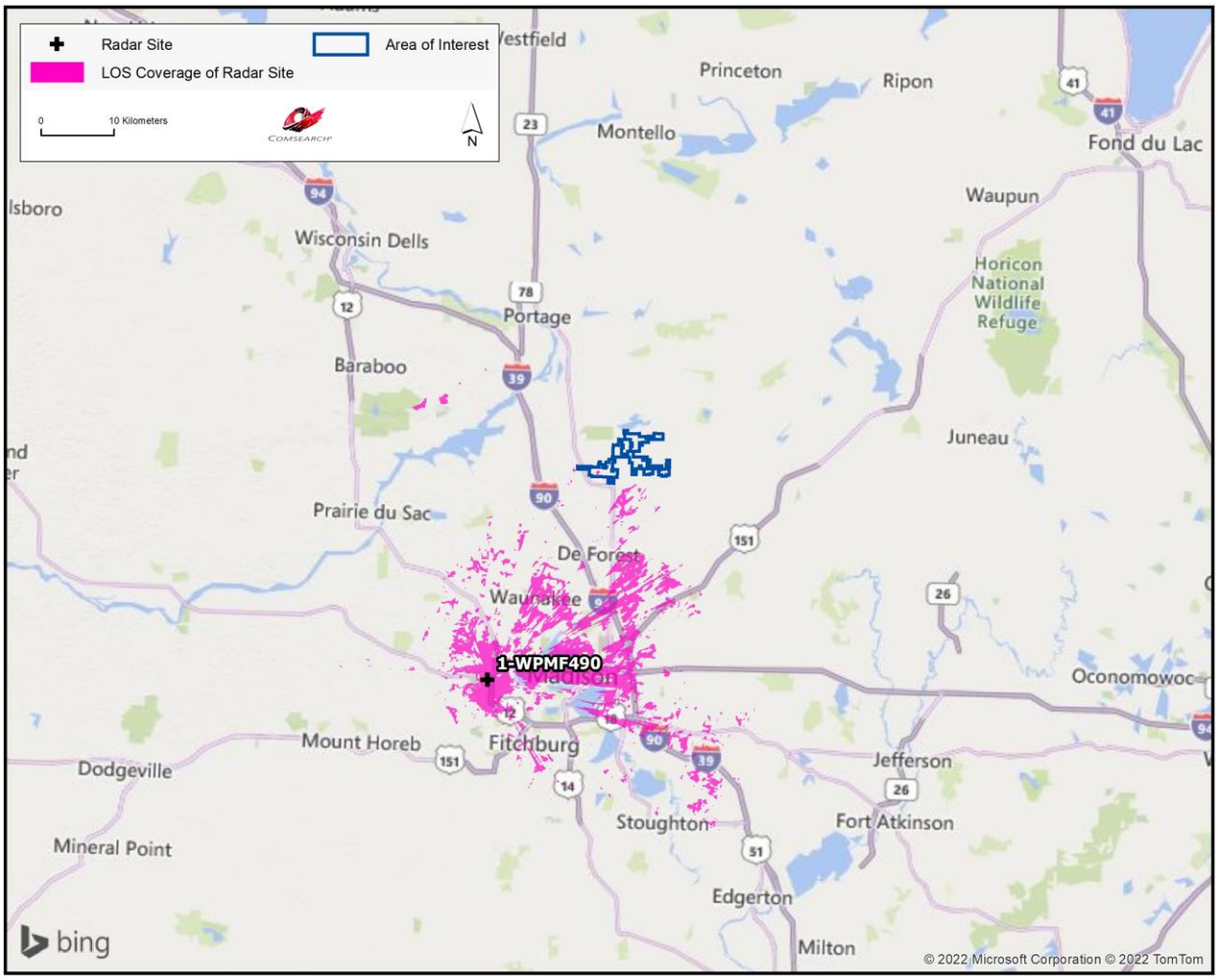

Figure A-1: Line-of-Sight Coverage of WPMF490 with Respect to High Noon Project

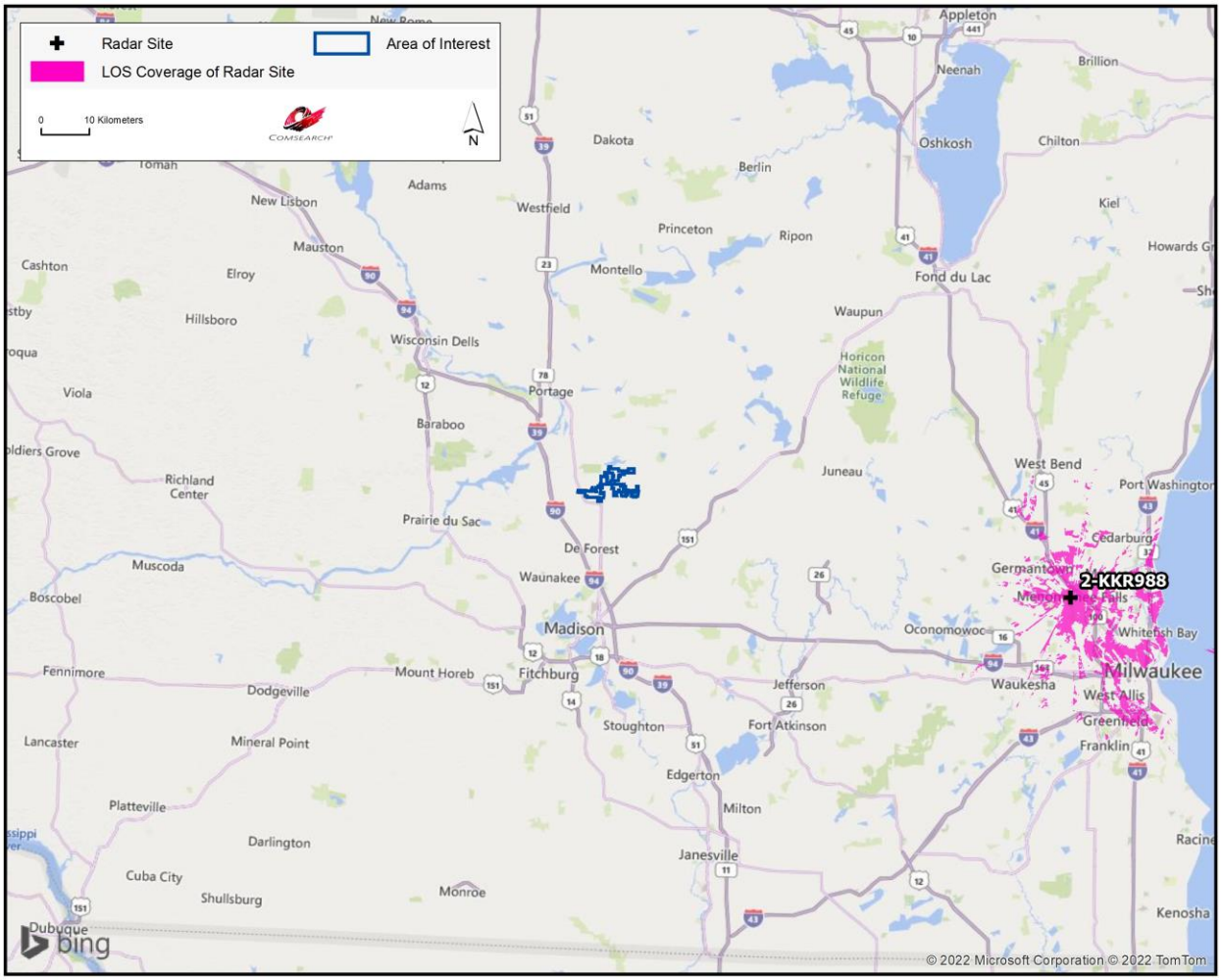

Figure A-2: Line-of-Sight Coverage of KKR988 with Respect to High Noon Project

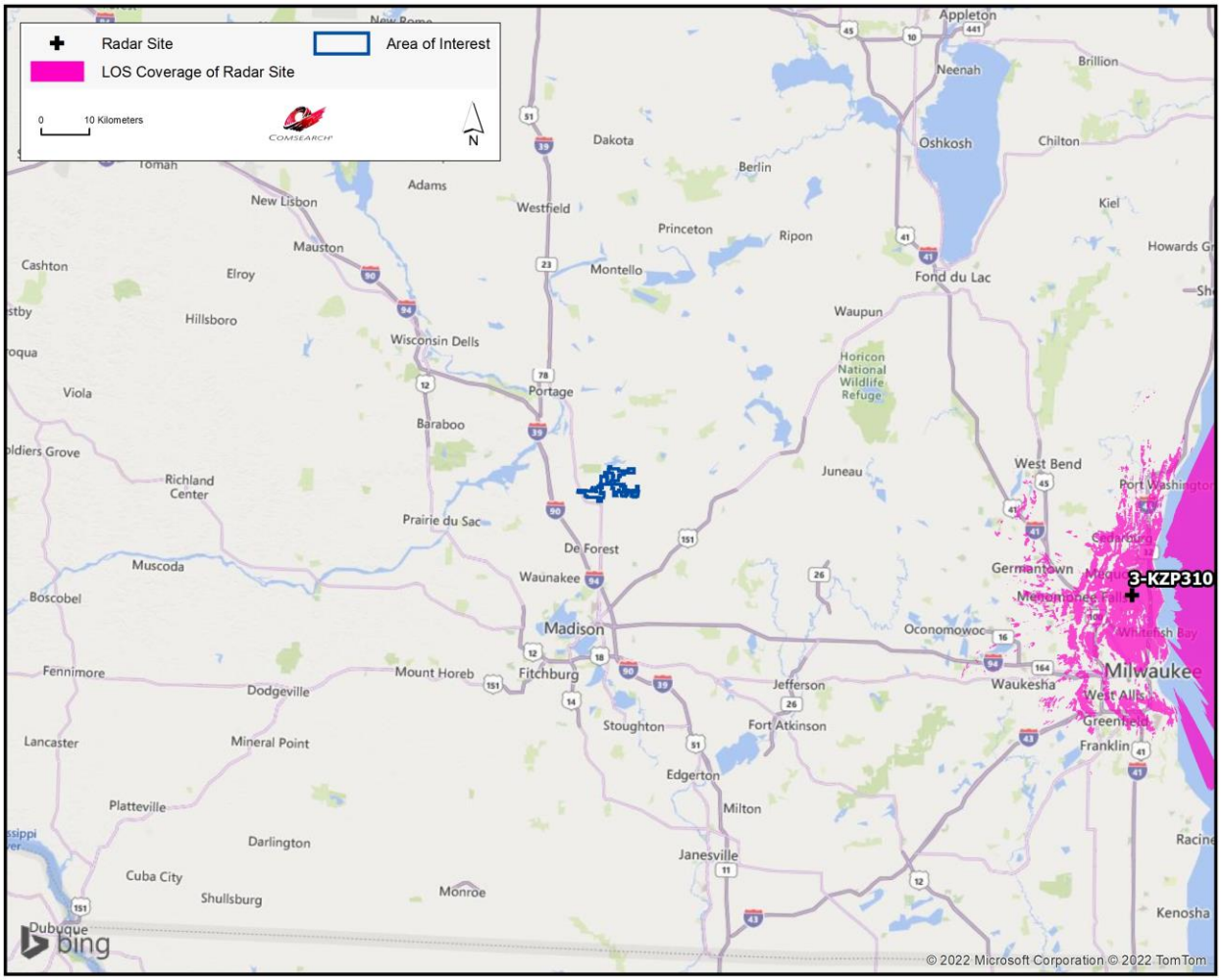

Figure A-3: Line-of-Sight Coverage of KZP310 with Respect to High Noon Project

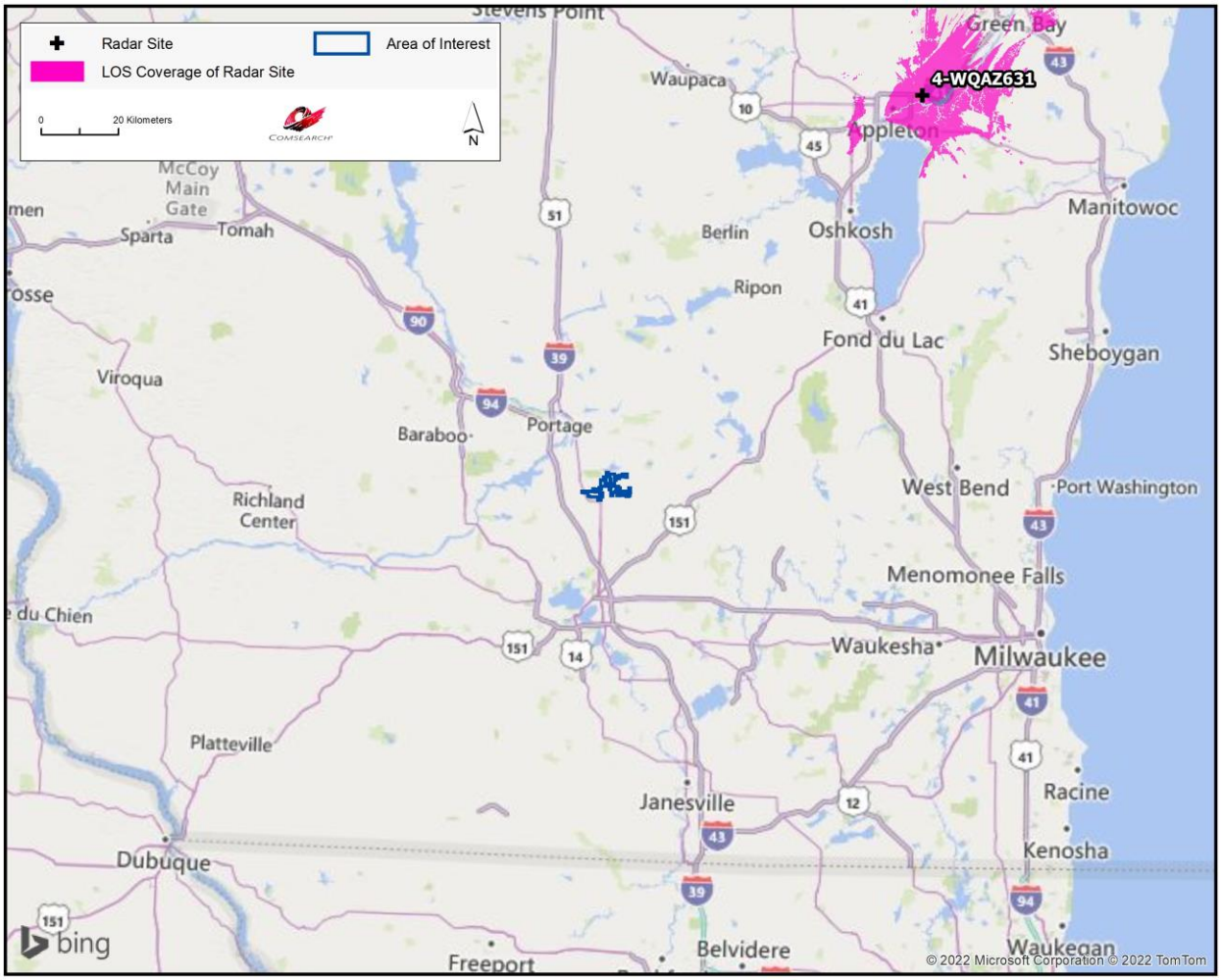

Figure A-4: Line-of-Sight Coverage of WQAZ631 with Respect to High Noon Project

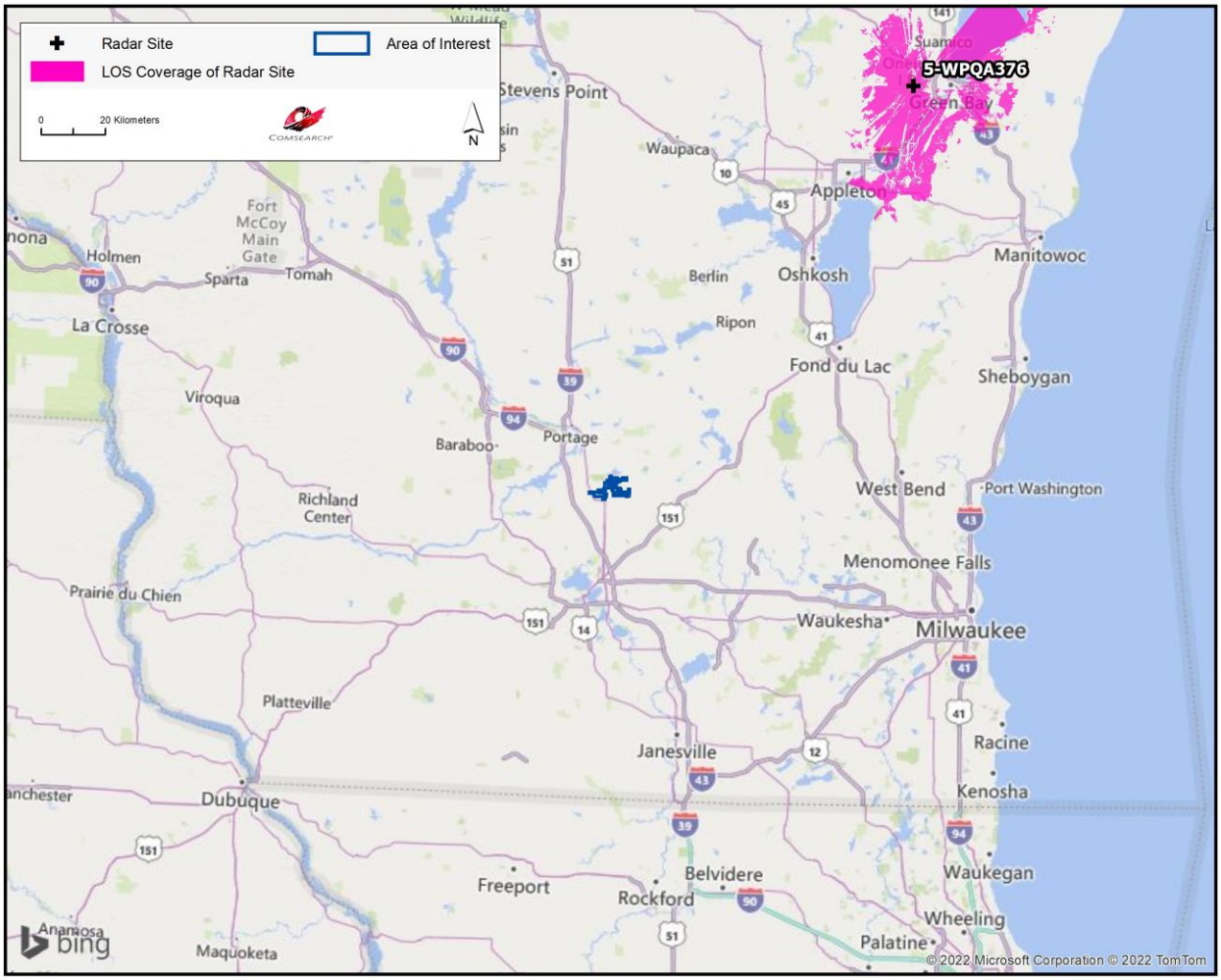

Figure A-5: Line-of-Sight Coverage of WPQA376 with Respect to High Noon Project

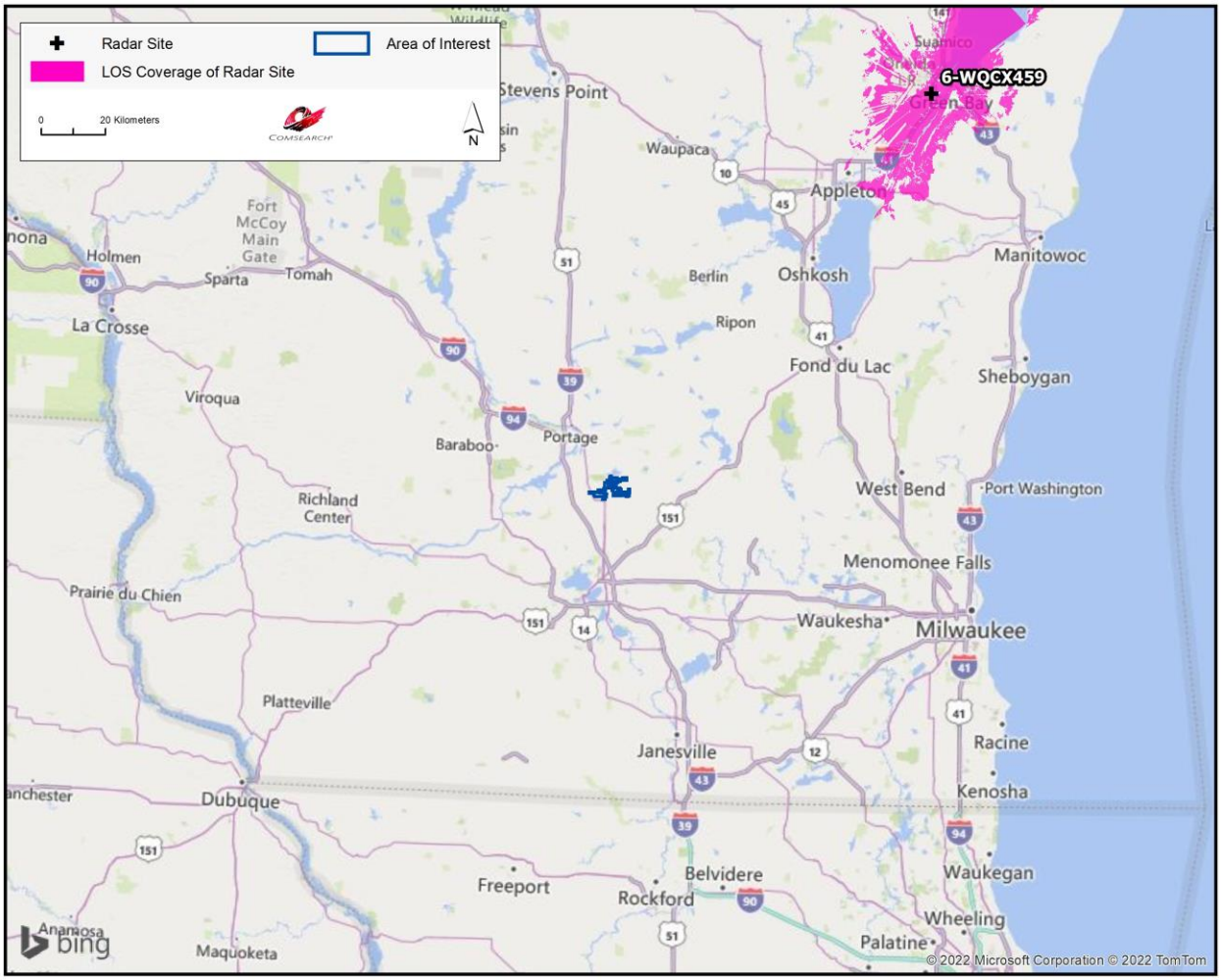

Figure A-6: Line-of-Sight Coverage of WQCX459 with Respect to High Noon Project

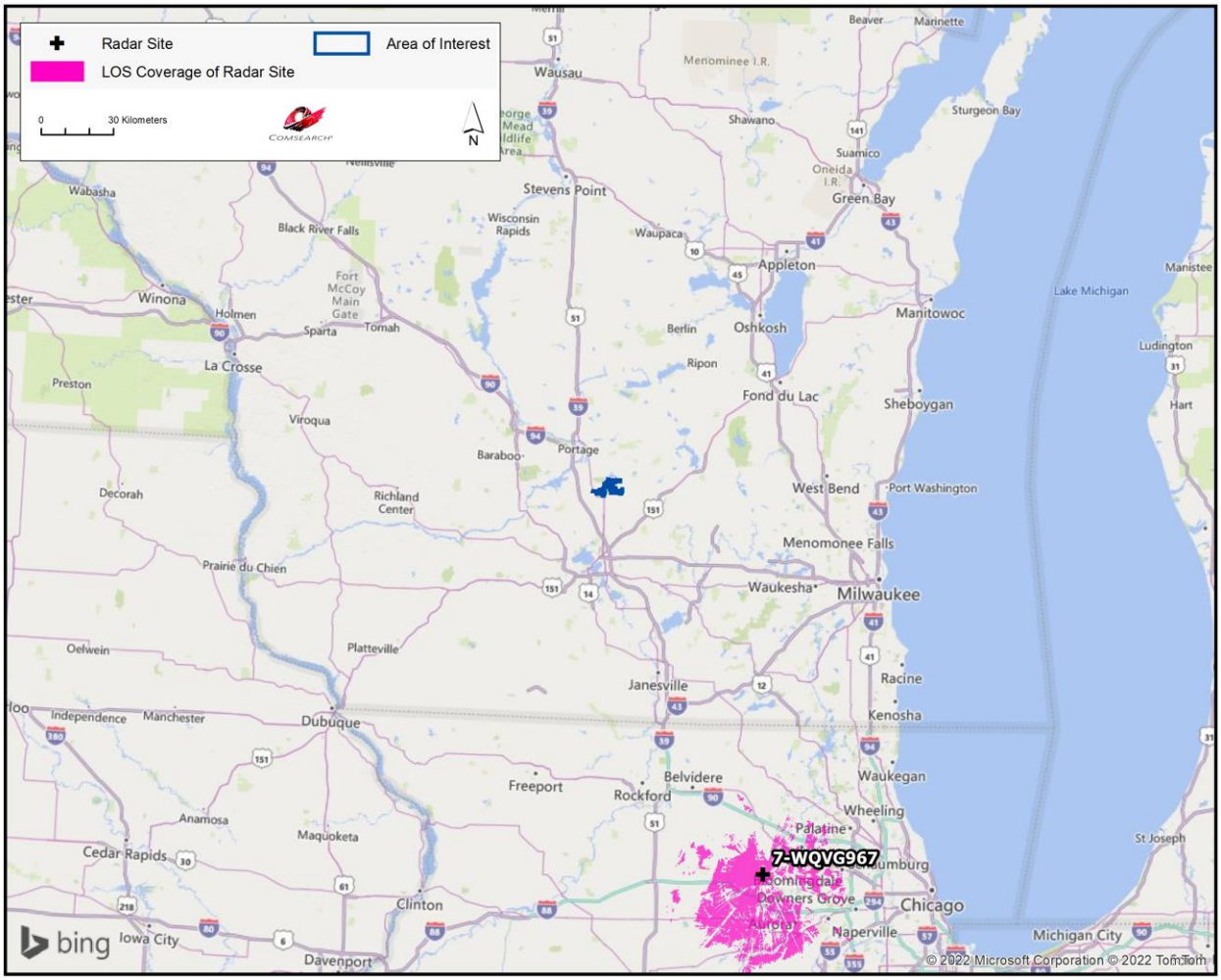

Figure A-7: Line-of-Sight Coverage of WQVG967 with Respect to High Noon Project

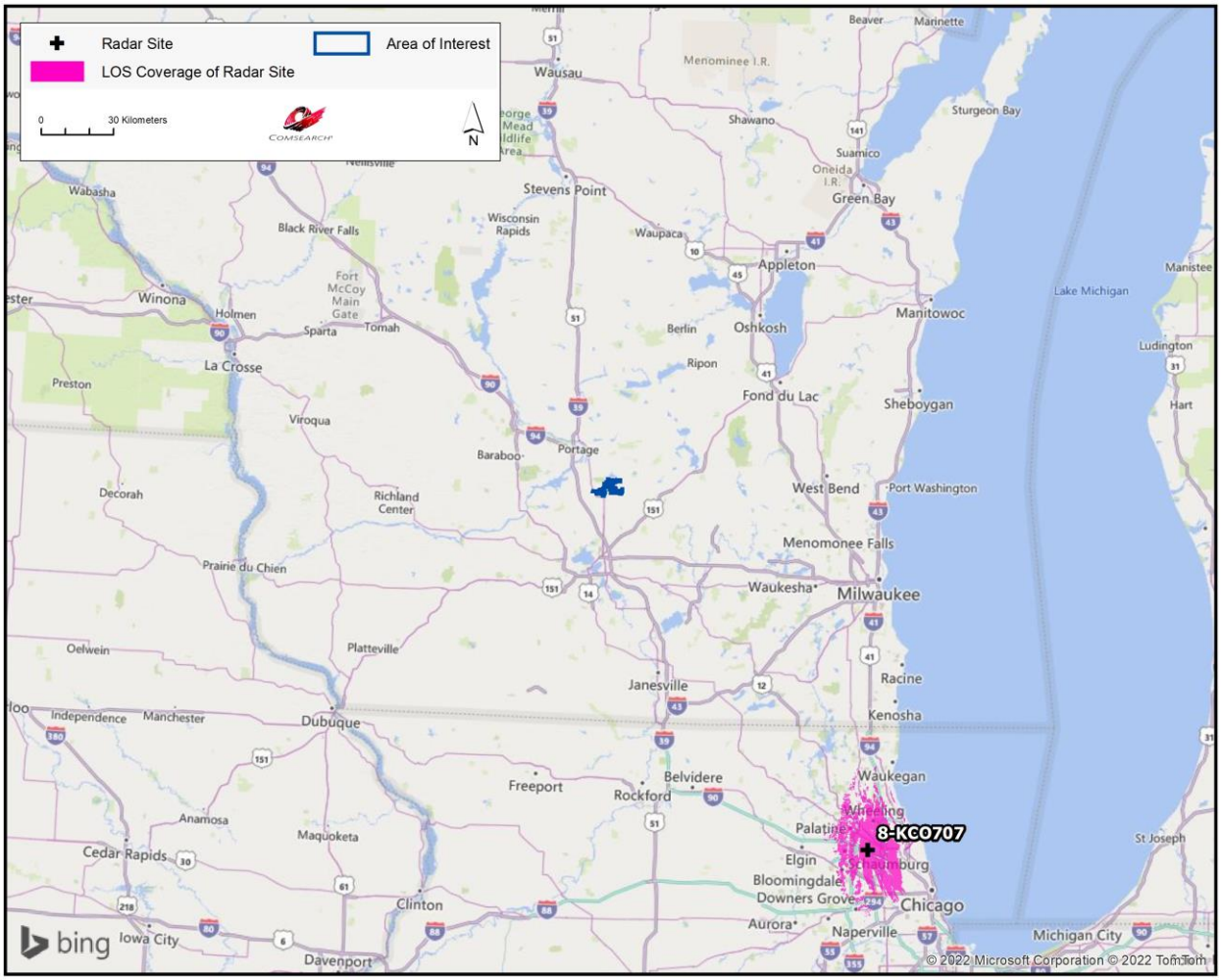

Figure A-8: Line-of-Sight Coverage of KCO707 with Respect to High Noon Project

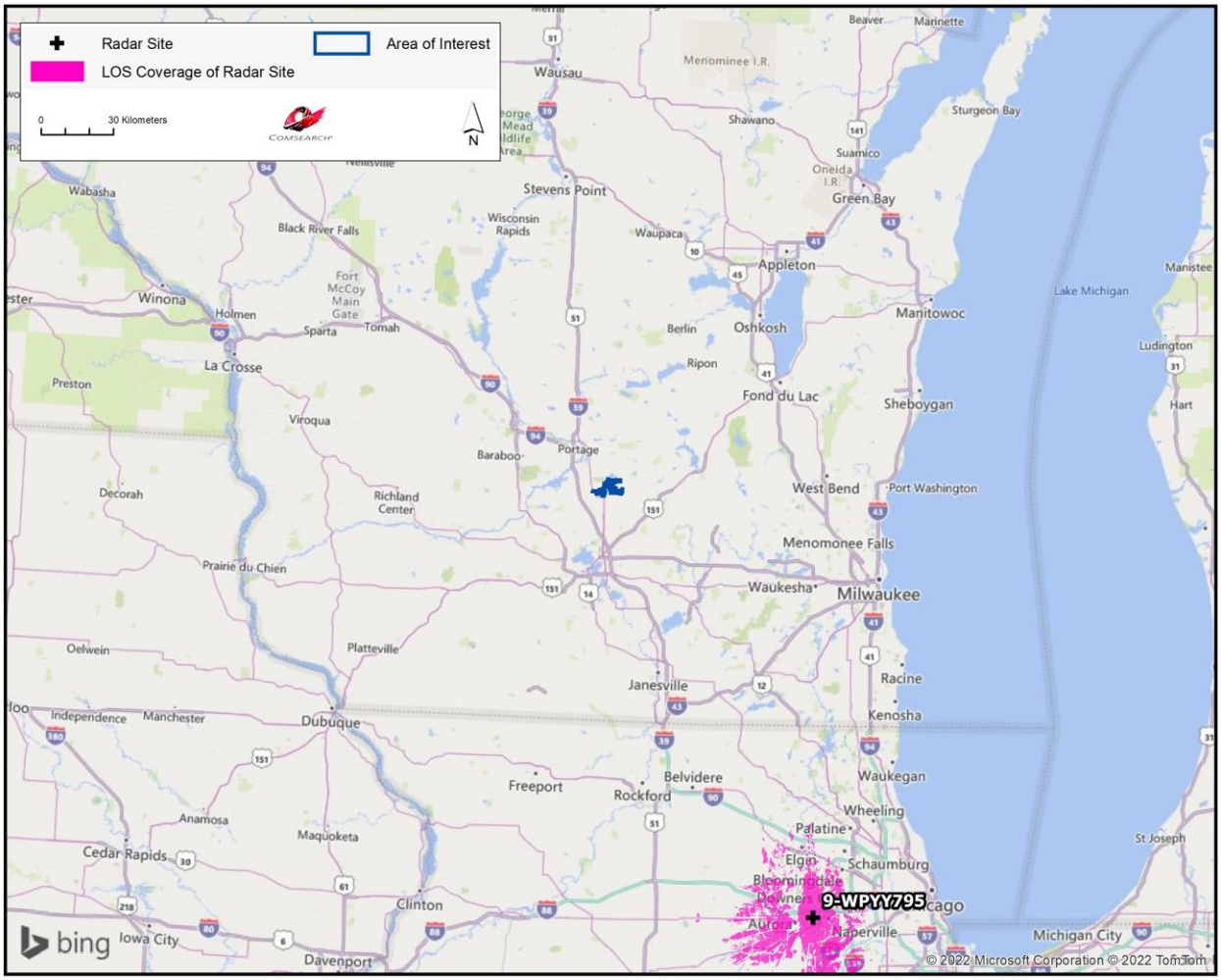

Figure A-9: Line-of-Sight Coverage of WPYY795 with Respect to High Noon Project

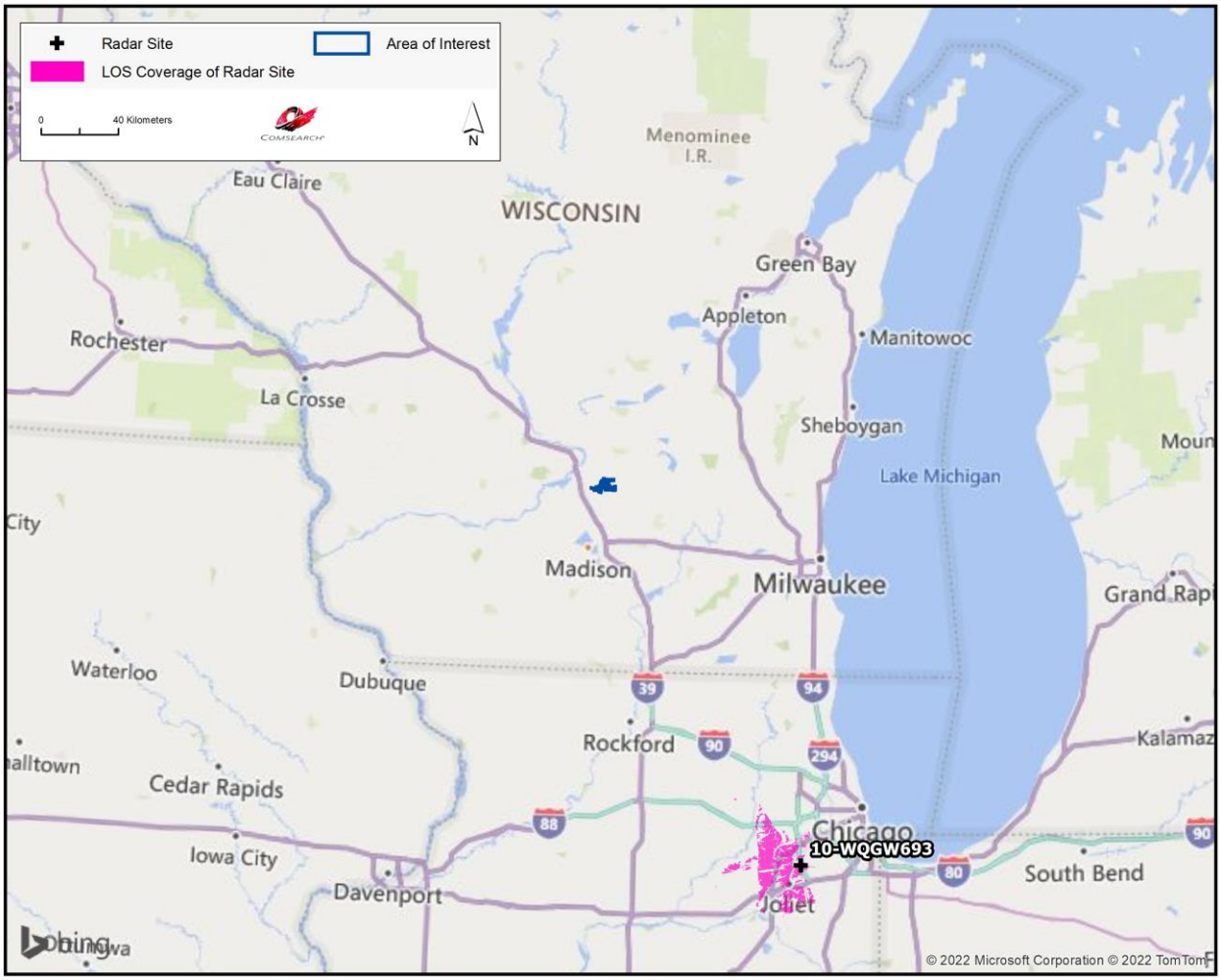

Figure A-10: Line-of-Sight Coverage of WQGW693 with Respect to High Noon Project

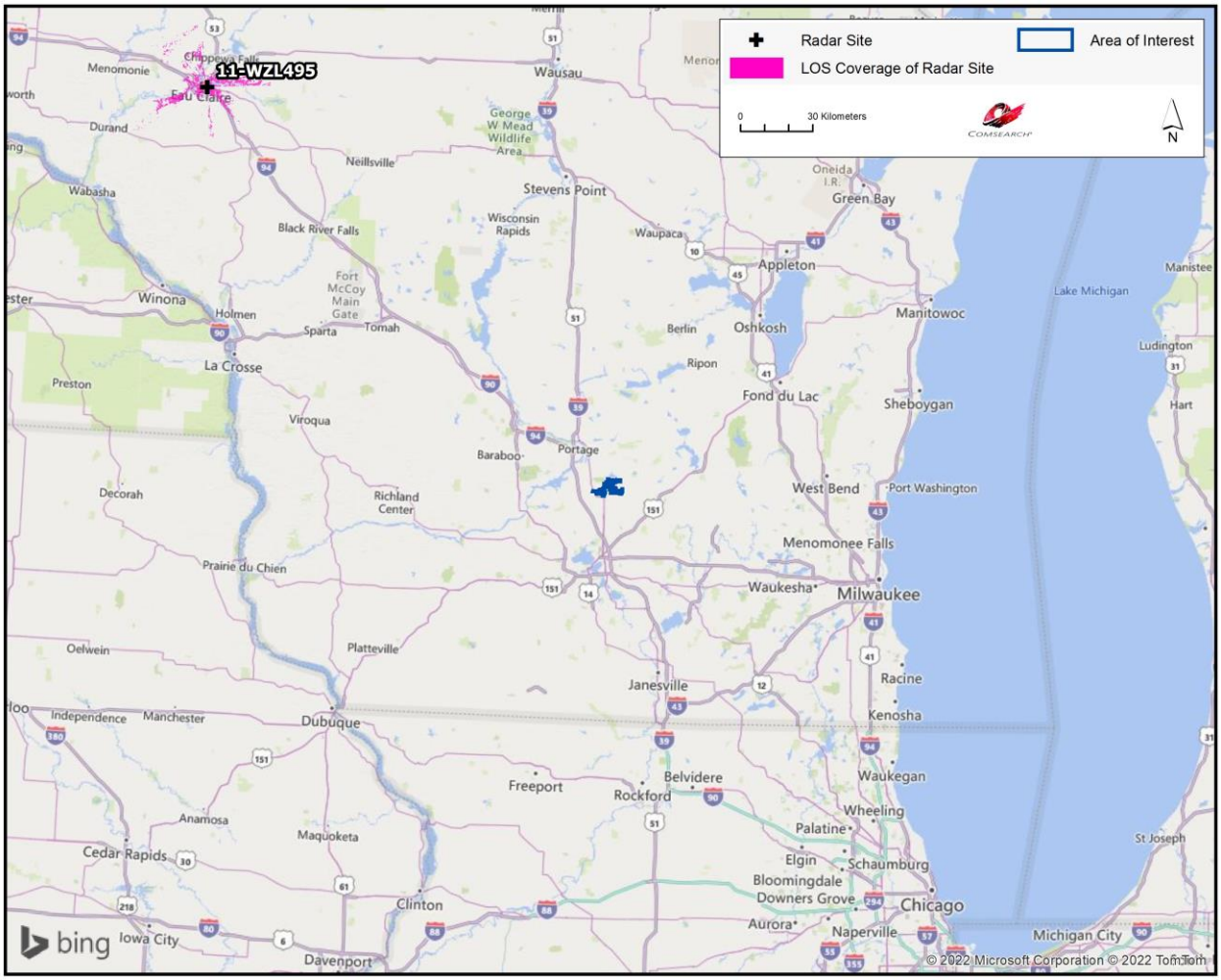

Figure A-11: Line-of-Sight Coverage of WZL495 with Respect to High Noon Project

GeoPlanner™

Land Mobile & Emergency Services Report

High Noon Solar Energy Center

Prepared on Behalf of
High Noon Solar
Energy LLC

June 3, 2022

COMSEARCH®
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Table of Contents

1. Introduction

An assessment of the emergency services in the High Noon Solar project area was performed by Comsearch to identify potential impact from the proposed solar farm. Comsearch evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. We also identified all industrial and business land mobile radio (LMR) systems and commercial E911 operators in proximity of the solar farm project. This information is useful in the planning stages of the project because the data can be used in support of facility communications needs and to evaluate any potential impact on the emergency services provided in that region. An overview of the project area, located in Columbia County, Wisconsin, appears in Figure 1.

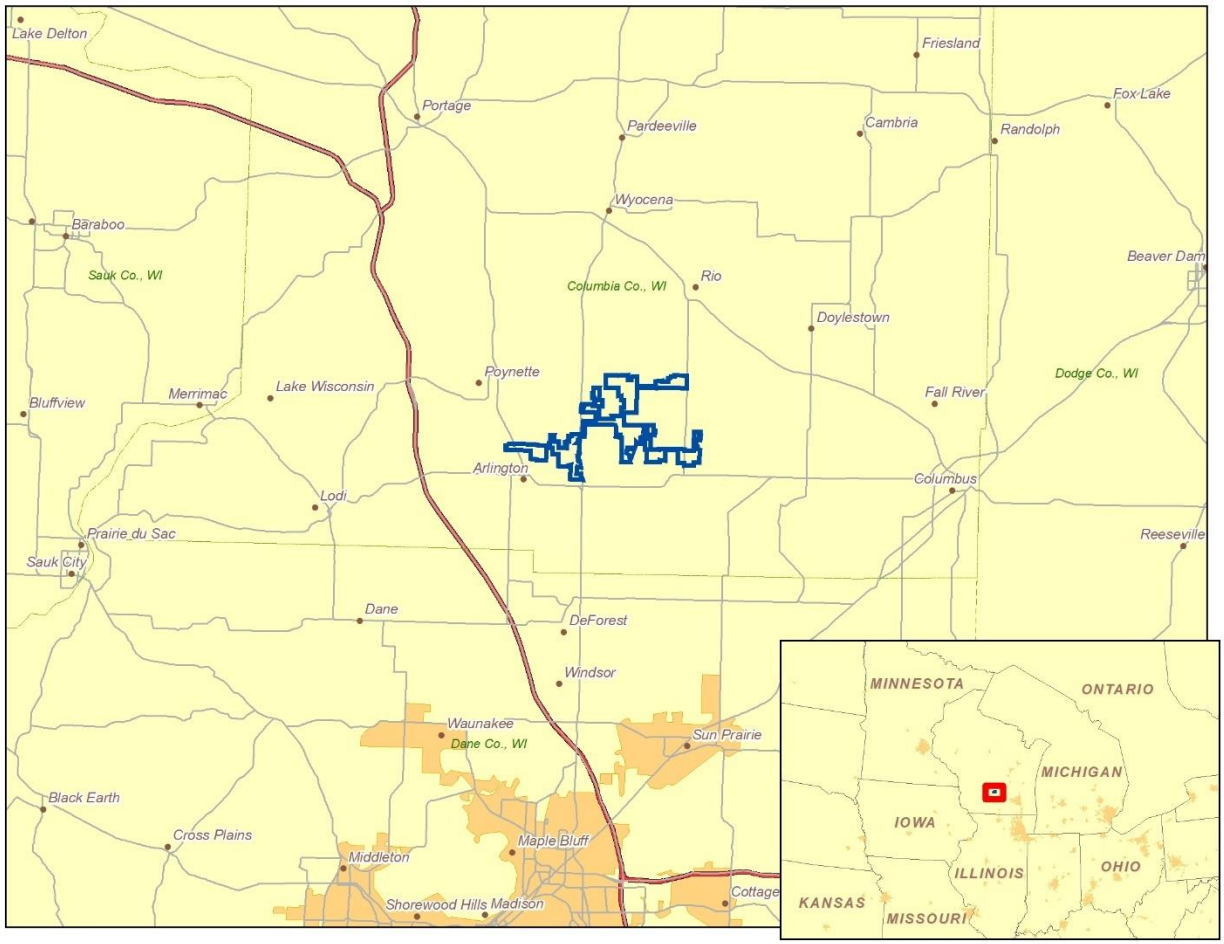

Figure 1: Area of Interest (AOI)

2. Summary of Results

Our land mobile and emergency services incumbent data[1] was derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. We identified both site-based licenses as well as regional area-wide licenses designated for public safety use.

Site-Based Licenses

The site-based licenses were imported into GIS software and geographically mapped relative to the solar farm project area of interest as defined by the customer. Each site on the map was given an ID number and associated with site information in a data table. A depiction of the fixed-site licenses near the project area appears in Figure 2.

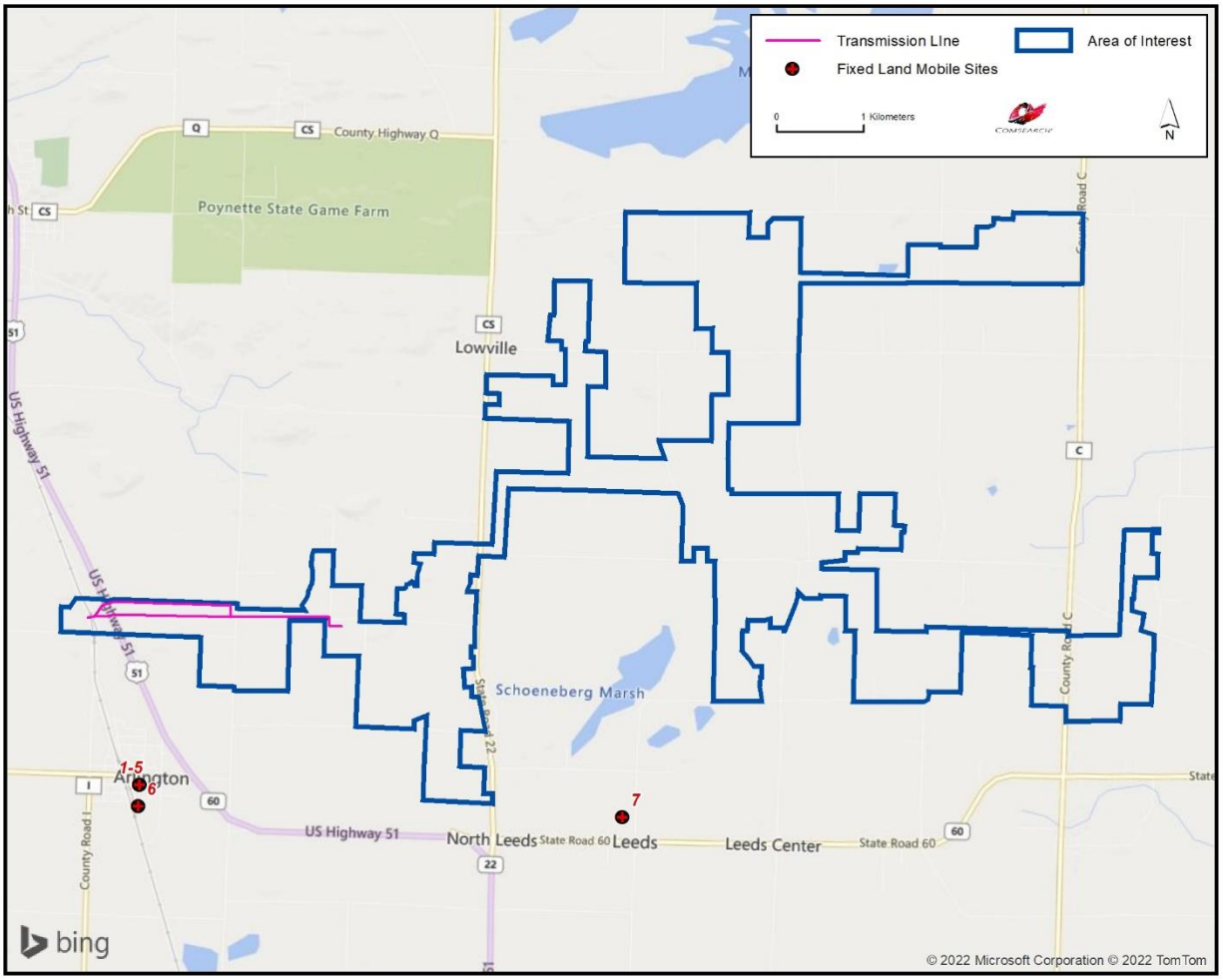

Figure 2: Land Mobile & Emergency Service Sites near Area of Interest

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the land mobile station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf

Figure 2 identifies 7 site-based licenses within a mile of the High Noon Solar area of interest. Specific information about these sites is provided in Table 1.

ID	Call Sign	Frequency Band (MHz)	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)	Distance to the Area of Interest (km)
1	WQAF442	150-174	COLUMBIA, COUNTY OF	51.8	43.336667	-89.375556	1.11
2	WQNK832	150-174	COLUMBIA, COUNTY OF	51.8	43.336667	-89.375556	1.11
3	WQNL297	150-174	COLUMBIA, COUNTY OF	51.8	43.336667	-89.375556	1.11
4	WQNL298	150-174	COLUMBIA, COUNTY OF	51.8	43.336667	-89.375556	1.11
5	WQUN973	4940-4990	Columbia, County of	33.5	43.336667	-89.375556	1.11
6	KNIP235	150-174	ARLINGTON, VILLAGE OF	23	43.334444	-89.375667	1.32
7	WNUQ350	150-174	PASKEY, STEVE	15	43.334722	-89.307056	1.41

Table 1: Land Mobile & Emergency Service Sites within One Mile of the Area of Interest

Mobile Licenses

In addition to the fixed-site licenses above, 676 mobile licenses defined by center point and radius were found to intersect the High Noon Solar project area. Appendix A contains a tabular summary of these stations.

Area-Wide Licenses

The regional area-wide licenses were compiled from FCC data sources and identified for each county intersected by the solar farm. The solar farm project is located in Columbia County, Wisconsin, part of Public Safety Region #45, which contains all of the counties in Wisconsin, excluding the greater Chicago metropolitan area. The regional public safety operations are overseen by the entity listed below.

Russell Schreiner
Chairman
Communications Engineering, City of Sheboygan Police Department
828 Center Ave., Sheboygan, WI 53081
Phone: 920-459-3351
Fax: 920-459-0205
Email: russ.schreiner@sheboyganwi.gov

The chairperson for Region #45 serves as the representative for all public safety entities in the area and is responsible for coordinating current and future public safety use in the wireless spectrum. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, fifteen licenses were found for the State of Wisconsin and one for the County of Columbia (Table 2). These area-wide licenses are designated for mobile use only.

ID	Licensee	Area of Operation	Frequency Band (MHz)
1	American National Red Cross	Statewide: WI	25-50
2	Ascension St. Michael's Hospital, Inc.	Statewide: WI	450-470
3	Columbia, County of	Countywide: COLUMBIA, WI	150-174, 4940-4990
4	DANE, COUNTY OF	Statewide: WI	450-470, 2450-2500
5	DOUSMAN TRANSPORT CO INC	Statewide: WI	800/900
6	GREENFIELD, CITY OF	Statewide: WI	800/900
7	Milwaukee County OEM	Statewide: WI	150-174
8	MILWAUKEE, CITY OF	Statewide: WI	450-470
9	NATIONAL SKI PATROL SYSTEM INC	Statewide: WI	150-174
10	PARATECH AMBULANCE SERVICE INC	Statewide: WI	150-174
11	State of Wisconsin	Statewide: WI	150-174, 800/900
12	TREMPEALEAU, COUNTY OF	Statewide: WI	450-470
13	UW Hospitals and Clinics	Statewide: WI	150-174, 450-470
14	VERONA, CITY OF	Statewide: WI	150-174
15	WISCONSIN DIVISION OF HEALTH	Statewide: WI	150-174
16	WISCONSIN STATE PATROL	Statewide: WI	150-174

Table 2: Regional Licenses

E911 Operators

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. We have identified the type of service for each carrier in Columbia County, Wisconsin, in Table 3.

Mobile Phone Carrier	Service[2]
AT&T	700 MHz, AWS, Cellular, PCS, WCS
DISH Network	700 MHz, AWS
T-Mobile	AWS, PCS
US Cellular	700 MHz, AWS, Cellular, PCS
Verizon	700 MHz, AWS, Cellular, PCS

Table 3: Mobile Phone Carriers in Area of Interest with E911 Service

[2] AWS: Advanced Wireless Service at 1.7/2.1 GHz
CELL: Cellular Service at 800 MHz
PCS: Personal Communication Service at 1.9 GHz
WCS: Wireless Communications Service at 2.3 GHz
700 MHz: Lower 700 MHz Service

3. Impact Assessment

The first responder, industrial/business land mobile sites, area-wide public safety, and commercial E-911 communications as described in this report are typically unaffected by the presence of a solar farm, and we do not anticipate any significant harmful effect to these services in the solar farm project area. Although each of these services operates in different frequency ranges and provides different types of service including voice, video and data applications, there is commonality among these different networks with regard to the impact of a solar farm on their service. Each of these networks is designed to operate reliably in a non-line-of-sight (NLOS) environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites in order to provide handoff between cells.

Furthermore, the heights of the solar panels whose range will not exceed 15 feet above ground level are generally lower than the antenna height of the land mobile systems identified. Therefore, any signal blockage caused by the solar farm does not materially degrade the reception due to the height differential or because the end user is likely capable of receiving signals from multiple transmitter locations. Additionally, the frequencies of operation for these services have characteristics that allow the signal to propagate over and through the solar panels. As a result, very little, if any, change in their coverage should occur when the solar farm is installed.

Any signal blockage caused by the transmission line towers does not materially degrade the reception because the end user is likely receiving signals from multiple transmitter locations. Additionally, the frequencies of operation for these services have characteristics that allow the signal to propagate through transmission line towers. As a result, very little, if any, change in their coverage should occur when the towers are installed.

However, if the lines are not well maintained, corona and arcing may occur at the insulators or conductor connectors, creating broadband noise. Corona discharge takes place when a localized electric field from a transmission line is highly concentrated and ionizes the air near the conductors and thereby generates noise. This is a phenomenon that usually occurs during foul weather at various points that are randomly distributed along transmission lines operating at 345 kV and higher. On the other hand, a gap discharge takes place at small “gaps” between mechanically connected metal parts which, in turn, can spark and form an electric arc across the gap, also generating noise. Typically, this affects low-voltage lines due to loose wire and hardware connections that are on wooden poles. In any case, the interfering signal is amplitude-modulated and can propagate at distances that extend up to around 500 feet. The frequency range of the noise produced by corona discharge extends up to 100 MHz, whereas that produced by gap discharge can reach up to the GHz range.

Thus, broadband noise could cause interference to land mobile base stations or the remote units operating near the transmission line if not properly maintained.

4. Recommendations

No recommendation with regard to coverage impact mitigation is necessary, as the proposed solar farm is not expected to cause any significant degradation in signal strength after construction of the solar farm.

With regard to electromagnetic interference (EMI) emissions, Comsearch recommends a minimum setback distance for the PV inverters. When planning their locations in the project area of interest, a conservative approach would dictate not locating any power conversion station (PCS) within 77.5 meters of land mobile fixed-base stations to avoid any possible impact to the communications services that they provide. This distance is based on FCC interference emissions from electrical devices in the land mobile frequency bands. Therefore, as long as the PCS installations which house the PV inverters are located more than 77.5 meters from the land mobile stations, they will meet the setback distance criteria for FCC interference emissions in the land mobile bands.

There should be an effective quality control maintenance program in effect for the useful life period of the operation of the transmission line in order to prevent corona and arcing that causes broadband noise. In the event that a public safety entity believes its coverage has been compromised by the presence of the transmission line, it has many options to improve its signal coverage to the area through optimization of a nearby base station or by even adding a repeater site. If necessary, the transmission line towers themselves can serve as the platform for a base station or repeater site.

5. Contact

For questions or information regarding the Land Mobile & Emergency Services Report, please contact:

Contact person:	David Meyer
Title:	Senior Manager
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5656 (office) / 703-726-5595 (fax)
Email:	dmeyer@comsearch.com
Web site:	www.comsearch.com

Appendix A

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
1	WQVV459	450-470	A TO Z RENTALL	16	43.202361	-89.337306
2	WPWP246	450-470	Aclara Technologies LLC	98	44.153583	-88.650583
3	WPWS438	450-470	Aclara Technologies LLC	161	44.709694	-88.836861
4	WQEW248	450-470	Aclara Technologies LLC	80	43.281611	-90.187806
5	WQEW900	450-470	Aclara Technologies LLC	80	42.775472	-88.712861
6	WQRW422	450-470	ACLARA TECHNOLOGIES LLC	80	42.775472	-88.712861
7	KSD343	150-174	ADAMS COLUMBIA ELECTRIC CO OP	56	43.570250	-89.157778
8	WPTU442	800/900	ADLER, THOMAS H	112	43.077778	-89.666944
9	WPMX603	450-470	ADVERTISERS PRESS INC	32	43.100556	-89.532056
10	WQEL960	150-174	AFFILIATED CARRIAGE SYSTEMS INC	40	43.071111	-89.385944
11	WRDS364	450-470	AMCOR FLEXIBLES HEALTHCARE	32	43.119361	-89.314083
12	WQRP640	450-470	AMERHART LTD	32	43.175444	-89.218222
13	WNXG726	800/900	AMERICAN FAMILY INSURANCE GROUP	40	43.103333	-89.312889
14	WQSS527	450-470	American Family Insurance Group	32	43.041083	-89.370500
15	WQSS527	450-470	American Family Insurance Group	32	43.103333	-89.312889
16	WQSS527	450-470	American Family Insurance Group	32	43.156444	-89.287972
17	WQSS527	450-470	American Family Insurance Group	32	43.163083	-89.285000
18	WPDJ904	450-470	AMERICAN PACKAGING CORP	16	43.282778	-89.068444
19	WPDV741	450-470	AMERICAN PACKAGING CORP	8	43.262083	-89.331583
20	WPDV741	450-470	AMERICAN PACKAGING CORP	32	43.343889	-89.024278
21	WQEI908	450-470	AMERICAN TIME & SIGNAL CO.	20	43.185667	-89.210556
22	WQEI908	450-470	AMERICAN TIME & SIGNAL CO.	20	43.385944	-89.045972
23	WQVN419	450-470	AMERICAN TIME & SIGNAL CO.	20	43.390889	-89.396556
24	WQVN419	450-470	AMERICAN TIME & SIGNAL CO.	20	43.146278	-89.369861

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
25	WQVN419	450-470	AMERICAN TIME & SIGNAL CO.	20	43.146000	-89.369028
26	WQDB269	450-470	ARLINGTON AGRI RESEARCH STATION	24	43.299556	-89.345167
27	KNIP235	150-174	ARLINGTON, VILLAGE OF	16	43.334444	-89.375667
28	WREQ513	450-470	ASSOCIATED MILK PRODUCERS INC	32	43.540444	-89.451417
29	WQGL620	150-174	ASSOCIATED TRAINING SERVICES	40	43.243333	-89.147778
30	WQRD353	450-470	AUNT B'S PET RESORT & SPA	16	43.239472	-89.374389
31	KSA768	150-174	BADGER CAB	40	43.080556	-89.388722
32	KMJ204	150-174, 450-470	BADGERLAND COMMUNICATIONS INC	121	43.464167	-88.798444
33	KMJ204	450-470	BADGERLAND COMMUNICATIONS INC	80	43.436944	-88.526500
34	WPLT948	800/900	BADGERLAND COMMUNICATIONS INC	112	43.430528	-89.653722
35	WPLT948	800/900	BADGERLAND COMMUNICATIONS INC	112	43.436944	-88.526500
36	WPLU792	150-174	BADGERLAND COMMUNICATIONS INC	40	43.464167	-88.798444
37	WQPP291	150-174	BAKER'S SUNSET BAY RESORT	40	43.595944	-89.776222
38	WQWA526	450-470	BALL CORPORATION	32	43.255472	-89.326417
39	WNVA931	150-174	BARABOO DISTRICT AMBULANCE SERVICE	40	43.471639	-89.740944
40	WPUG536	450-470	BARABOO SCHOOL DISTRICT	32	43.428611	-89.647222
41	WQQZ931	450-470	BARABOO SCHOOL DISTRICT	32	43.428611	-89.647222
42	KEW719	25-50	BARRICADE FLASHER SERVICE INC	80	43.726639	-89.064278
43	WPUF246	150-174	BATTIST FARMS INC	40	43.083056	-88.994444
44	WPLR384	450-470	BAYCOM INC	32	43.495806	-89.548444
45	WPMY446	450-470	BAYCOM INC	32	43.495833	-89.548333
46	WPVJ493	450-470	BAYCOM INC	32	43.495833	-89.548333
47	KB32913	450-470	BAYCOM INC.	120	43.183333	-89.000111
48	WNMI982	800/900	Baycom Inc.	113	43.940250	-88.934278
49	KD51297	450-470	Baycom, Inc.	80	43.967194	-88.941500

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
50	WPFR268	800/900	Baycom, Inc.	112.7	43.983583	-88.551222
51	WPMZ946	450-470	BEARDSLEY, CRAIG L	250	41.694194	-87.687556
52	KTH569	150-174	BEAVER DAM COMMUNITY HOSPITAL INC	48	43.448194	-88.826556
53	KKI300	450-470	Bell Ambulance, Inc.	121	42.999556	-87.902250
54	KKI300	450-470	Bell Ambulance, Inc.	121	43.038333	-87.901472
55	WQET775	450-470	Bell Laboratories Inc.	32	43.125694	-89.325139
56	WQHG868	450-470	Bell Laboratories Inc.	32	43.202667	-89.330889
57	WQHG868	450-470	Bell Laboratories Inc.	32	43.125694	-89.325139
58	WQUY685	25-50	BENS AUTO SERVICE INC.	80	43.182944	-89.216222
59	WNPT710	150-174	BENZINE, STANLEY:BENZINE, STUART DBA S & S FARMS	32	43.397778	-89.145667
60	WQJN523	450-470	BEST DEFENSE FIRE PROTECTION & SECURITY, INC.	80	43.064167	-89.291444
61	WPMW427	800/900	BIERMAN, NICK	112	43.430528	-89.653722
62	WQLK879	450-470	BIG GAIN OF WISCONSIN INC	32	43.313889	-89.526389
63	KSI448	150-174	BLACK EARTH JT FIRE DIST	80	43.142222	-89.748722
64	WQLI581	450-470	BLAIN SUPPLY INC.	120	42.672028	-88.974583
65	WQFB490	450-470	BLUE STAR DAIRY INC	32	43.266056	-89.421639
66	WQJE778	150-174	BLYSTONE TOWING & RADIATOR, INC	40	43.489167	-89.509444
67	WQWW941	450-470	BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN	32	43.075556	-89.406583
68	WNME671	25-50	BOEHNEN INC	72	43.113889	-89.653167
69	WQPS315	450-470	BONDUELLE NORTH AMERICA	80	43.791944	-88.881667
70	WPVJ275	450-470	BORCHERT, THOMAS	32	43.547333	-88.905333
71	WNNS655	450-470	BORCHERT, THOMAS C	32	43.315833	-89.109000
72	WNNS655	450-470	BORCHERT, THOMAS C	80	43.315833	-89.109000
73	WPUS559	450-470	BORCHERT, THOMAS C	32	43.315833	-89.108889
74	WQNR457	450-470	BOUMATIC LLC	32	43.070528	-89.307056

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
75	WQVJ774	450-470	BOYS & GIRLS CLUBS OF WEST CENTRAL WISCONSIN INC	95	43.469167	-89.741944
76	KD28611	450-470	BRINK'S INCORPORATED	121	42.268639	-89.096778
77	KD28672	450-470	BRINK'S INCORPORATED	121	43.073056	-89.382056
78	KD28673	450-470	BRINK'S INCORPORATED	121	43.038611	-87.904250
79	WQWN578	150-174	BROUGHTON, BRENT	104	43.450000	-90.033333
80	WNUS616	150-174	BUSSIAN INC	48	43.285833	-89.328444
81	WQML269	150-174	CAINE WAREHOUSING LLC	40	43.304694	-88.849417
82	WNFG231	25-50, 150-174	CAMBRIA, CITY OF	24	43.551139	-89.106500
83	WQPW493	150-174	CAMBRIA-FRIESLAND SCHOOL DISTRICT	32	43.542639	-89.102306
84	WQOA697	450-470	CAPITAL FIRE & SECURITY INC	80	43.067750	-89.407472
85	WQJF258	450-470	CAPITAL LAKES	32	43.071111	-89.385944
86	KB55776	450-470	CAPSTAR TX, LLC	40	43.074722	-89.384278
87	KPH548	150-174	CAPSTAR TX, LLC	48	43.073056	-89.381944
88	WRDQ524	450-470	CARDINAL FG	32	43.557139	-89.499167
89	KNGY581	150-174	CAREW CONCRETE & SUPPLY CO INC	40	43.681361	-89.078167
90	WQAK413	150-174	CAREW CONCRETE & SUPPLY CO INC	40	43.613611	-89.152778
91	KNNI896	450-470	CASCADE MOUNTAIN INC	32	43.498861	-89.519556
92	KNNI896	450-470	CASCADE MOUNTAIN INC	32	43.496639	-89.518444
93	WRMM407	450-470	Catalent Pharma	32	43.076667	-89.535750
94	KB30793	450-470	CD SMITH CONSTRUCTION, INC.	40	43.073472	-89.459583
95	WQOM633	450-470	CHEROKEE GARDEN CONDOMINIUM HOMES	32	43.148333	-89.368889
96	KD29809	450-470	Chicago Communications, LLC	80	43.079722	-89.387500
97	KYH665	150-174	CHIQUITA PROCESSED FOODS LLC	121	42.808333	-90.317639
98	KYH665	150-174	CHIQUITA PROCESSED FOODS LLC	121	44.220528	-89.523722
99	KYH665	150-174	CHIQUITA PROCESSED FOODS LLC	121	43.253889	-89.340667

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
100	KYH665	150-174	CHIQUITA PROCESSED FOODS LLC	121	43.912472	-88.728167
101	WQVA264	150-174	CHS INC.	32	43.037667	-89.297861
102	WQFX267	450-470	CLASEN QUALITY COATING INC	32	43.106028	-89.514583
103	KD47712	450-470	COLONY BRANDS, INC.	16	43.203694	-89.206000
104	KSA411	150-174	COLUMBIA, COUNTY OF	40	43.495833	-89.548333
105	WNHP963	150-174	COLUMBIA, COUNTY OF	40	43.412778	-89.233722
106	WNXJ636	150-174	COLUMBIA, COUNTY OF	56	43.540528	-89.478444
107	WPME928	150-174	COLUMBIA, COUNTY OF	40	43.412778	-89.233722
108	WPNR713	450-470	COLUMBIA, COUNTY OF	32	43.412778	-89.233722
109	WPNY254	450-470	COLUMBIA, COUNTY OF	32	43.412778	-89.233722
110	WPZS862	150-174	COLUMBUS COMMUNITY HOSPITAL INC.	32	43.322583	-89.035222
111	WPUY910	150-174	COLUMBUS SCHOOL DISTRICT	40	43.305833	-89.015278
112	WNZF393	450-470	ComElec Services, Inc.	80	42.838889	-89.726500
113	WPEI340	450-470	ComElec Services, Inc.	80	42.838889	-89.726500
114	WPTM837	800/900	ComElec Services, Inc.	113	42.762194	-90.389833
115	WQMF698	450-470	COMMUNICATIONS ENGINEERING CO	80	43.132167	-89.290139
116	WQMF698	450-470	COMMUNICATIONS ENGINEERING CO	80	43.782778	-88.442778
117	KNIA746	25-50	COMMUNITY ANTENNA SYSTEM INC	121	43.690250	-90.369583
118	WQRB699	450-470	ContiTech USA, Inc.	32	43.177444	-89.253861
119	WPTP508	150-174	COUNTY MATERIALS CORPORATION	121	44.243611	-88.452778
120	WQQK369	450-470	COUNTY MATERIALS CORPORATION	24	43.109444	-89.320278
121	KXO710	150-174	CROSS PLAINS BERRY FIRE DIST	48	43.115000	-89.655111
122	WNFM632	150-174	CROSS PLAINS, VILLAGE OF	48	43.111750	-89.640667
123	WQWG990	150-174	CRYSTAL LAKE CAMPGROUND	32	43.294194	-89.633500
124	WQWG990	150-174	CRYSTAL LAKE CAMPGROUND	40	43.294194	-89.633500

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
125	WRDQ657	450-470	D & D JONES FARM	24	43.530556	-89.102222
126	KOK429	450-470	DAIRYLAND POWER COOPERATIVE	116	42.755556	-90.383472
127	WQUT832	150-174	DANE COUNTY PARKS	32	43.056444	-89.287889
128	WRBT796	450-470	DANE MANUFACTURING CO INC	16	43.251028	-89.499278
129	KBD334	25-50	DANE, COUNTY OF	42	43.065000	-89.439833
130	KSI257	150-174	DANE, COUNTY OF	48	43.072500	-89.382056
131	WPFE867	450-470	DANE, COUNTY OF	32	43.072500	-89.382056
132	WQPN630	450-470	Dane, County of	32	43.065000	-89.439722
133	WQSD594	150-174	DANE, COUNTY OF	32	43.072500	-89.381944
134	WQSF618	150-174	DANE, COUNTY OF	45	43.077222	-89.416667
135	WQTV617	150-174	DANE, COUNTY OF	40	43.055833	-89.535000
136	WQXG886	150-174	DANE, COUNTY OF	40	43.211944	-89.601111
137	WQEH239	150-174	DANE-VIENNA FIRE DISTRICT	24	43.250500	-89.502056
138	WREB652	450-470	DAWNS FOODS	80	43.561861	-89.494056
139	WPKW248	450-470	DAYTON HUDSON CORPORATION	120	44.277222	-88.394278
140	WRER704	450-470	DBA L&H GYR LLC	75	43.800000	-88.475111
141	WPJM485	450-470	DD and JJ Foods, Inc. DBA Piggly Wiggly #181	121	43.533306	-89.300111
142	WPMG310	150-174	DE FOREST, VILLAGE OF	32	43.249528	-89.333556
143	WQWF361	150-174	DEFOREST AREA FIRE BOARD	16	43.247472	-89.339889
144	WQGL946	450-470	DEFOREST AREA SCHOOL DISTRICT	16	43.248778	-89.334111
145	WQGL946	450-470	DEFOREST AREA SCHOOL DISTRICT	32	43.217917	-89.329861
146	WQGL946	450-470	DEFOREST AREA SCHOOL DISTRICT	16	43.244889	-89.327278
147	WQAY605	150-174	DEFOREST, VILLAGE OF	16	43.249583	-89.337500
148	KA9170	150-174	DEL MONTE CORPORATION	120	43.699972	-88.983444
149	WPMJ673	450-470	DEL MONTE CORPORATION	32	43.538306	-89.119556

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
150	WQPD338	450-470	DEVILS HEAD AREA RECREATION CO.	32	43.418056	-89.626944
151	WQFH823	450-470	DIDION MILLING	32	43.536722	-89.099972
152	WQWH296	150-174	DIVINE SAVIOR HEALTHCARE	40	43.567889	-89.464417
153	KSB421	150-174	DODGE, COUNTY OF	48	43.378333	-88.648333
154	WNJE285	150-174	DOHERTY, JEROME	32	43.405000	-89.174000
155	WNJE285	150-174	DOHERTY, JEROME	32	43.504417	-89.170667
156	WQWU204	150-174	Doober Farms	30	43.507417	-89.188639
157	WQSZ936	150-174	DORSHORST, MICHAEL	40	43.431639	-89.429056
158	WQCG671	800/900	DRAGOTTA, JOSEPH G	112	42.970556	-88.171111
159	WQZN837	450-470	DREXEL BUILDING SUPPLY	32	43.356056	-89.044389
160	WRCX328	450-470	Duluth Trading Company	80	42.863056	-89.526556
161	KD3809	450-470	Enbridge Energy Company, Inc.	80	43.950556	-89.690556
162	KD3809	450-470	Enbridge Energy Company, Inc.	80	43.488611	-89.475278
163	KD3809	450-470	Enbridge Energy Company, Inc.	80	42.906944	-88.849444
164	WQZN375	450-470	Encapsys LLC	24	43.557250	-89.491500
165	WRJC721	150-174	ENDRES BERRYRIDGE FARMS	32	43.203750	-89.540139
166	WRDQ947	150-174	ENDRES, MICHAEL	40	43.257778	-89.580000
167	WNRV800	150-174	ENGE FARMS INC	64	43.315833	-89.889833
168	WQLE840	800/900	ESP Wireless Technology Group, Inc.	113	42.937778	-88.170083
169	WQLE840	800/900	ESP Wireless Technology Group, Inc.	113	43.038333	-87.901472
170	WQDX696	450-470	FAITH TECHNOLOGIES INC	32	43.074139	-89.395778
171	WQDX696	450-470	FAITH TECHNOLOGIES INC	32	43.072444	-89.391472
172	WQDX696	450-470	FAITH TECHNOLOGIES INC	32	43.074111	-89.390056
173	WQDX696	450-470	FAITH TECHNOLOGIES INC	32	43.071639	-89.386583
174	WQDX696	150-174, 450-470	FAITH TECHNOLOGIES INC	121	44.266667	-88.400111

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
175	KIZ226	150-174	FALL RIVER, VILLAGE OF	24	43.378361	-89.044056
176	WPPX359	150-174	FALL RIVER, VILLAGE OF	24	43.387500	-89.044833
177	WRJE475	450-470	Fedex Ground - Madison	32	43.168556	-89.319306
178	WPGE358	450-470	Feutz, Ronald L	121	44.447750	-89.406500
179	WQBD617	150-174	FIRST STUDENT INC	40	43.022472	-89.048389
180	KNCR229	150-174	FITCHBURG, CITY OF	38	42.983611	-89.389000
181	WQBD355	450-470	FITZPATRICK ACQUISITIONS LLC DBA WMCR CO.	121	44.378667	-89.817583
182	WPOA462	450-470	FLAMBEAU PLASTICS CORP	32	43.464167	-89.756667
183	WQFC504	150-174	Flint Hills Resources Pine Bend, LLC	40	43.032167	-89.301500
184	WPPG438	450-470	FLIPCO INC	32	43.430528	-89.653722
185	WPIJ432	450-470	Flipco INC.	80	43.063889	-89.697333
186	WPIJ432	450-470	Flipco INC.	32	43.430528	-89.653722
187	WQZN500	450-470	FRANK LIQUOR COMPANY INC	32	43.099167	-89.534944
188	KNCR330	450-470	FRANK, JEFFREY W	120	44.162778	-88.243722
189	WPGK392	450-470	FRANK, WAYNE	121	44.162778	-88.243722
190	WQKE742	150-174	G & N ENDRES FARMS LLC.	32	43.220889	-89.446556
191	WQTD970	150-174	GAY, FRED	40	43.288611	-88.872889
192	WNUS927	450-470	general communications	113	43.269167	-88.132028
193	WPMT525	450-470	GENERAL COMMUNICATIONS	32	43.427778	-89.653889
194	WPTX896	450-470	GENERAL COMMUNICATIONS	32	43.071111	-89.385944
195	WQHF791	450-470	GENERAL COMMUNICATIONS	32	43.136111	-89.345944
196	WQJB549	450-470	GENERAL COMMUNICATIONS	32	43.075833	-89.386500
197	KNEL728	450-470	GENERAL COMMUNICATIONS INC	32	43.423028	-89.655389
198	WNSU855	450-470	GENERAL COMMUNICATIONS INC	32	43.085806	-89.275889
199	WPDM761	450-470	GENERAL COMMUNICATIONS INC	64	43.050833	-89.486778

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200	WPGM432	450-470	GENERAL COMMUNICATIONS INC	32	43.427778	-89.653889
201	WPLR473	450-470	GENERAL COMMUNICATIONS INC	32	43.427778	-89.653889
202	WPLU863	450-470	GENERAL COMMUNICATIONS INC	32	43.071111	-89.385944
203	WPMU237	450-470	GENERAL COMMUNICATIONS INC	32	43.427778	-89.653889
204	WPQA412	450-470	GENERAL COMMUNICATIONS INC	32	43.071111	-89.385944
205	WPSG830	450-470	General Communications Inc	32	43.059722	-89.487611
206	WQAK956	800/900	GENERAL COMMUNICATIONS INC	70	43.427778	-89.653889
207	WQBE963	800/900	GENERAL COMMUNICATIONS INC	113	42.958889	-89.490278
208	WQCG696	800/900	GENERAL COMMUNICATIONS INC	113	43.050833	-89.486944
209	WQU850	800/900	GENERAL COMMUNICATIONS INC	113	43.050833	-89.486667
210	WPMU695	150-174	GENERAL ENGINEERING COMPANY	32	43.554417	-89.460944
211	WQUL603	450-470	GRANDE CHEESE CO	16	43.496306	-89.310167
212	BLP00658	800/900	GRAY TELEVISION LICENSEE, LLC	97	43.050833	-89.487056
213	KA2026	150-174	GRAY TELEVISION LICENSEE, LLC	97	43.050833	-89.487056
214	KEH352	450-470	GRAY TELEVISION LICENSEE, LLC	97	43.050278	-89.487611
215	KQB367	150-174	GRAY TELEVISION LICENSEE, LLC	97	43.050833	-89.487056
216	WQMI710	470-512	GRAY TELEVISION LICENSEE, LLC	270	41.528639	-90.573444
217	WQBX403	450-470	GREAT LAKES EDUCATION LOAN SERV INC	32	43.123861	-89.350667
218	WQBX403	450-470	GREAT LAKES EDUCATION LOAN SERV INC	32	43.124250	-89.349472
219	WNQN287	450-470	GROTHMAN, JAMES	80	43.481917	-89.541778
220	WQNV336	450-470	GUETZKE & ASSOCIATES, INC	80	43.498333	-88.820556
221	WQNV336	450-470	GUETZKE & ASSOCIATES, INC	80	43.194167	-88.718056
222	WQPA774	450-470	GUMZ, RICHARD	32	43.594444	-89.625222
223	WQPA774	450-470	GUMZ, RICHARD	32	43.662194	-89.506222
224	WPPD445	150-174	GUNDERSEN LUTHERAN MEDICAL CENTER	600	43.794417	-91.249583

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
225	KQL202	150-174	GUSE, CARL R	97	43.425556	-88.795944
226	WQBC865	450-470	H&K Partners, LLC	121	43.060417	-89.512639
227	WQBC865	450-470	H&K Partners, LLC	121	43.103611	-89.343778
228	WQBC865	450-470	H&K Partners, LLC	121	43.131139	-89.301806
229	WQBC865	450-470	H&K Partners, LLC	121	43.185111	-89.234167
230	WQBD313	450-470	H&K Partners, LLC	121	42.589806	-88.430333
231	WPKZ405	150-174	HANSON & LEJA LUMBER CO INC	40	43.271389	-88.736500
232	WPKE479	450-470	HARTFORD COUNTY MARKET	121	43.317778	-88.378722
233	WNPN626	800/900	HARTUNG BROTHERS INC	113	43.174389	-89.982889
234	WQDB422	150-174	HARTUNG BROTHERS INC	80	43.886972	-89.706333
235	WRFD778	450-470	HELT DAIRY LLC	32	43.218667	-89.521778
236	WNDH940	150-174	HERRMANN, WILLIAM	40	43.362778	-89.137889
237	WQCY476	450-470	HIGH TRACK LLC	32	43.034972	-89.302694
238	WQIH302	150-174	HOLWERDA FARMS INC	32	43.555472	-88.979444
239	WNJI892	25-50	HOOPER CONSTRUCTION CORPORATION	40	43.094444	-89.357056
240	WNXQ655	450-470	HYDRITE CHEMICAL COMPANY DBA HYDRITE CHEMICAL COMPANY	32	43.076806	-89.198167
241	WQGL747	150-174	INN WISC LLC	40	43.072778	-89.384833
242	WQDV323	150-174	Interstate Power & and Light Company	290	42.686944	-91.826389
243	WPUG852	450-470	Interstate Power and Light Company	32	43.150556	-89.297500
244	WRJP873	150-174	J & A TRAPP LLC	32	43.326194	-89.180167
245	WQUH910	450-470	JACKS PRIDE FARMS INC	32	43.624417	-89.004833
246	WRFU290	150-174	JAZZY JERSEYS	32	43.317000	-89.467083
247	WQMK729	150-174	JBM PATROL & PROTECTION INC	40	43.029889	-89.401444
248	WPPH878	150-174, 450-470	JH FINDORFF & SON INC	32	43.533306	-89.533444

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
249	KGN505	25-50	JOHNSON SCHOOL BUS SERVICE INC	90	43.426111	-88.207028
250	WPJL289	150-174	JRS LINK FARMS	32	43.518028	-89.157056
251	WPQC224	450-470	KAYTEE PRODUCTS INC	121	44.093611	-88.308444
252	WNKN270	150-174	KAZ'S FLYING SERVICE, LTD	64	43.316111	-89.607889
253	WQWS752	150-174	KELLEY FARMS	32	43.277722	-89.380167
254	WNVN401	150-174	KELLEY SAND & GRAVEL INC	80	44.079972	-89.281222
255	WNZM986	150-174	KELSEY, ALAN R	40	43.238333	-89.033444
256	WNJZ554	450-470	KEOKUK CO AMBULANCE	322	41.333333	-92.204639
257	WQUW567	450-470	Kessenich, Dan	10	43.311917	-89.367472
258	WQQL471	150-174	KINDSCHIS INC	32	43.323333	-89.763722
259	WNLV839	25-50	KINGSTON VOL FIRE DEPARTMENT	40	43.694417	-89.125944
260	WQHU900	450-470	KLINKNER ELECTRONICS	32	43.296917	-89.737333
261	WQJR643	150-174	Kobussen Buses LTD	24	43.430556	-89.651111
262	WQPW412	150-174	KOBUSSEN BUSES LTD	40	43.326139	-89.546194
263	WRMK298	450-470	Kraus Grain Farms LLC	30	43.427556	-88.922444
264	WRAJ724	150-174	KRENZ FARMS LLC	32	43.404056	-88.880833
265	WPDP361	150-174	KRUSE ACRES LLC	48	43.351111	-89.998444
266	KNFU686	150-174	LA VALLE, TOWN OF	232	43.584417	-90.134583
267	KNCC845	150-174	LAKE DELTON, VILLAGE OF	48	43.590250	-89.793167
268	KSL419	150-174	LAKE DELTON, VILLAGE OF	48	43.590806	-89.793167
269	WQFY783	150-174	LAMERS BUS LINES INC	40	43.190028	-89.437028
270	WQOV872	450-470	LANDMARK SERVICES COOPERATIVE	32	43.448889	-89.235833
271	WQOV872	450-470	LANDMARK SERVICES COOPERATIVE	32	43.546667	-89.131472
272	WQOV872	450-470	LANDMARK SERVICES COOPERATIVE	32	43.398472	-89.100972
273	WQPF383	450-470	LANDMARK SERVICES COOPERATIVE	32	43.066139	-89.202333

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274	WQBF586	150-174	LANZENDORF TRANSFER INC.	16	43.330000	-89.590278
275	WQVM331	150-174	LARRY HOLZHUETER	40	43.173000	-88.896361
276	WQRV469	450-470	Larsen Farms	32	43.498056	-89.714861
277	WRCV428	150-174	LASANSKE, RAYMOND R	80	43.194694	-88.729000
278	KKM341	150-174	LAZERS BUS SERVICE	40	43.170833	-89.062333
279	WNWR466	150-174	LEYSTRA, ALAN	32	43.596083	-89.045111
280	WRBN387	150-174	LINDNER, TRAVIS	48	43.716667	-89.589444
281	WNNT979	450-470	LINS, KEVIN	64	43.208333	-90.083444
282	WRJM867	150-174	LODI CANNING INC	40	43.309528	-89.529806
283	KDP989	150-174	LODI, CITY OF	19	43.313056	-89.525111
284	WPYA637	150-174	LODI, CITY OF	16	43.315278	-89.536500
285	WNSC825	150-174	Luther Farms	40	43.475806	-89.701778
286	WPUP314	25-50	LYCON INC	40	43.269417	-89.713472
287	WQIH466	450-470	MACHEEL ENTERPRISES LLC	32	43.537222	-88.985833
288	WNGB384	450-470	MADISON AREA TECHNICAL COLLEGE	32	43.037639	-89.395472
289	WNGB384	450-470	MADISON AREA TECHNICAL COLLEGE	32	43.075861	-89.387472
290	WNGB384	450-470	MADISON AREA TECHNICAL COLLEGE	32	43.120278	-89.327333
291	WQQQ669	450-470	MADISON AREA TECHNICAL COLLEGE	32	43.120222	-89.328667
292	WQSK575	450-470	MADISON BLOCK AND STONE	80	43.165194	-89.325222
293	KGF792	150-174	MADISON GAS & ELECTRIC CO	32	43.076667	-89.375667
294	KNNU472	150-174	MADISON GAS & ELECTRIC CO	40	43.076667	-89.375667
295	KNNU472	150-174	MADISON GAS & ELECTRIC CO	32	43.079222	-89.374194
296	WPQK315	450-470	MADISON METROPOLITAN SCHOOL DISTRICT	32	43.063972	-89.501806
297	WPQK315	450-470	MADISON METROPOLITAN SCHOOL DISTRICT	32	43.068222	-89.425250
298	WPQK315	450-470	MADISON METROPOLITAN SCHOOL DISTRICT	32	43.070722	-89.399861

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299	WPQK315	450-470	MADISON METROPOLITAN SCHOOL DISTRICT	32	43.086306	-89.357472
300	WPQK315	450-470	MADISON METROPOLITAN SCHOOL DISTRICT	32	43.097056	-89.354028
301	WPQK315	450-470	MADISON METROPOLITAN SCHOOL DISTRICT	32	43.062917	-89.318639
302	KSA293	450-470	MADISON, CITY OF	30	43.065000	-89.439833
303	WNXW548	800/900	MADISON, CITY OF	32	43.065000	-89.439833
304	WPUA730	800/900	MADISON, CITY OF	32	43.065000	-89.439722
305	WQYU702	800/900	MADISON, CITY OF	32	43.074889	-89.390000
306	KC25354	450-470	MAGNUM COMMUNICATIONS, INC.	80	43.540250	-90.032361
307	KC25356	450-470	MAGNUM COMMUNICATIONS, INC.	80	42.898333	-88.849556
308	KPE508	150-174	MAGNUM COMMUNICATIONS, INC.	56	43.541639	-90.034861
309	WPSS741	450-470	MAJDECKI FOOD INC	121	42.995556	-88.043611
310	WQTU554	450-470	MALLARD CREEK CARPENTRY L.L.C.	32	43.073028	-89.401222
311	WQZC415	450-470	Manthey Farms	40	43.555389	-89.235472
312	WPUQ277	450-470	MARSHAL PUBLIC SCHOOLS	32	43.164917	-89.071667
313	WQLM596	450-470	MARTIN SYSTEMS INC	80	43.024889	-89.472222
314	WNCZ375	150-174	MASHUDA CONTRACTORS INC	113	43.861083	-89.141222
315	WNNS884	450-470	MC KAY NURSERY CO	32	43.169444	-88.990111
316	WPMV481	800/900	MCKEE ASSOCIATES INC	113	43.050833	-89.486778
317	WNXI569	150-174	MEAGHER, PATRICK	16	43.526389	-89.116111
318	WPRM527	800/900	MEDA CARE VANS OF WAUKESHA INC	112	42.970556	-88.171111
319	WPRM527	800/900	MEDA CARE VANS OF WAUKESHA INC	112	43.004750	-87.963139
320	WQEQ965	450-470	MERITER HEALTH SERVICES	32	43.064444	-89.400944
321	WPDI785	450-470	MEYER, C R	32	43.134444	-89.334000
322	WPDI785	450-470	MEYER, C R	121	43.134444	-89.334000
323	WPDI785	450-470	MEYER, C R	121	43.983583	-88.551222

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324	KB63336	150-174	Michels Corp	121	43.614167	-88.530111
325	KB63336	150-174	Michels Corp	121	44.258333	-88.438444
326	WRMH489	150-174	Michels Power Inc	80	43.614167	-88.530111
327	WRMK313	150-174	Michels Utility Service Inc	80	43.614167	-88.530111
328	KQV546	450-470	MIDDLETON CROSS PLAINS AREA SCHOOL DIST	48	43.074444	-89.601222
329	WNYQ218	450-470	MIDDLETON-CROSS PLAINS SCHOOL DISTRICT	32	43.105667	-89.502417
330	WQAA963	450-470	MIDDLETON-CROSSPLAINS SCHOOL DISTRICT	32	43.116556	-89.632444
331	WQAA963	450-470	MIDDLETON-CROSSPLAINS SCHOOL DISTRICT	32	43.113250	-89.584528
332	WQAA963	450-470	MIDDLETON-CROSSPLAINS SCHOOL DISTRICT	32	43.100000	-89.507611
333	WQMG719	450-470	Mid-State Equipment	32	43.351361	-89.443889
334	WQMG719	450-470	Mid-State Equipment	32	43.303472	-89.124472
335	WQOW955	450-470	Mid-State Equipment	32	43.572806	-89.046000
336	WPPB202	450-470	MILWAUKEE ALARM CO INC	120	42.973083	-87.949806
337	WPYG631	800/900	Milwaukee Brewers Baseball Club	113	43.030000	-87.973611
338	WQTU597	800/900	MILWAUKEE BREWERS BASEBALL CLUB	113	43.030000	-87.973611
339	KYM982	450-470	MILWAUKEE REPEATER SERVICE INC	80	44.019722	-89.568056
340	KYM982	450-470	MILWAUKEE REPEATER SERVICE INC	80	43.277778	-88.593056
341	WNRW412	450-470	MILWAUKEE REPEATER SERVICE INC	80	42.953333	-89.136667
342	WNRW412	450-470	MILWAUKEE REPEATER SERVICE INC	80	43.791917	-88.881778
343	WNRW412	450-470	MILWAUKEE REPEATER SERVICE INC	80	43.029167	-88.396667
344	WNRW412	450-470	MILWAUKEE REPEATER SERVICE INC	80	43.406667	-88.308972
345	WPQE499	450-470	MILWAUKEE VALVE COMPANY	32	43.299722	-89.725111
346	KNIP938	150-174	MINICK, RONALD	40	43.377500	-89.144278
347	KQF686	25-50	MONTAGUE, JOHN K	64	43.055278	-89.943167
348	WNXI794	150-174	MOUNT HOREB, VILLAGE OF	48	43.007778	-89.740111

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349	WQYW368	450-470	NEESVIG'S	15	43.200361	-89.334111
350	WQHS622	150-174	Nelson Bus Service	40	43.000556	-89.200278
351	WQTZ778	150-174	Nelson Bus Service	40	43.000556	-89.200278
352	WQVZ521	800/900	NEXGEN COMMUNICATIONS CORP.	113	42.970556	-88.171194
353	WQVZ521	800/900	NEXGEN COMMUNICATIONS CORP.	113	43.087139	-87.904111
354	WNSU613	450-470	NIELSON COMMUNICATIONS, INC	72	43.847472	-88.858722
355	WPOY800	450-470	NIELSON COMMUNICATIONS, INC	120	44.244972	-88.504556
356	KSI896	150-174	NORTHWAY COMMUNICATIONS INC.	322	44.888028	-89.652056
357	KAY341	25-50	NORTHWESTERN STONE	50	43.089722	-89.537056
358	WRBV758	450-470	OHIO SEMITRONICS OF CA, INC	80	42.775472	-88.712861
359	WPMV532	800/900	OREGON SCHOOLS	113	42.958889	-89.490389
360	WQOQ281	450-470	OREILLY AUTOMOTIVE	32	43.072500	-89.310917
361	WQQA919	450-470	OREILLY AUTOMOTIVE INC.	32	43.175056	-89.244333
362	WQUL255	450-470	ORPHEUM ENTERTAINMENT GROUP	32	43.074722	-89.388139
363	WPMT505	25-50, 150-174	PANINOS OF AMERICA #34398	121	42.265306	-89.074556
364	KNHK771	150-174	PARK CORNER OIL INC	40	43.315278	-89.536500
365	WPLR951	450-470	PARK HOTEL INC DBA INN ON THE PARK	32	43.073056	-89.384556
366	WQUW685	450-470	Park Street Car Wash	32	43.058306	-89.399583
367	WNUQ350	150-174	PASKEY, STEVE	24	43.334722	-89.307056
368	KNGV498	450-470	PAUL MILLER FARMS INC	121	44.203028	-89.475944
369	WQRN514	450-470	PAUL'S TURF & TREE	32	43.140278	-89.130000
370	WPLU715	800/900	PDV Spectrum Holding Company, LLC	113	42.970556	-88.171194
371	WQAT707	800/900	PDV Spectrum Holding Company, LLC	113	43.016389	-87.990000
372	WQSU796	800/900	PDV Spectrum Holding Company, LLC	113	42.944139	-88.038694
373	WQSY929	800/900	PDV Spectrum Holding Company, LLC	113	42.944139	-88.038694

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374	WPMW428	800/900	PELLETIER, GARY E	112	43.430528	-89.653722
375	WQGU294	450-470	PER MAR SECURITY AND RESEARCH CORP.	80	43.030417	-89.406222
376	WPGW707	450-470	PER MAR SECURITY SERVICES	80	43.050278	-89.487056
377	WPBM322	450-470	PLEASANT COMPANY	8	43.255000	-89.339833
378	WNGE237	150-174	POINTON, BRAD	40	43.367778	-89.766667
379	WNGE237	150-174, 450-470	POINTON, BRAD	80	43.430556	-89.653611
380	WPPH989	150-174	POINTON, BRAD P	40	43.430556	-89.653611
381	WPQE312	450-470	POINTON, BRAD P	32	43.430556	-89.653611
382	WQQT836	450-470	PolyOne Designed Structures and Solutions LLC	32	43.547528	-89.460528
383	WQUK322	150-174	POMPLUN BROTHERS FARMS	32	43.639222	-89.231444
384	WNZA516	450-470	PORTAGE COMMUNITY SCHOOLS	32	43.559417	-89.466500
385	WPNZ428	150-174	PORTAGE, CITY OF	20	43.541361	-89.461778
386	WPVP653	150-174	PORTAGE, CITY OF	24	43.541389	-89.461667
387	WQQG816	150-174	PORTAGE, CITY OF	24	43.542194	-89.444833
388	WQEV221	450-470	PORTILLO'S HOT DOGS LLC	80	43.127528	-89.307028
389	WQRW781	450-470	POYNETTE SCHOOL DISTRICT	32	43.390694	-89.397139
390	KLI288	150-174	POYNETTE, VILLAGE OF	8	43.390278	-89.403167
391	KVU511	25-50, 150-174	POYNETTE, VILLAGE OF	16	43.396528	-89.407361
392	WNFT539	150-174	POYNETTE, VILLAGE OF	24	43.390278	-89.403167
393	KJO444	150-174	PRAIRIE READY MIX INC	121	43.314694	-90.839583
394	KJO444	150-174	PRAIRIE READY MIX INC	121	43.137750	-90.705972
395	WQGK326	150-174	Prairie Ridge Health Inc.	32	43.322583	-89.035222
396	WQPV774	450-470	PRIDE OF AMERICA CAMPING RESORT	32	43.554389	-89.338611
397	WQPV774	450-470	PRIDE OF AMERICA CAMPING RESORT	80	43.554389	-89.338611
398	WQPP784	450-470	PRO METAL WORKS INC	16	43.258333	-89.328083

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
399	WQNU379	450-470	PROTECTION TECHNOLOGIES, INC	80	43.022694	-89.297694
400	WPEF321	450-470	QUADGRAPHICS, INC.	120.7	43.624722	-88.444278
401	WQVA488	450-470	QUALITY ONE ELECTRIC	80	43.058000	-89.303222
402	KNCE212	150-174	RANDOLPH SCHOOL DISTRICT	24	43.543417	-88.999333
403	KJJ458	150-174	RANDOLPH, VILLAGE OF	24	43.541917	-89.004556
404	WPWP564	150-174	RANDOLPH, VILLAGE OF	24	43.541944	-89.004444
405	WQVU920	800/900	RapidLink Wireless, LLC	113	43.369389	-89.529111
406	WQVV542	800/900	RapidLink Wireless, LLC	113	42.993556	-89.993417
407	WQVV542	800/900	RapidLink Wireless, LLC	113	43.356139	-89.779083
408	WQVV542	800/900	RapidLink Wireless, LLC	113	42.817833	-89.628639
409	KNFA846	150-174	REABE SPRAYING SERVICE INC	48	43.620000	-88.762611
410	WQXR219	450-470	Research Products Corporation	8	43.383889	-89.399167
411	WQTZ289	450-470	Rhodes Bake-N-Serv	32	43.366472	-89.043556
412	WRFL543	150-174	RIO COMMUNITY FIRE ASSOCIATION	32	43.453444	-89.236250
413	WNNK801	150-174	RIO, VILLAGE OF	11	43.450528	-89.235667
414	WREN329	150-174	RIPP FARMS LLC	32	43.250361	-89.536278
415	WQVV348	150-174	RIPPS BLUE RIBBON DIARY	32	43.226611	-89.467250
416	WRER382	150-174	RIPPS DAIRY VALLEY INC	40	43.219944	-89.481917
417	WNLW604	450-470	RITEWAY BUS SERVICE	32	43.332889	-89.170083
418	WRFE607	150-174	RITEWAY BUS SERVICE INC	40	43.166389	-89.064250
419	WPBR742	450-470	RIVER VALLEY SCHOOL DISTRICT	64	43.227222	-90.069278
420	WPCY538	450-470	RULE CONSTRUCTION LTD	80	42.995556	-90.147889
421	WQXJ797	450-470	Saint-Gobain	42	43.555861	-89.488194
422	WQGQ286	450-470	SANIMAX USA, LLC	8	43.256111	-89.336944
423	KE9048	150-174	SAUK COUNTY	80	43.473861	-89.766778

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
424	KSB482	25-50, 150-174	SAUK COUNTY	40	43.394722	-89.872500
425	KVU503	150-174	SAUK COUNTY	35	43.469417	-89.743444
426	WPKC831	150-174	SAUK COUNTY	40	43.469972	-89.743444
427	WQKM839	150-174	SAUK PRAIRIE HEALTHCARE INC.	40	43.286750	-89.754000
428	WQKM839	150-174	SAUK PRAIRIE HEALTHCARE INC.	40	43.283000	-89.720972
429	WQRI604	450-470	SAUK PRAIRIE SCHOOL DISTRICT	32	43.283972	-89.729333
430	KNGJ947	150-174	SCHMIDTS AUTO INC	40	43.076389	-89.399556
431	WRAX655	150-174	SCHMIDT'S PUMPING LLC	40	43.561250	-88.944972
432	KNHV953	150-174	SCHMIED, DAVID J	56	43.218611	-88.735389
433	WPEG756	450-470	SCHOOL DISTRICT OF LODI	32	43.314444	-89.550944
434	WPEG756	450-470	SCHOOL DISTRICT OF LODI	32	43.318889	-89.524611
435	WPMV525	800/900	SCHORR CONSTRUCTION INC	113	42.958889	-89.490389
436	KVU344	150-174	SCOTT CONSTRUCTION INC	40	43.430528	-89.650667
437	KVU344	150-174	SCOTT CONSTRUCTION INC	113	43.430528	-89.650667
438	KVU344	150-174	SCOTT CONSTRUCTION INC	113	43.344722	-88.266750
439	KNGH999	450-470	SCOTT CRANBERRY MARSH INC	112.7	43.885250	-90.579306
440	WQRP644	450-470	SENECA FOODS CORPORATION	32	43.461389	-89.755111
441	WRFW563	450-470	SENECA FOODS CORPORATION	32	43.538306	-89.119556
442	WQWE313	450-470	Silver Springs Campsites	32	43.463972	-89.177333
443	WQYS314	450-470	Skidmore Property Services, LLC	32	43.066972	-89.390639
444	WRKP583	450-470	SKOGEN'S FESTIVAL FOODS	80	43.325556	-90.270556
445	WRKP583	450-470	SKOGEN'S FESTIVAL FOODS	80	42.992778	-88.616389
446	WPMB665	800/900	SLOAN, CURTIS DBA QUICKSILVER EXPRESS COURIER INC	112	42.970556	-88.171194
447	KIQ613	25-50	SMITH BUS SERVICE LLC	32	43.562750	-89.266222

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
448	WNYL569	150-174	SOO SYSTEM RADIO COMMUNICATIONS CORPORATION	32	43.219278	-89.340556
449	WNYL569	150-174	SOO SYSTEM RADIO COMMUNICATIONS CORPORATION	32	43.414222	-89.111917
450	WQYG607	450-470	SOO SYSTEM RADIO COMMUNICATIONS CORPORATION	40	43.543639	-89.443806
451	WPDS778	450-470	SOUTHERN WISCONSIN FOODS OF LAKE DELTON LLC DBA BURGER KING	120	42.916667	-89.375111
452	KNNT905	25-50	SPECIALIZED TRANSPORT SERVICES INC	90	43.426111	-88.207028
453	WQVE399	450-470	SPRINGS WINDOW FASHIONS, LLC	32	43.116944	-89.508972
454	WQFL742	72-76, 450-470	SSM HEALTH ST CLARE HOSPITAL BARABOO	32	43.481361	-89.729833
455	WNZE757	150-174	ST MARYS HOSPITAL	80	43.058611	-89.403444
456	WNAL351	150-174	STAFFORD EXCAVATING INC	80	44.077194	-89.209556
457	WQVV343	450-470	STAN DOHM	32	43.288139	-89.451722
458	WNVF925	800/900	State of Wisconsin	113	43.567750	-89.492889
459	WNVF925	800/900	State of Wisconsin	113	43.624972	-88.925111
460	WNVF925	800/900	State of Wisconsin	113	43.629167	-88.731222
461	WNVF925	800/900	State of Wisconsin	113	44.062750	-88.564000
462	WPGV568	800/900	State of Wisconsin	112	43.880222	-89.146778
463	WPGV568	800/900	State of Wisconsin	112	43.023889	-88.390000
464	WPLQ824	800/900	State of Wisconsin	112	43.567750	-89.492889
465	WPLU664	800/900	State of Wisconsin	112	43.024667	-89.044667
466	WPLX935	800/900	State of Wisconsin	112	42.963056	-89.394000
467	WQKB482	800/900	State of Wisconsin	112	43.567750	-89.492889
468	WQKB482	800/900	State of Wisconsin	112	43.629167	-88.731222
469	WQKB482	800/900	State of Wisconsin	112	44.062750	-88.564000
470	WQKB482	800/900	State of Wisconsin	112	43.043889	-87.927500

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
471	WNWF717	450-470	STATZ BROTHERS INC	40	43.206667	-89.145667
472	WPTF862	450-470	Stearns Sound & Security, Ltd	120	44.321917	-89.150028
473	WQWS826	450-470	STEIN GARDENS & GIFTS INC	120	42.946333	-87.948500
474	WPKG258	150-174	STEVENSON SR, JOHN:STEVENSON JR, JOHN:STEVENSON, RICHARD DBA STEVENSON BROTHERS FARM	20	43.351667	-89.443444
475	WQZB603	450-470	STRATATECH CORPORATION	32	43.056056	-89.467917
476	WQSD425	25-50	SUN PRAIRIE CONCRETE INC	40	43.178056	-89.219278
477	WPKP257	450-470	SUN PRAIRIE PUBLIC SCHOOLS	32	43.188556	-89.280944
478	WPKP257	450-470	SUN PRAIRIE PUBLIC SCHOOLS	32	43.165194	-89.254194
479	WPKP257	450-470	SUN PRAIRIE PUBLIC SCHOOLS	16	43.203472	-89.249444
480	WPKP257	450-470	SUN PRAIRIE PUBLIC SCHOOLS	32	43.179722	-89.219306
481	WPKP257	450-470	SUN PRAIRIE PUBLIC SCHOOLS	32	43.172889	-89.209056
482	WPKP257	450-470	SUN PRAIRIE PUBLIC SCHOOLS	32	43.199056	-89.194139
483	KNAK364	150-174	SUN PRAIRIE, CITY OF	33	43.188611	-89.208722
484	WQMC553	450-470	SUN PRARIE ATHLETIC CLUB	32	43.192917	-89.223917
485	WNZD710	150-174	TAYLOR, ROGER	16	43.389444	-89.142611
486	WNZD710	150-174	TAYLOR, ROGER	16	43.349167	-89.116500
487	WRFL530	450-470	TEKNI-PLEX	32	43.119444	-89.313694
488	WPPC854	450-470	TELEPHONE AND DATA SYSTEMS, INC.	32	43.088889	-89.528722
489	KEH361	450-470	TELEVISION WISCONSIN, INC.	80	43.066667	-89.350111
490	WPKE802	450-470	TELEVISION WISCONSIN, INC.	80	43.055833	-89.535111
491	WQQQ472	450-470	TEMPLE BETH EL	32	43.056389	-89.428750
492	WPME449	450-470	Ten 2 Communications LLC	120	43.327222	-88.259528
493	WPME719	450-470	Ten 2 Communications LLC	120	42.961694	-88.072861

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494	WPUS819	150-174	TETRIONICS (SAFC)	40	43.079722	-89.387500
495	WRFA576	450-470	THE LITTLE POTATO COMPANY USA INC	16	43.263361	-89.326500
496	WQOV636	450-470	THE RIDGES OF LODI	16	43.311056	-89.547222
497	WRCP532	150-174	TICHCO ENTERPRISES, LLC	88	43.968056	-88.658611
498	WNXC540	150-174	TIMBER-LEE CHRISTIAN CENTER	120	42.808333	-88.508444
499	WRMF433	450-470	TOWER SITES, INC	32	43.315833	-89.109000
500	WRKK964	450-470	Tower Sites, Inc.	80	43.315833	-89.109000
501	KAW531	150-174	TOWN & COUNTRY UNDERGROUND UTILITY CONSTRUCTION INC	80	43.473611	-88.536778
502	WQFR698	450-470	TREK BICYCLE CORP	32	43.179500	-89.003750
503	WQWH212	450-470	TRIENDA HOLDINGS LLC	32	43.558361	-89.521389
504	WQZP752	450-470	U.S. VENTURE INC.	32	43.034361	-89.304917
505	WQRW805	150-174	UNIMIN CORP	15	43.489861	-89.409167
506	WPXT256	150-174	UNITED COOPERATIVE	42	43.443194	-88.886583
507	WQSB794	450-470	United Cooperative	32	43.286944	-89.724000
508	WRFI225	450-470	UNITED ELECTRIC, INC	80	43.070000	-89.459167
509	WPMS337	450-470	UNITED PARCEL SERVICE	32	43.055556	-89.291222
510	WPSZ705	450-470	UNITED PARCEL SERVICE	32	43.102778	-89.515000
511	WQCL770	450-470	UNITED WISCONSIN GRAIN PRODUCERS, LLC	32	43.566944	-89.063611
512	WQCL770	150-174	UNITED WISCONSIN GRAIN PRODUCERS, LLC	40	43.566944	-89.063611
513	WRDG981	450-470	UNIVERSITY OF WI., SCHOOL VET MEDICINE	32	43.075222	-89.418917
514	WRDG981	450-470	UNIVERSITY OF WI., SCHOOL VET MEDICINE	32	43.075389	-89.418222
515	WNBF614	150-174, 450-470	UNIVERSITY OF WISCONSIN	32	43.074444	-89.403444
516	WQFQ890	800/900	UNIVERSITY OF WISCONSIN	32	43.077500	-89.406500
517	WQHK200	450-470	UNIVERSITY OF WISCONSIN	32	43.073750	-89.401194

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518	WQKG536	450-470	UNIVERSITY OF WISCONSIN	32	43.072722	-89.407944
519	WQTH859	450-470	UNIVERSITY OF WISCONSIN	32	43.088278	-89.436500
520	WQYP450	450-470	UNIVERSITY OF WISCONSIN EXT PYLE CENTER	32	43.076250	-89.395722
521	KWS396	450-470	UW Hospitals and Clinics	32	43.567389	-89.464667
522	KWS396	450-470	UW Hospitals and Clinics	32	43.155333	-89.303250
523	WQYI795	450-470	VESTA -AMERICAN WIND TECHNOLOGY INC.	24	43.564417	-89.147528
524	WPRI947	800/900	Viking Communications, Inc.	112	43.436944	-88.526500
525	WPRI947	800/900	Viking Communications, Inc.	112	42.970556	-88.171194
526	WPSJ206	800/900	Viking Communications, Inc.	112	43.004750	-87.963139
527	WPMZ658	800/900	VIKING LAND MOBILE COMMUNICATIONS	113	42.970556	-88.171111
528	WQMC551	450-470	VITA PLUS CORPORATION	32	43.038417	-89.404111
529	WPMN862	450-470	WALGREENS COMPANY	24	43.197222	-89.336222
530	WPUZ618	450-470	WALGREENS COMPANY	32	43.197222	-89.336111
531	WPVA844	450-470	WALGREENS COMPANY	32	43.197222	-89.336111
532	WQUL997	450-470	WALGREENS COMPANY	24	43.197222	-89.336111
533	WPFK758	150-174	WALLACE, JOHN W	40	43.456944	-88.822889
534	WQYY440	450-470	WALL-TECH COMPANIES	80	43.182472	-89.327333
535	KLY991	150-174	WATERLOO, CITY OF	56	43.187500	-88.891778
536	WPFD727	800/900	WATERTOWN, CITY OF	48	43.196083	-88.723806
537	WPFD727	800/900	WATERTOWN, CITY OF	48	43.187389	-88.709361
538	WPYE510	450-470	WAUNAKEE MANOR HEALTH CARE CENTER INC	20	43.184722	-89.463889
539	WQRB589	150-174	WAUNAKEE, VILLAGE OF	20	43.191111	-89.460694
540	WQQT871	72-76, 150-174, 450-470, 470-512	WDJT-TV LIMITED PARTNERSHIP	120	43.023611	-87.987500
541	WQVH638	450-470	WEE KARE TRANSPORTATION SERVICE INC	32	43.221111	-88.908889

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542	KNAR325	150-174	WEILAND TRUCKING CO INC	97	44.066917	-89.314000
543	WPCF744	450-470	WEISS, MIKE	80	43.670833	-88.670944
544	WQRV529	450-470	WHITE GOLD DAIRY, LLC	32	43.214833	-89.479000
545	WRFZ506	450-470	WHITECO LLC	32	43.444167	-88.842139
546	WQON676	450-470	WILKE, GREG	40	43.133889	-88.991944
547	WQRS754	150-174	WINDYVIEW FARM	40	43.310611	-89.222917
548	KSJ248	450-470	WINGRA STONE CO INC	64	42.958889	-89.490389
549	WNVW882	800/900	WINNEBAGO, COUNTY OF	113	42.323917	-89.074833
550	WPYU772	150-174	WISCONSIN & SOUTHERN RAILROAD, LLC	40	43.429222	-89.650722
551	WPYU772	150-174	WISCONSIN & SOUTHERN RAILROAD, LLC	40	43.100861	-89.362000
552	WQTC641	450-470	WISCONSIN BUILDING SUPPLY	16	43.196833	-89.342444
553	WNWM847	150-174	WISCONSIN ELECTRIC POWER COMPANY	129	44.257500	-88.442500
554	WPRH748	150-174	WISCONSIN ELECTRIC POWER COMPANY	40	43.237222	-88.759833
555	WQNH417	150-174	WISCONSIN ELECTRIC POWER COMPANY	40	43.565056	-89.150639
556	WPGK706	150-174	Wisconsin Gas LLC	97	43.383306	-90.308472
557	WPGK706	150-174	Wisconsin Gas LLC	40	43.237222	-88.759722
558	KD50657	150-174	WISCONSIN POWER AND LIGHT COMPANY	241	43.776389	-90.443333
559	KD50657	150-174	WISCONSIN POWER AND LIGHT COMPANY	241	43.005000	-89.196222
560	WPLS274	800/900	Wisconsin Power and Light Company	112	43.436944	-88.526389
561	WPLS274	800/900	Wisconsin Power and Light Company	112	43.723056	-88.064444
562	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.776361	-90.443472
563	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.966667	-90.420417
564	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.268583	-90.417361
565	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.669167	-89.617889
566	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.489694	-89.509000

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
567	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.005000	-89.196222
568	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.498361	-89.031222
569	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.682778	-89.020111
570	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	44.141639	-88.996778
571	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.831639	-88.843444
572	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.496111	-88.775667
573	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.735833	-88.493444
574	WPNU308	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.609472	-88.443417
575	WPNU321	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.916111	-90.134972
576	WPNU321	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.120750	-89.619806
577	WPNU321	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	44.020222	-89.558694
578	WPNU321	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.005000	-89.196222
579	WPNU321	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.496500	-88.774750
580	WPNU399	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.663833	-90.049000
581	WPNU399	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.150278	-89.295417
582	WPNU399	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	44.141639	-88.996778
583	WPNW378	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.394722	-89.872500
584	WPNW378	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.670000	-89.617583
585	WPNW378	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.531111	-89.071111
586	WPNW378	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.682778	-89.020111
587	WPNW378	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.609472	-88.443417
588	WPNX937	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.495833	-89.548333
589	WPNX937	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.412778	-89.233611
590	WPNX937	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.835833	-88.846667
591	WPNX937	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.781667	-88.361583

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
592	WPNZ318	450-470	WISCONSIN POWER AND LIGHT COMPANY	32	43.311389	-89.729278
593	WPPG623	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.906111	-90.473889
594	WPPG623	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.776361	-90.443472
595	WPPG623	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.966667	-90.420417
596	WPPG623	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.268583	-90.417361
597	WPPG623	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.242944	-90.064306
598	WPTP304	800/900	Wisconsin Power and Light Company	113	42.958889	-89.490278
599	WPTP304	800/900	Wisconsin Power and Light Company	113	42.581000	-89.040361
600	WPVL821	450-470	WISCONSIN POWER AND LIGHT COMPANY	32	43.486944	-89.419444
601	WPXT242	800/900	Wisconsin Power and Light Company	113	42.762139	-90.389806
602	WPXT242	800/900	Wisconsin Power and Light Company	113	42.666667	-90.138611
603	WPXT242	800/900	Wisconsin Power and Light Company	113	43.183889	-89.253944
604	WPXT242	800/900	Wisconsin Power and Light Company	113	43.728500	-89.009778
605	WPXT242	800/900	Wisconsin Power and Light Company	113	42.993889	-88.896944
606	WPXT242	800/900	Wisconsin Power and Light Company	113	42.579444	-88.660556
607	WPYG293	800/900	Wisconsin Power and Light Company	113	44.418056	-89.207778
608	WPZS665	450-470	Wisconsin Power and Light Company	32	43.147194	-89.290972
609	WQAI409	800/900	Wisconsin Power and Light Company	113	43.515194	-88.542778
610	WQAI420	800/900	Wisconsin Power and Light Company	113	43.055833	-89.535000
611	WQAI424	800/900	Wisconsin Power and Light Company	113	43.940250	-88.934806
612	WQAI425	800/900	Wisconsin Power and Light Company	113	43.625833	-89.780833
613	WQAI425	800/900	Wisconsin Power and Light Company	113	43.309722	-89.727778
614	WQAI425	800/900	Wisconsin Power and Light Company	113	43.427778	-89.653889
615	WQAI949	800/900	Wisconsin Power and Light Company	113	42.576667	-89.692778
616	WQBB874	800/900	Wisconsin Power and Light Company	113	42.958889	-89.490278

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
617	WQBC477	800/900	Wisconsin Power and Light Company	113	43.150278	-89.295417
618	WQBC479	800/900	Wisconsin Power and Light Company	113	43.728500	-89.009222
619	WQBC480	800/900	Wisconsin Power and Light Company	113	44.365833	-89.626389
620	WQBC484	800/900	Wisconsin Power and Light Company	113	44.102778	-89.306667
621	WQBE559	800/900	Wisconsin Power and Light Company	113	43.026667	-89.854722
622	WQCA704	800/900	Wisconsin Power and Light Company	113	43.584194	-89.819889
623	WQCM330	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	44.214694	-89.480667
624	WQCM362	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.693056	-88.796111
625	WQCM363	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	44.316389	-89.922889
626	WQCS501	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.816083	-89.660889
627	WQCS563	800/900	Wisconsin Power and Light Company	113	43.793972	-89.330167
628	WQCT928	800/900	Wisconsin Power and Light Company	113	42.742667	-88.973167
629	WQCT932	800/900	Wisconsin Power and Light Company	113	42.835361	-89.033389
630	WQCV224	800/900	Wisconsin Power and Light Company	113	43.866361	-88.343000
631	WQCV864	800/900	Wisconsin Power and Light Company	113	43.628611	-88.241944
632	WQMK739	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	42.722722	-89.856500
633	WQNN779	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.779167	-89.577778
634	WQUZ467	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.496500	-88.774750
635	WQUZ467	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.723056	-88.064444
636	WQXF353	800/900	WISCONSIN POWER AND LIGHT COMPANY	113	43.485500	-89.419194
637	WQCJ223	450-470	WISCONSIN SERVICES & MANAGEMENT CO	32	43.073056	-89.384444
638	WPMT462	450-470	WISCONSIN SERVICES AND MANAGEMENT	30	43.073056	-89.384556
639	KNHY219	450-470	WISCONSIN, STATE OF	32	43.071944	-89.381500
640	WNAE225	450-470	WISCONSIN, STATE OF	32	43.077500	-89.406500
641	WNUX451	800/900	WISCONSIN, STATE OF	113	43.144139	-90.681250

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
642	WNUX451	800/900	WISCONSIN, STATE OF	113	42.963056	-89.394000
643	WNUX451	800/900	WISCONSIN, STATE OF	113	44.054139	-89.105944
644	WNUX451	800/900	WISCONSIN, STATE OF	113	43.798333	-88.385111
645	WNUX451	800/900	WISCONSIN, STATE OF	113	43.722222	-88.149556
646	WPBG997	450-470	WISCONSIN, STATE OF	32	43.074444	-89.403444
647	WPLR315	800/900	WISCONSIN, STATE OF	112	43.043889	-87.927500
648	WPLV685	800/900	WISCONSIN, STATE OF	112	43.809111	-90.100389
649	WPLV685	800/900	WISCONSIN, STATE OF	112	43.134444	-89.398806
650	WQKB483	800/900	Wisconsin, State of	112	44.075000	-88.519000
651	WQKK678	150-174	WISCONSIN, STATE OF	30	43.551306	-88.922778
652	WQLG475	150-174	WISCONSIN, STATE OF	32	43.348111	-89.027194
653	WQLG475	150-174	WISCONSIN, STATE OF	40	43.348111	-89.027194
654	WQLP740	150-174	WISCONSIN, STATE OF	40	43.429167	-89.653056
655	WQME988	150-174	WISCONSIN, STATE OF	40	43.044444	-89.102500
656	WQQL578	150-174	WISCONSIN, STATE OF	40	43.077500	-89.406500
657	WQRZ986	800/900	WISCONSIN, STATE OF	112	42.960889	-87.980889
658	WQSK701	800/900	WISCONSIN, STATE OF	48	43.077500	-89.406500
659	WQSL275	150-174	WISCONSIN, STATE OF	40	43.085250	-88.873111
660	WQSZ923	800/900	WISCONSIN, STATE OF	112	44.054139	-89.105944
661	WQSZ923	800/900	WISCONSIN, STATE OF	112	43.617306	-88.914500
662	WQSZ923	800/900	WISCONSIN, STATE OF	112	44.062750	-88.564000
663	WQSZ923	800/900	WISCONSIN, STATE OF	112	43.023889	-88.390000
664	WQSZ923	800/900	WISCONSIN, STATE OF	112	43.043889	-87.927500
665	WQUQ684	800/900	WISCONSIN, STATE OF	112	44.029139	-88.286583
666	WQYF905	150-174	WISCONSIN, STATE OF	50	43.073056	-89.431944

ID	Call Sign	Frequency Band (MHz)	Licensee	Mobile Area Radius (km)	Latitude (NAD83)	Longitude (NAD83)
668	WREZ409	800/900	WISCONSIN, STATE OF	112	43.075000	-89.380278
669	WRFK820	150-174	WISCONSIN, STATE OF	80	43.212694	-88.828278
670	WPJH396	800/900	WISCONSIN, UNIVERSITY OF	32	43.074444	-89.403444
671	WPMF235	450-470	WONDRA CONSTRUCTION INC	120	43.416667	-88.550000
672	BLP00446	800/900	WVTV LICENSEE, INC.	160.9	43.090278	-87.957306
673	WQLX556	800/900	Wyndham Garden LLC	113	42.970556	-88.171111
674	WQVZ365	150-174	Z & Z FARMS, LLC	32	43.357444	-89.793472
675	WQSA829	150-174	ZIEGLER DAIRY FARMS	40	43.130000	-89.542056
676	WQZE704	450-470	Ziegler Inc	32	43.258944	-89.386278

Table A: Mobile Licenses Intersecting Project Area