

# Wind Power GeoPlanner™

## Land Mobile & Emergency Services Report

Jordan Creek Wind Farm



Prepared on Behalf of  
Jordan Creek  
Wind Farm LLC

August 30, 2016



**COMSEARCH**  
A CommScope Company

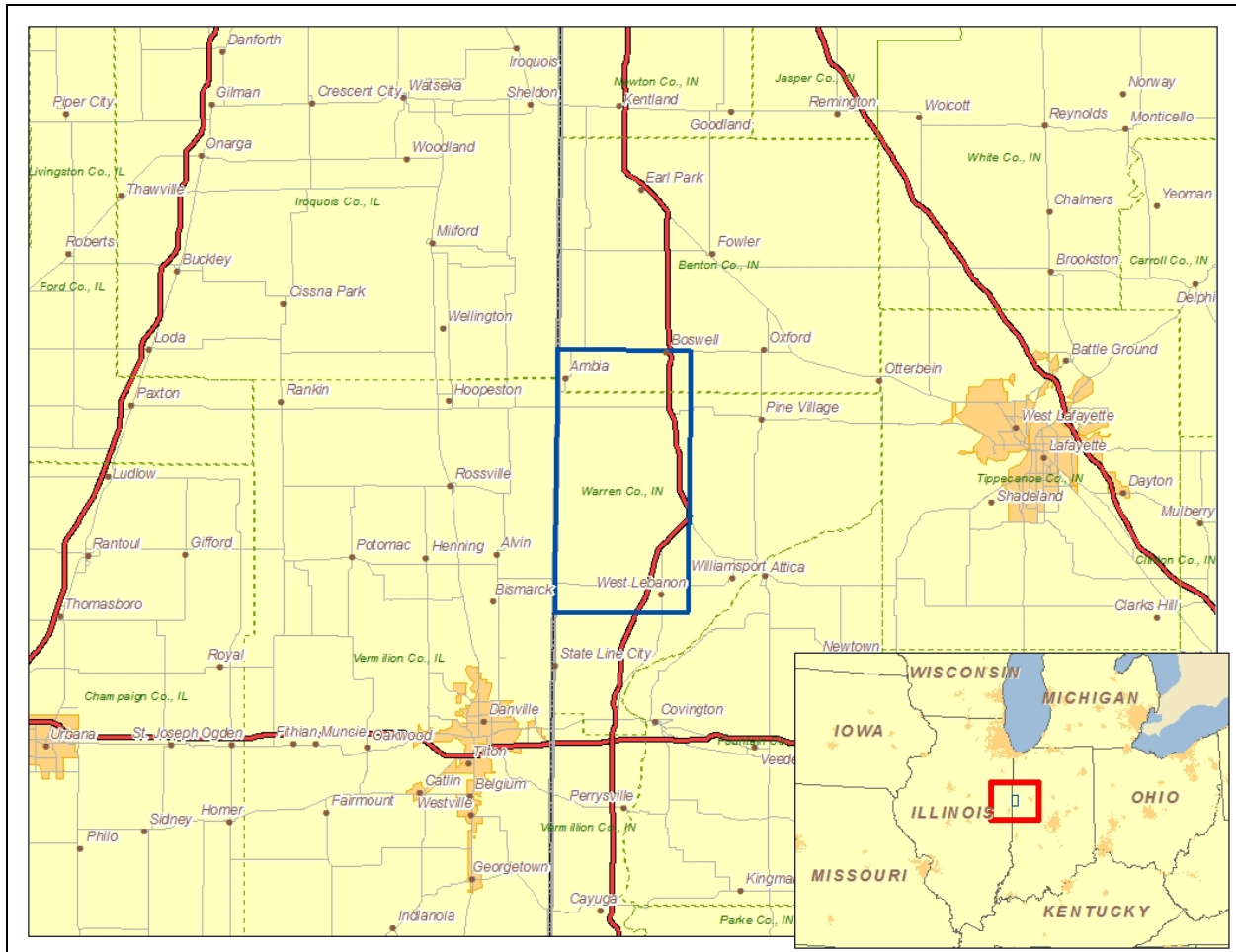


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## 1. Introduction

An assessment of the emergency services in the Jordan Creek Wind Farm project area was performed by Comsearch to identify potential impact from the planned turbines. We 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 within the proposed wind energy facility boundaries. This information is useful in the planning stages of the wind energy facility 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, which is located in Benton and Warren Counties, Indiana, appears in Figure 1.



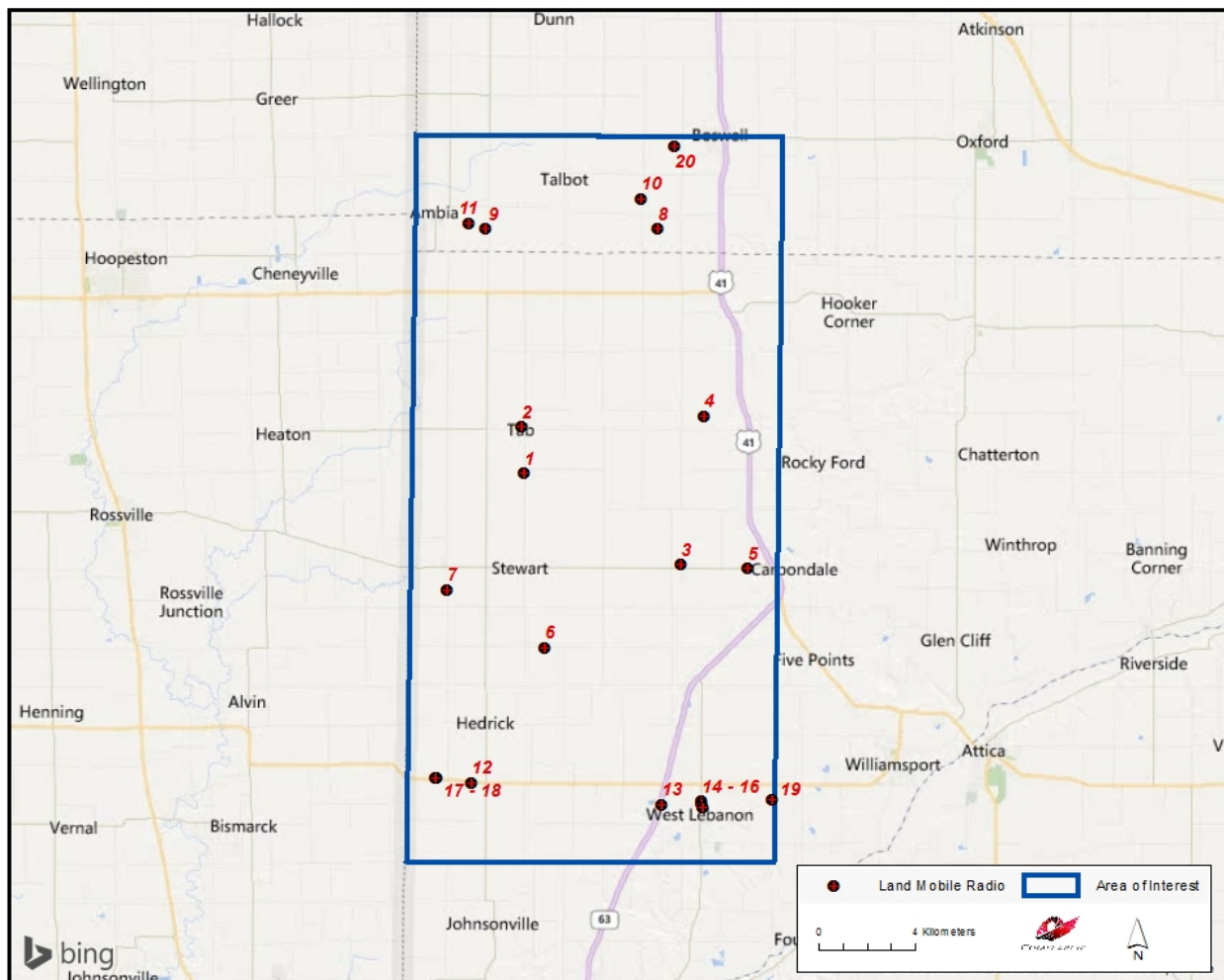
**Figure 1: Area of Interest (AOI)**

## 2. Summary of Results

Our land mobile and emergency services incumbent data<sup>1</sup> 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 wind energy 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 in and around the project area appears in Figure 2.



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

Figure 2 identifies twenty site-based licenses in the Jordan Creek Wind Farm project 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 Center of AOI (km)
1	WPUF248	450-470	Gerald Silver Farms	24.3	40.395028	-87.473389	3.29
2	WQEJ418	150-174	ADM Grain Company	12.1	40.412222	-87.474444	4.22
3	WQML794	450-470	AHW, LLC	43.0	40.361444	-87.396833	4.46
4	KNGD229	25-50	Brubaker, Ike	23.0	40.416694	-87.385583	5.27
5	WQQQ334	450-470	Leak, Thomas	21.3	40.360139	-87.364278	6.83
6	WQVQ639	450-470	Benton Dairy, LLC	22.8	40.330444	-87.462694	6.85
7	WPPC883	150-174	Gallippi, Robert	10.0	40.351694	-87.510028	7.53
8	WNJK420	150-174	Davis, Earl	23.0	40.486139	-87.408639	11.07
9	WQVQ639	450-470	Benton Dairy, LLC	22.8	40.485611	-87.492528	11.81
10	WQPP891	150-174	Fox, Brody	18.3	40.497167	-87.417083	12.16
11	WNJK420	150-174	Davis, Earl	30.0	40.487806	-87.500861	12.33
12	WQUF747	450-470	Cloverleaf Farms	29.0	40.280306	-87.497528	13.12
13	WQHM321	150-174	Norfolk Southern Railway Company	3.1	40.272528	-87.405361	13.14
14	WQNN707	450-470	Crop Production Services, Inc.	35.0	40.273917	-87.386167	13.41
15	KBG973	150-174	West Lebanon Volunteer Firemen, Inc.	18.3	40.272944	-87.386083	13.51
16	WNYT827	450-470	Indiana Bell Telephone Company	24.0	40.271306	-87.385639	13.70
17	WQTV977	450-470	Peterson, Todd	40.4	40.281778	-87.514417	13.62
18	KBC648	450-470	Hubner, Robert	37.0	40.281694	-87.515583	13.68
19	WPVA912	150-174	Norfolk Southern Railway Company	3.1	40.274500	-87.351972	14.52
20	WZH813	150-174	Clifton, Gary R	24.0	40.516694	-87.400583	14.53

**Table 1: Land Mobile & Emergency Service Sites in Area of Interest**

<sup>1</sup> 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](http://www.comsearch.com/files/data_license.pdf)

## Area-Wide Licenses

The regional area-wide licenses were compiled from FCC data sources and identified for each county in the wind energy project area. The Jordan Creek Wind Farm is located in Benton and Warren Counties, Indiana, part of Public Safety Region #14, which contains all of the counties in the State of Indiana, excluding the greater Chicagoland area. The regional public safety operations are overseen by the entity listed below.

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*Chairperson*  
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The Integrated Public Safety Commission  
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The chairperson for Region #14 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, twenty-eight licenses were found for the State of Indiana, one for the County of Benton, and one for the County of Warren (see Table 2). These area-wide licenses are designated for mobile use only.

ID	Licensee	Area of Operation	Frequency Band (MHz)
1	Accel EMS	Statewide: Indiana	150-174
2	American National Red Cross	Statewide: Indiana	25-50
3	Anderson, City of	Statewide: Indiana	150-174, 450-470, 800/900
4	Benton, County of	Countywide: Benton	150-174
5	Brownsburg Fire Territory	Statewide: Indiana	4940-4990
6	Clay, Township of	Statewide: Indiana	25-50, 150-174
7	Grant, County of	Statewide: Indiana	150-174
8	Heartland Ambulance Service, LLC	Statewide: Indiana	150-174
9	Henry, County of	Statewide: Indiana	150-174

ID	Licensee	Area of Operation	Frequency Band (MHz)
10	Howard, County of	Statewide: Indiana	150-174, 800/900
11	Huntertown Volunteer Fire Co., Inc.	Statewide: Indiana	150-174
12	I U Health LifeLine Critical Care Transport	Statewide: Indiana	450-470
13	Indiana, State of	Statewide: Indiana	0-10, 150-174, 450-470
14	Indiana Department of Correction	Statewide: Indiana	150-174
15	Indiana Department of Transportation	Statewide: Indiana	450-470
16	Indiana Emergency Medical Services Commission	Statewide: Indiana	150-174
17	Indiana Integrated Public Safety Commission	Statewide: Indiana	25-50, 150-174, 450-470, 800/900, 4940-4990
18	Indiana Search and Rescue Association, Inc.	Statewide: Indiana	150-174
19	LaGrange, County of	Statewide: Indiana	150-174
20	Madison, City of	Statewide: Indiana	150-174, 450-470
21	Mutual Aid Box Alarm System--Indiana	Statewide: Indiana	150-174
22	National Ski Patrol System, Inc.	Statewide: Indiana	150-174
23	Northern Indiana Search & Rescue	Statewide: Indiana	150-174
24	Purdue University--West Lafayette	Statewide: Indiana	150-174, 450-470
25	Randolph, Township of	Statewide: Indiana	150-174
26	RESQ Ambulance, LLC	Statewide: Indiana	150-174
27	Shelby, County of	Statewide: Indiana	150-174
28	Terre Haute Regional Hospital	Statewide: Indiana	150-174, 450-470
29	Warren, County of	Countywide: Warren	25-50, 150-174
30	Wea, Township of	Statewide: Indiana	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 Benton and Warren Counties, Indiana in Table 3.

Mobile Phone Carrier	Service <sup>2</sup>	
	Benton County, Indiana	Warren County, Indiana
AT&T	AWS, Cellular, PCS, WCS, 700 MHz	AWS, Cellular, PCS, WCS, 700 MHz
DISH Network	AWS, 700 MHz	AWS, 700 MHz
SNR Wireless	AWS	AWS
Sprint	PCS	PCS
T-Mobile	AWS, PCS, 700 MHz	AWS, PCS, 700 MHz
US Cellular	Cellular	Cellular
Verizon	AWS, PCS, 700 MHz	AWS, PCS, 700 MHz

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

<sup>2</sup> 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 wind turbines, and we do not anticipate any significant harmful effect to these services in the Jordan Creek Wind 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 in regards to the impact of wind turbines 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. Therefore, any signal blockage caused by the wind turbines 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 wind turbines. As a result very little, if any, change in their coverage should occur when the wind turbines are installed.

When planning the wind energy turbine locations in the area of interest, a conservative approach would dictate not locating any turbines within 77.5 meters of land mobile fixed-base stations to avoid any possible impact to the communications services provided by these stations. This distance is based on FCC interference emissions from electrical devices in the land mobile frequency bands. As long as the turbines 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.

### **4. Recommendations**

In the event that a public safety entity believes its coverage has been compromised by the presence of the wind energy facility, it has many options to improve its signal coverage to the area through optimization of a nearby base station or even adding a repeater site. Utility towers, meteorological towers or even the turbine towers within the wind project area 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:

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