

GeoPlanner™

Land Mobile & Emergency Services Report

Mohawk Solar Project



Prepared on Behalf of
Avangrid Renewables

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1. Introduction

An assessment of the emergency services in the Mohawk 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 within two miles 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 Montgomery County, New York, appears in Figure 1.



Figure 1: Area of Interest (AOI)

2. Summary of Results

Our land mobile and emergency services incumbent data¹ 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 in and around the project area appears in Figure 2.

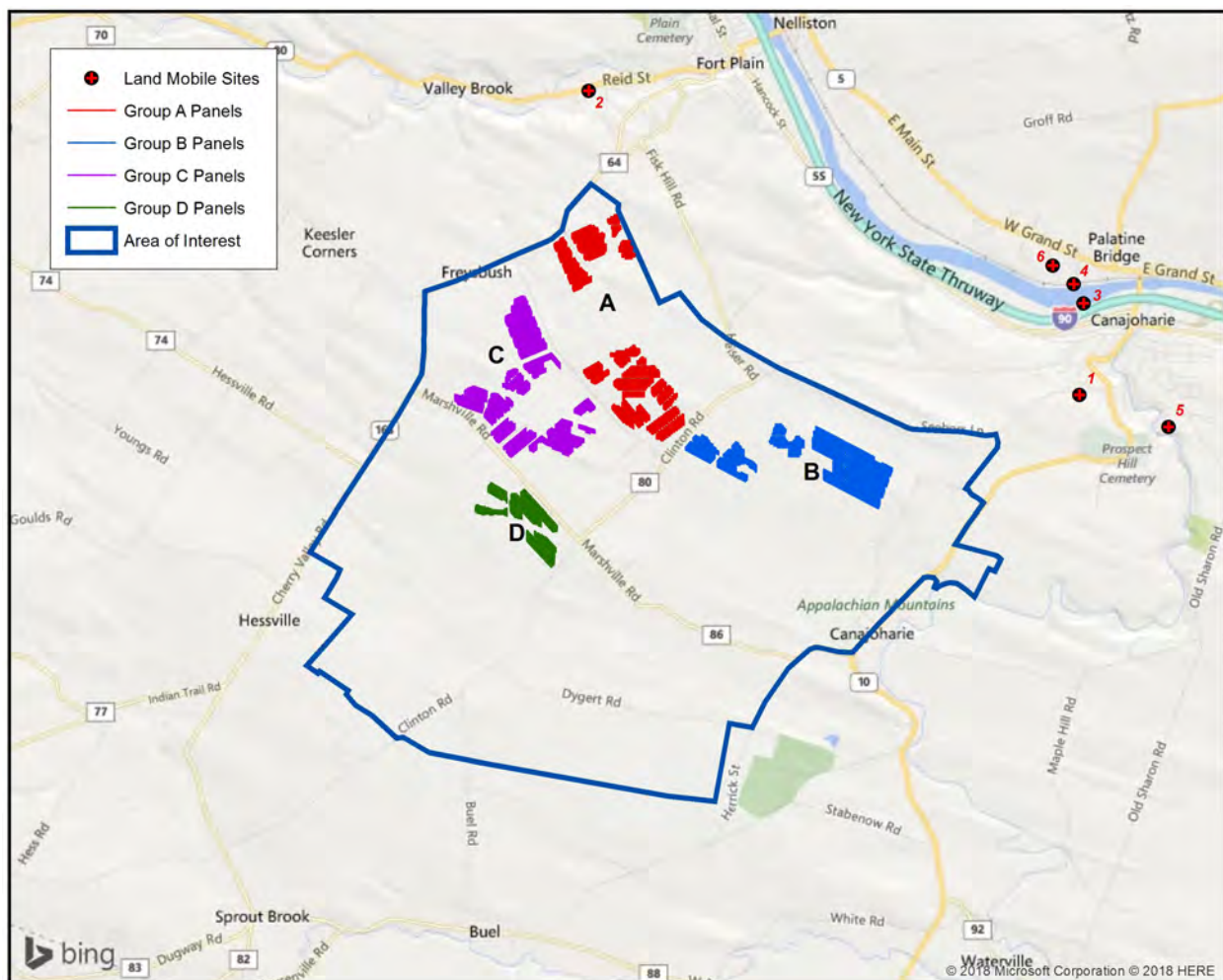


Figure 2: Land Mobile & Emergency Service Sites in Area of Interest

Figure 2 identifies six site-based licenses within two miles of the solar farm project. 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 Project AOI (km)
1	WPPX317	150-174	Canajoharie, Village of	9.0	42.899250	-74.578750	0.97
2	KUI750	25-50	Minden, Town of	18.0	42.928139	-74.641528	0.98
3	WHV323	150-174	New York State Canal Corporation	5.0	42.907861	-74.578194	1.65
4	WQWG497	150-174	CSX Transportation, Inc.	4.3	42.909694	-74.579444	1.77
5	WPPX317	150-174	Canajoharie, Village of	15.0	42.896194	-74.567361	1.80
6	KTO69	150-174	Montgomery, County of	12.0	42.911472	-74.582083	1.87

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

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 Montgomery County, New York, part of Public Safety Region #30, which contains all of the counties in central and eastern Upstate New York. The regional public safety operations are overseen by the entity listed below.

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The chairperson for Region #30 serves as the representatives 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-seven licenses were found for the State of New York and two for the County of Montgomery (see Table 2). These area-wide licenses are designated for mobile use only.

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

ID	Licensee	Area of Operation	Frequency Band (MHz)
1	American National Red Cross	Statewide: New York	25-50, 450-470
2	Amsterdam, City of	Countywide: Montgomery, NY	25-50
3	Bergen Volunteer Fire Department	Statewide: New York	150-174
4	Central Islip Hauppauge Volunteer Ambulance, Inc.	Statewide: New York	150-174
5	Erie, County of	Statewide: New York	450-470
6	Massasauga Search and Rescue, Inc.	Statewide: New York	150-174
7	Montgomery, County of	Countywide: Montgomery, NY	25-50, 150-174
8	National Ski Patrol System, Inc.	Statewide: New York	150-174
9	New York, City of	Statewide: New York	4940-4990
10	New York City Police Department	Statewide: New York	150-174
11	New York, State of	Statewide: New York	0-10, 25-50, 150-174, 220-222, 4940-4990
12	New York State Department of Corrections and Community Supervision	Statewide: New York	150-174, 450-470, 4940-4990
13	New York State Department of Environmental Conservation	Statewide: New York	25-50, 150-174, 450-470
14	New York State Department of Health	Statewide: New York	25-50, 150-174, 450-470
15	New York State Department of Labor	Statewide: New York	150-174
16	New York State Department of Transportation	Statewide: New York	0-10, 4940-4990
17	New York State Division of State Police	Statewide: New York	150-174, 450-470, 800/900, 2450-2500, 4940-4990
18	New York State Emergency Management Office	Statewide: New York	25-50
19	New York State Office of Parks, Recreation and Historic Preservation (OPRHP)	Statewide: New York	450-470
20	New York State (OPRHP) - Albany Region	Statewide: New York	150-174
21	New York State (OPRHP) - Long Island Region	Statewide: New York	150-174
22	New York State (OPRHP) - Niagara Region	Statewide: New York	150-174
23	Niagara Frontier Search and Rescue	Statewide: New York	150-174
24	Northeast Mobile Search and Rescue, Inc.	Statewide: New York	150-174
25	Northeastern Forest Fire Protection Compact	Statewide: New York	25-50

ID	Licensee	Area of Operation	Frequency Band (MHz)
26	Ossining, Village of	Statewide: New York	25-50
27	Triborough Bridge and Tunnel Authority	Statewide: New York	4940-4990
28	Western New York Search Dogs, Inc.	Statewide: New York	150-174
29	Woodbury, Town of	Statewide: New York	4940-4990

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 Montgomery County, New York in Table 3.

Mobile Phone Carrier	Service ²
AT&T	AWS, Cellular, PCS, WCS, 700 MHz
DISH Network	AWS, 700 MHz
Sofio, Joseph A.	AWS
Sprint	PCS
T-Mobile	AWS, PCS, 700 MHz
Verizon	AWS, Cellular, PCS, 700 MHz

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 (which range from 15 feet to a maximum of 20 feet above ground level) are generally lower than the antenna height of the land mobile systems identified or otherwise separated by a distance of over a mile. Therefore, any signal blockage caused by the solar farm does not materially degrade the reception due to the large separation distance or 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.

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.



5. Contact

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