



Professional Consulting Services  
Communications Consultant E-911

Research Resources

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## **1. Spectrum Availability**

Blue Wing completed a spectrum search to determine the availability of additional frequencies to meet the operational needs of the County. The spectrum search focused on VHF-High band and UHF. VHF-Low band and 800 MHz were not reviewed, because neither band offered realistic potential solutions.

The following process was completed during the VHF-High and UHF band. The process of finding frequencies in this region is difficult, especially when trying to find frequencies that work not only at one site, but across multiple sites to support the Counties public safety operational needs. The process focused on the first the most cost competitive methods solutions and then expanded as needed to include time and cost intensive solutions. The following process was generally followed. The process for UHF band seem to have provided some channels that will be useable for the County, however, to date VHF-High band still seems to be a significant hurdle.

### **1.1 Frequency Coordinator Search**

Generally, the first and most cost effective method to search for channels is via on of the five or so frequency coordinators representing various organizations. Blue Wing used APCO frequency coordination services. These services were effective in finding other frequencies for Counties in New York State. The frequency search focused on only one centralized site to reduce the overall costs of the exercise. The frequency coordinator located frequencies that represented the best frequencies for the simulcast application that was requested in the VHF-high and UHF bands. Although the frequency search at VHF was not successful, it did provide a thorough review of the band. The UHF band provided more promise, however, the frequencies still required further review to work within the plan. Frequency coordinator search for channels in bands. The results of the search are presented in Appendix A.

### **1.2 Blue Wing Search For Available Channels**

Blue Wing review of frequency coordinator information and completed additional search for channels in band. The VHF-high band search was again not fruitful. However, the UHF band did provide some promise. Blue Wing has prepared these frequencies for potential licensing at a limited number of sites for future licensing. In discussing the frequency results with the County, the desired frequency band of choice remained VHF-high band because of propagation and interoperability characteristics. The results of the search are presented in Appendix B.

### **1.3 County Frequency Review**

The VHF-high band frequencies the County is currently using were also reviewed to determine the applicability of these frequencies for future use. However, again because of the expanded use required for the new design this effort found that none of the current County frequencies in use could be used for the expanded coverage desired by the County. In addition, over the years, there seems to have been various interpretation of the rules or letter of concurrence that have severely limited the changes possible at VHF-high band. Throughout the process, the review also kept track of the blocking frequency license holders to determine if there were any potential agreements that could the spectrum for use. Although there seem to potentially be some possibilities, this process would be extremely time intensive and was not pursued at this time. The results of the search are presented in Appendix C.

### **1.4 Non-County Public Safety Review**

The VHF-high band frequencies used by other agencies was reviewed. The VHF-high band frequencies in the County were identified and were first sorted by the County to identify potential partnering agencies prior to a more detailed review of the frequencies. As with previous studies, no frequencies were identified as possible candidates for being able to be expanded for County use. Throughout the process, the review also kept track of the blocking frequency license holders to determine if there were any potential agreements that could the spectrum for use. Although there seem to potentially be some possibilities, this process would be extremely time intensive and was not pursued at this time. The results of the search are presented in Appendix D.

### **1.5 Non-Standard Review**

Currently, Blue Wing is reviewing three additional areas to find frequencies which are generally not reviewed. Most frequency searches do not go beyond the first couple steps identified above – available open channel review and current channel modification. Because of the clients benefits of remaining on VHF-high band , Blue Wing investigated three additional areas -

- Review of commercially frequencies available

- Review other industry segment frequencies available
- Review potential sharing with Federal government on frequencies.

These remaining efforts are still in progress. The preliminary results of the first two efforts are highlighted in Appendix E. However, any of the three options will probably take a month or two to fully qualify the opportunity and number of additional months to come to finalize the opportunity.

## **2. Candidate Site Opportunities**

Blue Wing has a preliminary determine the tower sites required to achieve the desired coverage through the use of theoretical propagation predictions. Blue Wing has focused on keeping the site count as low as possible to obtain the desired coverage. The map below shows current radio sites that are located in and around Sullivan County.

When reviewing sites, Blue Wing prioritized the site placement in the following manner. However, because a firm frequency plan has not yet been determined, the tower siting process will become part of the next phase of the project once a resolution to the spectrum allocation is realized.

### **2.1 Existing County Tower Sites**

Because of the relative low amount of tower structures currently used by the County, Blue Wing used the existing tower structures as the primary tower sites for coverage.

### **2.2 Existing Economically Feasible Tower Sites**

The second priority of tower sites will be to utilize tower sites that provide favorable Public Safety rates for the tower over a 20 plus year period.

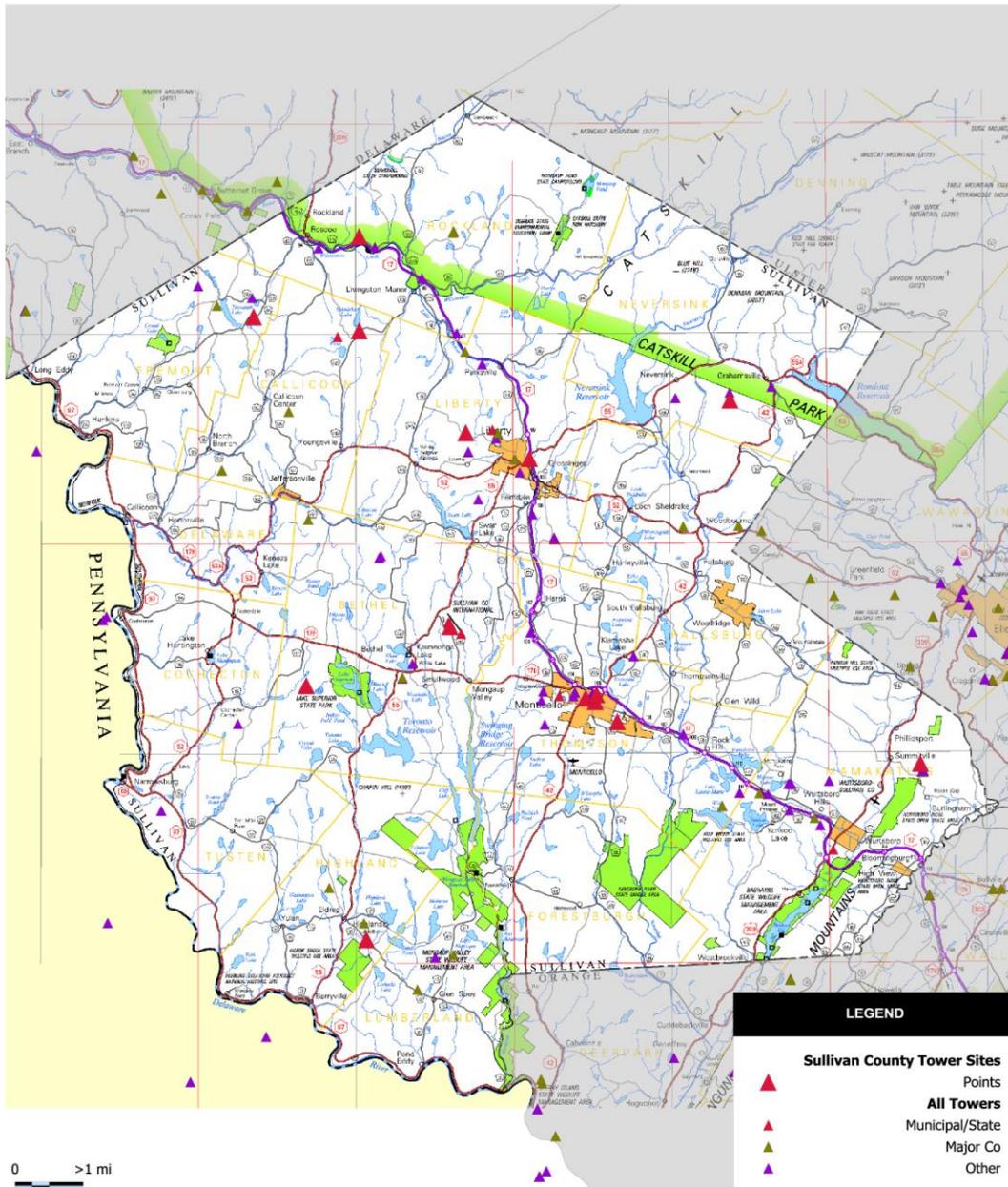


Diagram 1 – Sullivan County Tower Sites

A list of the sites located in the County and adjoining Counties is contained in Appendix F.

### **2.3 New Tower Construction on County Property**

If new sites are required, Blue Wing will first attempt to place the sites on County/municipal land. We will work with the County's GIS department to identify land and understand any potential site issues. An effort will be made to reduce the potential site issues. Blue Wing will classify the siting risk associated with potential sites.

### **2.4 New Tower Construction on Government Owned Property**

For new sites, after reviewing County property, Blue Wing will work with the County to review State and local government owned property.

### **2.5 New Tower Construction**

The last outlet for tower siting would be private land. Blue Wing will work with the County to gain an understanding of the relationship of the County with the landowner.

Site placement can be a very intensive process and a final focus would be completed once the spectrum choice and technology choice is finalized.