



## ***Baraga County Repeater Association, Inc.***

P.O. Box 175

L'Anse, Michigan 49946

[www.bcra.us](http://www.bcra.us)

### **ABOUT US:**

**Welcome** to the Baraga County Repeater Association (BCRA), we are a local group of ham radio operators working in Amateur Radio in the western UP. The Club's mission is to advance knowledge of and interest in amateur radio and wireless communication to the community--especially area youth. We offer training and ham licensing opportunities to interested community members and provide public service communications support for a variety of area activities. However, BCRA's most important role is to provide an effective level of communications in emergency situations or times of disaster that can be put to use immediately or deployed very quickly when necessary.

**Radio equipment** used in local emergencies involves "line of sight" transmission of radio signals. Line of sight communications means geographic obstacles like hills between two radios will block communication. To overcome geography, radio repeaters are placed on the highest available locations. Repeaters pick up the signal from radios in difficult areas and repeat those communications over a far larger area overcoming line of sight and geographic limitations.

**Baraga County** is home to the highest geographic points in the state and so is uniquely situated to fulfill a primary communications role for the western UP. It is for that reason commercial radio towers were established in the Herman area in order to cover Baraga County (as well as much of the Western Upper Peninsula). No other county in the state is as well situated as Baraga to provide wide area radio coverage. Unfortunately, Baraga County has had very limited ham radio infrastructure and the highest locations in the county are almost totally un-utilized. BCRA hopes to change that! We are already testing private locations in the Herman area in backyards of BCRA members.

**Ham History** -- From the 1980's until 2009, a ham radio repeater (similar to what we propose) was located on an older DNR tower in Herman. It was maintained by a ham club in Houghton County, the Copper Country Radio Amateur Association (CCRAA). In 2009 the old DNR tower came down and was replaced by the new Michigan State Tower. And at that time, lack of local support resulted in CCRAA moving the former Herman ham radio repeater to Houghton County near Donken. Baraga County has subsequently suffered from a near total lack of reliable back up radio coverage since 2009.

In 2016, several local ham operators got together to fill the void created by the loss of the Herman radio repeater by founding the Baraga County Repeater Association. Dedicated to communication and community service focused on the county, the BCRA is committed to re-establishing a high profile and quality ham radio presence in the county, maintaining it, and keeping its base of control in the county it primarily serves.

Ham radio organizations provide communications support for a wide variety of events, ranging from emergency to recreational. These include search-&-rescue, disaster relief, weather alerts, monitoring wildfires or floods – as well as public safety for dog sled races, road rallies or other community events -- wherever communication services are needed but not available. Also, when normal means of communications fail (in a power outage), or when disaster relief is ongoing, the network of ham radio operators offers critical back-up communications.

**BCRA's Mission** – is to spread interest and knowledge in radio communications and technology to others in the county -- especially area youth. Getting young people involved in ham radio gives them a stepping stone to high tech jobs in the future. In the field of communications nearly anyone you ask is a licensed ham and in most cases, that early interest and experience led to the jobs that got them where they are today.

In March 2017 we hosted ham radio classes at KBIC (Wabanung) Ojibwa College in L'Anse. The 6 hour class was designed to get community members trained and licensed to operate ham radios. And in the fall, BCRA would like to put on an additional course at the college and we are currently working towards that.

BCRA's very ambitious goals are supported by dedicated club members who put in long hours of work and make significant personal & financial sacrifices to make things happen. In the past year we've established a radio repeater that covers a large area of NE Baraga County installed on an old Baraga Telephone Co. tower west of Baraga near M-38. We've established an Internet site for the club, and club members have started a U.P. wide web site to help ham radio clubs across the U.P. coordinate their efforts.

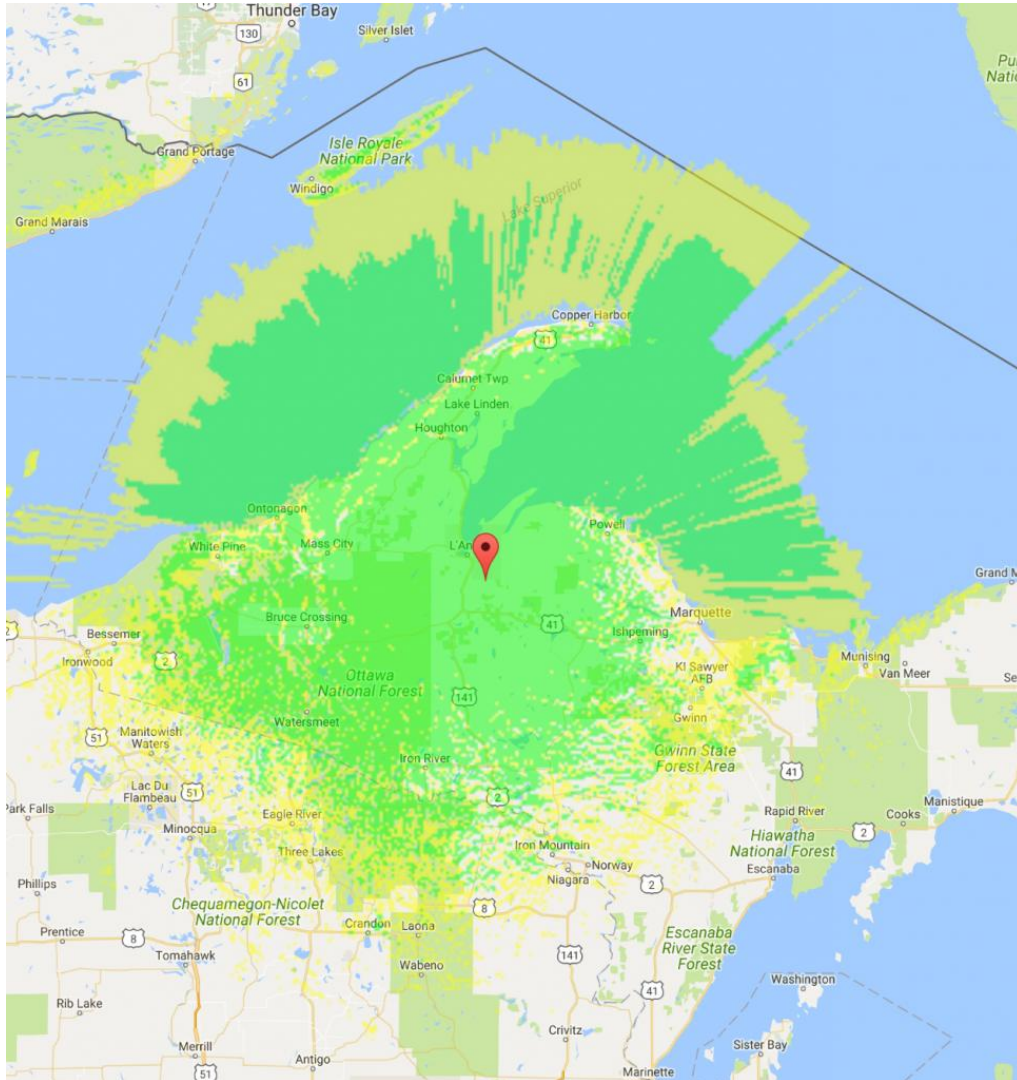
Our primary goal at this point is to reestablish a VHF repeater on a tower in the Herman area. VHF equipment provides the best bang-for-the-buck and would deliver the best wide-area radio coverage. Our Herman project goals also include installation of UHF equipment to expand functionality and options for the county and surrounding areas.

Currently we are taking steps to get space and authorization to install equipment on the Michigan State tower in Herman. This has not been an easy process and we are facing serious financial hurdles to utilizing the state tower. Only certain state certified climbing crews are allowed to do tower work on those towers (all located down state). Very high standards are set for what can be done on these towers, which puts this project out of bounds for a small club like BCRA without significant financial aid.

This repeater will serve (primarily bolded)  
**Baraga, Houghton, Gogebic, Marquette, Iron, Keweenaw, Ontonagon**, parts of Dickinson, Alger and Menominee Counties. In Wisconsin, we could see additional coverage in Iron, Vilas, Forest and Florence Counties.

**(See RF Print Below)**

This repeater will also provide added services in the Lake Superior shoreline, as well as additional extended coverage out to Isle Royal.



BCRA has membership overlap with other area clubs, shares member expertise and coordinates ham communications efforts with them very effectively to best serve the western U.P.

## **OPTIONS:**

For the sake of understandable discussion we will keep the narrative as simple and logical as we can. Quotations on equipment and required contracting services for work at the state tower have been received and the full quote documents are available.

Obtaining space and authorization to use the Michigan State tower in Herman would provide the quickest means to get a high quality VHF repeater in operation at a prime location. To satisfy state safety requirements, tower climbing costs themselves are extremely high, so it makes sense for the long run to include installation of a second cable and antenna for the UHF system (mentioned a few paragraphs earlier). Doing both concurrently would eliminate very expensive additional climbing costs at a later date.

1. Quotes on tower climbing, cabling, antennas, and related hardware have been obtained for the VHF and UHF antenna systems combined and they came in at - **\$23,679.00**. This portion of funding is all but mandatory to meeting initial system requirements on the state tower in Herman. There are no other options there.
2. If at all possible we'd like to install new radio repeaters for advanced functions and long term reliability, VHF and UHF repeaters, hardware and installation cost quotes came in at - **\$10,108.00** for VHF and at - **\$7,986.00** for UHF equipment. VHF and UHF radio repeaters would be all the electronics attached to the outdoor tower equipment in item (1.) above.

If necessary, we can make adjustments to radio repeater equipment installations by funding only the new VHF radio equipment in (2.) above and following up with the UHF equipment at a later date as financing allows.