

## Update on Mesh Networking as of June 30, 2022 – Jay Taft K1EHZ

### Goal

An ARES-based Merrimack Valley Digital Network connecting medical and municipal organizations from Concord area to Nashua area with backup communications independent from commercial internet. Other public service organizations in range of the 5GHz network are welcome to join.

### Background

- The ARRL is encouraging activities on GHz frequencies for spectrum defense.
- Rob Leiden K1UI is Asst Dir for the New England Division, ARRL.
  - Rob leads a New England group to develop local GHz mesh networks and connections between them. I represent us in that group.
- Amateur Radio Digital Communications is a foundation that funds digital networks.
  - Grant proposals must come from a 501(c)3 nonprofit organization.
  - There is a proposal in draft for a Merrimack Valley Digital Network.
- I have exchanged emails with Scott Nichols, Granite State Health Care Coalition, who has been involved in funding FM radios for hospitals in the past.
- At the suggestion of Rob Leiden, I am in touch with Bill Barber NE1B, president of the New England Digital Emergency Communications Network about 5GHz connections among DMR sites.
- I am in regular communication with Bill Richardson NG1P, who operates a small mesh network in Maine.

### Mesh Network Activities

- 5GHz link between Elliot Hospital and Catholic Medical Center operating 24/7 for 3 years.
- Manchester EOC and Manchester Radio Group (Pete Stohrer W1FEA) added this year.
- Network services installed at Elliot Hospital are webmail server, VOIP phone server, TeamTalk conferencing server, GPS time server.
- For routine management and training, it is possible to tunnel into the core network.
  - Tunneling should NOT be relied upon during an emergency.
  - Rob Leiden encourages mesh groups to interconnect with tunnels for training and coordination until GHz RF links can be established between groups.
  - ARES can tunnel into the Manchester network for training, and explore other networks.
  - There are currently 20+ nodes in ME, NH, MA and CT tunneled together.

### In Progress

- Identify organizations in the Merrimack Valley interested in participating in the 5GHz network.
- Identify a 501(c)3 to serve as fiscal agent for a grant.
  - Send grant proposal to Amateur Radio Digital Communications.
  - Rhode Island group just received \$83,000 for their digital network, including repeaters.
- Test 5GHz connections to the NEDECN system.
  - Equipment is on-hand to test the connection.
  - Just need access to the repeater sites and small amount of 120v power.
- When funding is available, build out the 5GHz networks in Manchester, Nashua and Concord, and interconnect them.