

Emergency communications planning revision 1.1 November 2024

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Emergency communication plan here is a simple, low-cost solution centered around the use of inexpensive, easily accessible communication tools and protocols. This plan assumes a catastrophic situation where traditional communication methods (phone, internet, etc.) are down.

Protocol HAM BAND LOWPOWER Radio to reconnect group

1. **6pm Eastern Time on Wednesdays**, or another additional time set by moderator.
2. **Tune to 146.520MHz** on the 2-meter HAM band to connect or to **"HAIL" the group**
3. Identify yourself as **"American States Assemblies on New Hampshire" then your name.**
4. **Next, ask all to move to frequency 146.580 MHz to begin meeting discussion.**

MUST READ THIS FIRST ~ Unless you have a license from the FCC, you are operating exclusively under **"emergency exceptions"**. You normally need a license to transmit on a HAM band radio but not to listen. If you are pushing the **TRANSMIT** button on your walkie-talkie on this BAND it better be under emergency conditions only.

To establish a reliable method of communication between American state nationals located in New Hampshire after a catastrophic event when traditional communication systems are unavailable.

The assumption is that all other communication methods have broken down and communications between members have been fully interrupted across the entire state. It is assumed distances between communicating members can be up to 100 miles. Normally, even this low cost method would require a license to operate. We are operating under the assumption that this is an emergency situation, and the

normal rules do not apply. Do not use this method at times that are not of an emergency nature. This plan is simply to reconnect the group in the state of New Hampshire to one another, so that we can coordinate information and new methods of contact.

No simple, radio communications of ample power to go further than 100 miles is available to individuals without a substantial investment. This contingency plan functions at an extremely low cost and technical understanding by the individuals. For less than \$100 individuals will be able to connect as the group.

Considerations to begin.

The type of radios we are using have an optimal range of 5 to 10 miles. If you are standing on top of a small mountain, you could get as far as 100 miles. Until you get comfortable with knowing your transmitters capability, you may want to find a location on a hill with a good clear view of the horizon before you attempt to connect to the group. The entire idea of this protocol is at least a common denominator opportunity to reconnect the community. Once initial communications have been initiated to reconnect. The group and alternative plan will be created at that point given whatever resources are actually available to everyone.

Network Coverage

Here's a thought experiment to help you understand what is important about your setup. The best circumstances would be if you and the person you're trying to talk to, both lived on a different mountaintop. Let's say it was 100 miles away. There's a pretty good chance you'll be able to speak to each other. On the other hand you are trying to make contact with a person who lives 5 to 10 miles away but you both live in different valleys, down in the low area and there are high areas that stand between you. That would be the worst case scenario.

What can you do about increasing your chances of being able to communicate? The first thing you can do is have an idea of who you are trying to talk to, and then learn whether you live in a high elevation area or in a low elevation area and the same for them. If they, or you are in a less than ideal location you might consider having someone be in the middle between you both. In radio communications this person would be considered a **repeater**.

In the worst reception circumstances it might be necessary to communicate first to someone who has a good geographic location and acts to repeat your message to the other person who lives at a distance.

Something else you might choose is to ask around of your friends and connections for someone who might be a HAM RADIO operator setup and they might have a higher powered transmitter and a better antenna than anything you're likely to

purchase yourself. You might consider making these arrangements to communicate with the group ahead of time. They could assist you during that time. These are all considerations for people who live in hilly areas. As mentioned elsewhere in this document it is recommended that you use a high-gain antenna on your portable radio. See possible projects elsewhere in this document. This will help you extend your range.

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Communication Tools and thoughts on.

Radios

Baofeng is known for its affordable and popular handheld radios, particularly within the HAM radio community. Here are some of the better-performing models you can consider for longer-range communication and durability. All of these radios can be purchased on Amazon or eBay or other outlets quite cheaply:

1. Baofeng UV-5R (Classic) \$20

- Frequency Bands: Dual-band VHF (136-174 MHz) / UHF (400-520 MHz)
- Power Output: 4-5 watts
- Range: Up to 10-15 miles, depending on terrain and antenna
- Features: Dual watch (monitor two frequencies at once), 128 memory channels, FM radio receiver
- Pros: Affordable, reliable, and widely used; many accessories available
- Cons: Limited range in dense environments unless you upgrade the antenna

2. Baofeng BF-F8HP (High Power) \$62 **(RECOMMENDED)**

- Frequency Bands: Dual-band VHF (136-174 MHz) / UHF (400-520 MHz)
- Power Output: 8 watts (High, Medium, and Low power settings)
- Range: Extended range up to 15-20 miles with clear line of sight
- Features: Same dual watch, 128 memory channels as UV-5R, but with better power output and battery life
- Pros: More power than the UV-5R, better signal strength for long-range communications; good value for its power and features
- Cons: Slightly bulkier due to the larger battery, but still very portable

3. Baofeng UV-82 \$65

- Frequency Bands: Dual-band VHF (136-174 MHz) / UHF (400-520 MHz)
- Power Output: 5 watts
- Range: Comparable to the UV-5R, around 10-15 miles depending on conditions
- Features: Dual push-to-talk (PTT) button for easier communication on two frequencies, 128 memory channels
- Pros: Ergonomically designed; more durable casing than the UV-5R, with better audio quality

- Cons: Higher price than the UV-5R for similar range, but with improved durability and features

4. Baofeng UV-9R Plus (Waterproof Version) \$26

- Frequency Bands: Dual-band VHF (136-174 MHz) / UHF (400-520 MHz)
- Power Output: 5 watts
- Range: 10-15 miles, with enhanced performance in harsh weather conditions
- Features: IP67 waterproof rating (can withstand water submersion), more rugged build, 128 memory channels
- Pros: Designed for outdoor use, resistant to water and dust; great for emergencies in rough environments
- Cons: Slightly more expensive and bulkier, but worth it for durability

5. Baofeng GT-5TP (High Gain Antenna Version)

- Frequency Bands: Dual-band VHF (136-174 MHz) / UHF (400-520 MHz)
- Power Output: 8 watts
- Range: Up to 20 miles or more with clear line of sight and its included high-gain antenna
- Features: Comes with a high-gain antenna for improved reception, dual watch, 128 memory channels
- Pros: Improved antenna performance for longer-range communication; good value for a high-power model
- Cons: Still benefits from antenna upgrades if working in difficult terrain

Key Add-Ons for Improving Performance:

1. Upgraded Antenna:

- Consider upgrading to a Nagoya NA-771 or NA-701 antenna for significantly better range compared to the stock antenna that comes with most Baofeng radios.

2. Battery Pack:

- Extended battery: A larger battery pack will give you more talk time, especially useful during emergencies.

3. External Antenna or Repeater Use:

- For stationary setups, external antennas (like a rooftop Yagi antenna) can drastically increase your communication range.

Baofeng UV-5RM \$40

Each of these models offers a balance of affordability, range, and features, making them solid choices for emergency communication. The Baofeng BF-F8HP is particularly popular for its higher power output and better range capabilities while still being budget-friendly.

Antennas Important decision

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Energy and Power:

- **Battery Backup:**
- Ensure everyone has spare batteries or solar chargers for their devices.
- Consider small, portable solar panels or hand-crank generators to recharge devices.
- **Conservation:**
- Use radios only at designated times to save battery power. Avoid unnecessary chatter.

Testing and Drills:

- **Monthly Drill:**
- Conduct a test of the system monthly to ensure all equipment works and everyone is familiar with the protocols.
- Adjust any logistical issues, such as interference on channels, during these drills.

Action Items:

- Purchase walkie-talkies or CB radios (aim for long-range models).
- Decide on a weekly check-in time and confirm it with all members.
- Designate local meeting points for in-person check-ins if necessary.
- Set up a simple communication protocol with channels, call signs, and emergency signals.