

Using FRS and GMRS Radios for Local Disaster Communications

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Some disasters can interrupt the communication services we take for granted and use every day. Too many telephones off the hook – whether shaken off by an earthquake or picked up by too many people trying to reach concerned friends and relatives – can overload the local phone system. Similarly, too many customers trying to make calls on their cellular phones can bring that system to a halt. Infrastructure damage (e.g., lines down, structural damage at a central office) can likewise render our telephones unusable.

The proliferation of small handheld radios operating in the Family Radio Service (FRS) and the General Mobile Radio Service (GMRS) make them a popular choice for back-up neighborhood communications. That popularity has benefits: lower costs and widespread availability. However, it also has a price: too many users on a very limited number of frequencies, or “channels”. (Try listening to a FRS channel at Disneyland some time!) Fortunately, your FRS or GMRS radio won’t hear all the other users in Los Angeles. Low power and small antennas limit the effective range of these radios, sometimes to a few blocks. Intervening buildings and terrain can also affect their communication range. The closer two such radios are to each other, the stronger the signal will be between them, so transmissions from your closest neighbors will generally be much stronger than those from a mile or two away. Thus, they may be well suited for use by small teams working on utility shutoff, checking on special-needs neighbors, etc.

What’s the difference between FRS and GMRS? FRS radios have lower transmit power (a fraction of a watt) and require no license to operate. GMRS radios can run more power (several watts) and may use larger, more effective antennas but require a license (about \$85 and good for five years) from the Federal Communications Commission (FCC). Each service has its own set of frequency channels, and they share seven more in common. Different makes and models of radios may use different channel numbers for the same frequency. You can make cross-reference charts for your radios by referring to the manuals or by trial-and-error, but it’s easiest for a team to purchase all the same make and model so that everyone’s “Channel 3” is the same.

Most FRS and GMRS radios have tone encoders and decoders that may go under the name “privacy code”, “PL” or the like. This feature causes the transmitter to send a sub-audible tone whenever the transmit button is pushed, and it causes the receiver to keep the audio silent unless a signal with that tone is received; it’s an audio filter of sorts. The purpose is to prevent your having to listen to unintended signals. Ideally you hear only your party on the other end whose radio is set to the same channel and same pre-agreed privacy code. Note that this feature really has nothing to do with privacy; anyone whose radio has the tone feature turned off and is tuned to your channel can hear every word you transmit, tone or not. Also, a signal from some other radio on your

channel could be louder than that from your intended party and block your receiver. You just wouldn't hear it . . . in fact, you wouldn't hear anything until that other radio stops transmitting.

For longer-distance communications, amateur radio operators ("hams") have capabilities far beyond that of FRS and GMRS. They can reach across town or across the country with the right equipment and appropriate choice of frequencies. Each neighborhood can benefit by having several hams nearby to assist with these more rigorous communication needs. Check with a local amateur radio club or nearby ham, or inquire at the areslax.org Web site for more information.

Having radios is good, but knowing how to use them is an important element of communications. To get the most out of your radios, keep the batteries fresh (alkaline) or properly charged (rechargeable), and have spares handy. As part of your planning, agree on who will use what channels (and, for neighborhood use, privacy codes), and have back-up channels in case one is hampered by interfering signals. Practice using your radios from the places you would actually use them in a disaster. When transmitting, speak slowly and clearly – don't yell – across the microphone while holding it one to two inches from your mouth. Try to avoid areas of loud background noise, which make it harder for the other party to understand you and for you to hear them.

Fire, police and military radio operators make use of TACTICAL CALLSIGNS, usually associated with a specific function or location. First names may be fine for only a few users but can lead to confusion with many users on the same channel. Your utilities team, for example, may want to use "Utility One". "Utility Two", etc. Your plan should include any tactical callsigns you decide to use.

It is good practice to start each transmission by stating the party you're trying to reach followed by your own call ("Supply, this is Triage"). Wait for an acknowledgement ("Triage, Supply, go ahead") before sending your message. Keep messages short ("Supply, Triage, we need six blankets at Elm & 1st right away") and sign off when the exchange is finished ("Triage clear") so the other party isn't left waiting to see if you have more to say and can get back to other responsibilities.

One last note: Don't forget non-radio means of communicating. Kids on bikes and scooters can get from one block to another amazingly quickly!