

Alternatives for Establishing Communications

- **Wired Telephones** – Traditional phones should be used whenever available, but may be limited or put out of service by overloading of the telephone system, prolonged power outage, or damage to switching systems. New VoIP (Voice over IP) digital telephones rely on the internet, which is also easily put out of service.
- **Cellular Telephones** – Should be used whenever available, but are more prone to overloading than traditional telephones. They are also limited or put out of service by prolonged power outage, or damage to cellular towers and switching systems.
- **Satellite Telephones** – An excellent source of communications for most emergency situations, but rarely available, due to exceptionally high cost. Satellite phones do not work well indoors. They must generally be used outside or in a thin-walled tent, to facilitate a line-of-sight radio path to communications satellites.

During any emergency, there is a tendency for everyone to try to use a phone. All phone systems are designed to handle only a modest number of simultaneous calls. During the September 11, 2001 World Trade Center emergency, all phones were rendered useless by overloading, even though the power stayed on and there was little actual damage to equipment. Wired and cellular phone service remained unreliable in some parts of New York City for as long as three days following the disaster.

Where necessary and practical, personal radios may be used to assist with communications. Care should be used when speaking by radio to avoid attracting unnecessary public attention, which could complicate efforts. Sufficient batteries or other power sources are essential. This requires advance planning and maintenance.

- **Amateur (Ham) Radio** – Generally much more powerful than other radios, but each user must have a Federal Communication Commission (F.C.C.) license. Ham radio may be used for local or long range communications. Ham radio operators often gather together on the air to form “nets,” which help provide systematic relief efforts.
- **Citizens Band (CB) Radio** – Coverage area is limited, but more than that of walkie talkies, described below. These radios do not require an F.C.C. license and are required to use 40 pre-defined channels.
- **Walkie-Talkie** – Best for short-range communications, primarily, within family groups. These radios usually operate in the Family Radio Service (FRS) or General Mobile Radio Service (GMRS) bands. Some older walkie talkies are still in use, which operate on the Citizens band.
 - **FRS radios** require no license. Although often advertised to have longer range, these radios are unreliable beyond a few city blocks. FRS radios are required to use 14 pre-defined channels.
 - **GMRS radios** are slightly more powerful than FRS and require an F.C.C. license. Unlike ham radio, one GMRS license covers all members of a family. Although advertised to have longer range, these radios rarely operate reliably beyond a mile or two. GMRS radios are required to use 22 pre-defined channels.