# Covering the County When It Counts: An AM Radio Emergency Broadcast System

## Waldo County, Maine, establishes the nation's first countywide emergency broadcast system operating on AM radio channels

By Dale D. Rowley and Bill Baker | May 1, 2020 | ARTICLE

One of the basic responsibilities of a local emergency management program is to provide emergency public information and warning to the local population. Not providing information and direction to residents and businesses can cost lives and damage or destroy property. However, accomplishing this task can be difficult and costly. Determining the method of information dissemination that will reach the most people in a timely manner and provide the most information to the public will be based on the local types of hazards, geography, population demographics, existing communications technology, and the ability to pay for the system's implementation and operation.

Waldo County, located in mid-coast Maine, encompasses 852 square miles and has 39,800 residents and 26 municipalities. Maine is a home-rule state and, as such, most services are performed at the state or municipal government level.

In 2013, after an ice storm brought numerous power outages, the Waldo County Emergency Management Agency (EMA) studied the various means of disseminating public warnings, the types of hazards most experienced, and the costs of implementing a communication system.

As things go, Maine is a pretty moderate state when it comes to hazards that can cause disasters. Maine can experience minor

earthquakes, but the state does not lie on any major faults. Hurricanes can strike; but the likelihood of anything greater than a Category 1 is very unlikely due to the cool waters that lie offshore. Maine did experience a major forest fire season 73 years ago, but the high humidity, and the type of topography and vegetation present does not lend itself to fast-moving fires. Floods do happen, but their scale is fairly minor compared to many other flood-prone areas of the country.

Maine is, however, exceptionally prone to ice storms, blizzards, and wind storms that can cause power outages. The land area of Maine is about 90 percent forest land and nearly all the power lines are pole mounted. In January 1998, Maine experienced an ice storm that caused a nearly statewide power outage that lasted nearly two weeks for some residents. Since then, tropical storms and wind storms have also caused long-term, wide-area power outages.

As with the rest of the nation, much of our population is replacing their landline telephones for cellular smartphones. In the past, even if a household lost electrical power, it still had the landline telephone energized from the telephone company central office. Now, when the area power grid is out, the cellphones for many start dying after the first day.

## Searching for a Solution

On Christmas Eve of 2013, Waldo County experienced another destructive ice storm that crippled the regional power grid for almost a week. Once the freezing rain stopped, the temperatures fell well below freezing; at night the temperatures were below zero degrees Fahrenheit. The county decided to establish an overnight emergency shelter for those residents who were unable to keep warm or to find a place to go.

County Emergency Management Director Dale Rowley began calling local television stations to request that they inform the public of the shelter. Unfortunately, most residents couldn't watch TV. The county posted information on social media, websites, internet-based notification systems, and the 211 emergency call system. However, many residents didn't have power for their computers or the ability to recharge their smartphone batteries.

All of which meant the county had no way to get the word to residents

that the emergency shelter was open! The only option that seemed to remain available was to contact the local AM/FM broadcast radio stations. Many residents still have battery-operated AM/FM radios or have a radio in their car. Unfortunately, the radio stations couldn't continuously broadcast the message. If residents weren't listening at the "right" time, they did not get the message.

Rowley began investigating possible solutions. He did know about the Traveler's Information Station (TIS), which continuously broadcasts messages to the driving public on the turnpike highway during highway emergencies. In his research, he quickly discovered emergency radio advisory stations.

Unfortunately, the TIS system is limited to 10 watts by the Federal Communications Commission (FCC) and will only cover around a five-mile signal distance. Since Waldo County covers over 800 square miles, the only option seemed to be procure 32 linked TIS units.

Realizing that the county could not afford such a project, the EMA researched the parameters of a capability that could cover the entire county by reaching out to TIS equipment suppliers, including a company called Information Station Specialists. Rowley began a conversation with Bill Baker at this company regarding one of its radio systems called RadioSAFE.

Condensed versions of the RadioSAFE system are available with 6-10-mile and 3-5-mile signal coverage distances. However, the need to establish a countywide emergency broadcast system created several new challenges. The first step involved acquiring a basic FCC AM broadcast radio license as used by TIS. This allows the broadcast system to transmit up to 10 watts. In order to reach the entire county, significantly more power (wattage) was required, which led Information Station Specialists to design a high-performance radio antenna with the efficiency and power-handling capability to cover a radius of more than 20 miles.

Additionally, the FCC required a waiver and a Special Temporary Authority (STA) are required from the Federal Communications Commission for operation. Procedures have been established for the waiver process.

## Ideal Channel for Emergency Use

Work is progressing. The ground radials and transmitting equipment are being installed at present time. The Waldo County EMA office, with the assistance of seasoned amateur radio operators, is in the process of implementing the nation's first countywide emergency broadcast system utilizing universally available AM radio channels. The new wide-area "RadioSAFE" system will be utilized in emergency/disaster situations in which citizens are cut off from power and communications—something that could easily have happened had Hurricane Dorian steered a slightly different course in September 2019 when the storm skirted by the Maine coast. The new system will hopefully be operational by June 2020.

The county obtained a Subrecipient State Homeland Security Grant to help cover the costs of the project. Information Station Specialists designed a RadioSAFE wide-area emergency broadcast system to meet the county's public warning needs. The RadioSAFE system is located on a hilltop tower site in the town of Knox.

Amateur radio pros Brit Rothrock (AB1KI) and Robert Hoey (W1EBA), who also work for the Waldo County EMA, have been working on the system's planning and installation. The county's RadioSAFE System will operate on AM frequency 530 kHz, a channel designated exclusively for TIS service in the United States. There are no other broadcast stations on 530 kHz in the nation now, making it an ideal channel for emergency use.

This spring, Waldo County will erect road signs and develop a promotion campaign to inform local residents regarding the presence of the emergency broadcast service. During an emergency, the county can send out a WEA (wireless emergency alert) to cellphones with a message that can direct people in the impacted locations to tune to the AM station for more detailed information.

Providing emergency alerts with information and directions to our population is a vital component to our local emergency management program and a critical responsibility of our local elected officials. Each county and municipality needs to implement the localized processes and technological means with which to implement a public warning program. Lives and property depend on it.

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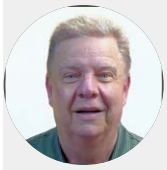

**BILL BAKER** is president, American Association of Information Radio Operators (bill@aairo.org).

*To learn more about RadioSAFE systems, visit theRADIOsource.com/products/radiosafe.htm.*

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