



DIGITAL GOVERNANCE SERIES

If Phone and Internet Services Fail in an Emergency: Nine Preparation Strategies for Rural Counties

Rural California counties have experienced numerous emergencies these last few years including wildfires, floods, mudslides, tsunamis, earthquakes, public safety power outages, and just last December, snow-mageddon across the Sierra. When disasters and emergencies happen, the very first thing county leaders need to do is communicate quickly, effectively, and broadly to our residents. Residents need to know what's going on and what actions they need to take to keep themselves and their families safe.

A key challenge during these disasters is that rural telecommunication systems, technologies, infrastructure, and local news media (radio/TV newspaper/website) are very likely to be impacted by the same crises. This eliminates many of the core public communication methods we rely on. Better understanding this challenging situation can help local leaders plan for the next emergency.

Communication Service Challenges

Rural counties struggle during the non-emergency times of the year with the reliability, coverage, redundancy, and affordability of local phone and Internet services. Major telecommunication companies have been actively moving away from the wireline "copper" plain old telephone service (POTS) business, shifting customers to their wireless and fiber optic services. As is well established, there is a lack of sufficient wireless and fiber optic services across our rural counties making communication particularly challenging during emergencies.

Cellphone "wireless" based phone services:

Cellphone service depends on cell-towers to transmit their signals to residents. Towers typically need a fiber cable connection and utility electric power. A failed utility pole with electric and fiber optic lines on it can take both services out. California's Senate Bill 341 (McGuire), passed into law in 2021, now requires cellphone service towers to operate for 72 hours without utility power, but it does not address a damaged fiber communication line. After 72 hours, generators need to be refueled. This can be a challenge during a prolonged disaster event if roads are blocked due to floods, wildfire, trees, or snow.

Broadband based phone services:

Traditional telecommunication companies, cable TV companies, and Internet Service Providers (ISPs) are now all providing customers Voice over Internet protocol (VoIP) telephone services. VoIP acts and feels like a traditional phone line, but it is using the consumer's broadband internet service to communicate. Old POTS phone service worked when the power was out, but not VoIP. VoIP requires that the entire network infrastructure from your home router and across your local

Internet Service Provider's infrastructure all have backup power in place. Senate Bill 341 also requires these VoIP providers to keep their system running for a minimum of 72 hours during a power outage. However, there are allowed exceptions that don't ultimately make this a universal mandate. Therefore, depending on the provider, service might go down immediately, in 72 hours, or whenever their backup power runs out. It is cost prohibitive and logistically unfeasible for most of these providers to build power redundancy across their infrastructure when it was not originally designed for that need.

Preparation Strategies for Local Governments

To strengthen local emergency public communications capabilities, rural county leaders should implement the following strategies.

1. **Perform pre-disaster community communication and awareness education.** Promote a personal responsibility and neighbor-help-neighbor culture across your county before an emergency occurs. Use proven outreach tools like "Ready, Set, Go" and "Find Your Five" from the International Association of Fire Chiefs. Residents should be prepared with knowledge, backup power, a battery powered radio, a go kit, and a network of people to stay informed from.
2. **Develop an emergency public communications strategy.** Have a plan in place before your next emergency, which establishes a public communications strategy utilizing a wide variety of communication methods and channels. When a disaster strikes, you never know who will be available and what communication systems will still be functioning. Communication methods can include websites, text messaging, social media, roadside message boards, emergency alert systems, FEMA's Integrated Public Alert and Warning System (IPAWS) and Wireless Emergency Alerts (WEA) system, first responder high-low sirens for evacuation warnings, local ham radio club, local 211 provider, and local media companies. Ensure that your plan incorporates multiple methods and does not rely solely on telephone and internet-based methods. To implement this plan, you will need to have a trained and deep public information officer (PIO) team and, during an emergency, will need to set up a joint information center (JIC) where PIO's of responding agencies can coordinate together without needing to rely on phone and/or internet services.
3. **Know when and where your local telecommunication infrastructure is disabled.** Due to recent wildfire and Public Safety Power Shutoff (PSPS) events, California implemented SB 670 which led to Community Isolation Outage Thresholds being set and requiring telecommunication service outage reporting to the California Governor's Office of Emergency Services (Cal OES). All county emergency services staff have access to a map portal to view current local outage data that meet the thresholds. Build contacts now with local telecommunication company field staff so you know who to call during an emergency to report critical outages and gain better situational awareness.
4. **Partner with local news media (radio/TV/print/web) and help them with their business resiliency.** Many residents rely on local radio stations and websites to get their news during emergencies. These companies need to be prepared for disaster resiliency and put in place the generators, equipment redundancy, and plans so they can be "on air" when the community needs them most. They are key partners to our PIO team, and they struggle with this challenge like other rural local businesses. Counties can be proactive and work with local radio stations and

websites to ensure their viability, assisting with emergency service grants and technical assistance where appropriate.

5. **Register key county staff in the federal Government Emergency Telecommunications Service (GETS) and Wireless Priority Service (WPS) programs.** Telecommunication infrastructure can easily be overburdened during a crisis, especially if it is diminished. These programs ensure emergency service staff and responders get priority phone service over other non-emergency users during a disaster.
6. **Form and/or work with Community/Voluntary Organizations Active in Disasters (COAD/VOAD).** COAD/VOAD is a collaborative network that builds the capacity and coordination of local organizations to both prepare for and respond to disasters in a region. They can be leveraged to assist with public communications before, during, and after a disaster through their individual member networks acting like a communitywide phone/communication tree.
7. **Evaluate alternate and new communication technologies.** Resilient communication systems are key during an emergency and having multiple communication methods that utilize different infrastructure is helpful. New resident alerting systems can now use FM radio frequencies, working in areas where a cell tower cannot reach or may be down due to an outage. Another option is to leverage low “bandwidth” texting that in many cases still works when broader cellphone system voice calls and internet service do not.
8. **Establish local electric generation capability and microgrids.** Microgrids enable a smaller sub-area of a community to stay electrified when the larger area is turned off due to a PSPS or other disaster impacts. This is useful for downtown areas, especially if some of the utilities are underground. Microgrids combined with local electric generation capability provide additional resiliency. This is significant, as the electric transmission lines that feed your community may be damaged or turned off many miles away from your community due to other wildfires/PSPS/storm events. Keeping important commercial areas electrified during events can ensure that cell towers remain functioning and that other key safety net businesses like radio stations, gas stations, restaurants, and grocery stores, are operating.
9. **Work with telecommunication companies to have redundant routes.** Many rural telecommunication systems have a single route or “fiber optic cable” that comes into the community from outside. When that feed gets cut, all communication services are impacted. Work with companies to implement multiple routes, or main feeds into your community. This provides redundancy so that when one feed fails, telecommunication and Internet services continue as normal. Utilize services from multiple telecommunication companies for county communication systems in order to provide additional redundancy in case one provider fails.

In my role also as Nevada County’s Director of Emergency Services, we have seen more local emergency events in the past five years than the previous 15 years combined. This trend is sure to continue into the foreseeable future, and it is imperative to prepare for local emergency public communication needs in advance.

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Steve Monaghan is Nevada County's Chief Information Officer (CIO) responsible for planning, organizing, and directing the county's overall information technology efforts and investments. His efforts have resulted in significant recognitions and awards for his leadership in the IT industry and, during his tenure, Nevada County has received numerous awards for technology leadership and excellence. In addition, Steve created the CSAC/CCISDA County Technology Executive Credential program, serves on the Advisory Board for the California State University, Chico Cybersecurity for Executives program, and serves as a member of RCRC's Broadband Advisory Committee. Find additional information about Steve here and connect with him directly at steve.monaghan@co.nevada.ca.us