



October 8, 2024

Restoration of Cell Phone Services: Hurricane Helene

On September 26, 2024, Hurricane Helene made landfall near Perry, Florida. The hurricane caused flooding and damage to personal property and critical infrastructure, including roads, power, and communication networks. The storm's damage spread across parts of Florida, Alabama, Georgia, the Carolinas, Tennessee, and Virginia. According to data reported to the Federal Communications Commission (FCC) by wireless service providers, while cell sites had been repaired in many counties a week after the storm (October 3, 2024), some counties' cell site outages persisted. Congress may examine public-private preparedness for communication outages from Hurricane Helene and consider how to prepare for and respond to future disasters and restore cell service in hard-hit regions.

Some state and local officials reported coordination with wireless service providers on preparation and restoration efforts; others, including a mayor and residents in North Carolina, reportedly faulted public-private preparation efforts. Wireless providers reported on preparation and restoration efforts but noted challenges in some areas. Challenges derived from damaged critical infrastructure (e.g., roads) inhibiting access to cell sites, damage to cell towers and wire lines (e.g., fiber) that connect cell sites to a provider's network, and lack of power to cell sites hindering permanent restoration.

Federal Role in Restoring Cell Services

Generally, wireless networks are privately owned. Network owners take responsibility for repairing their networks and restoring services for their customers (e.g., government agencies, businesses, individuals) after disasters.

When authorized, the Federal Emergency Management Agency (FEMA) may deploy communication assets to support federal, state, local, tribal, and territorial response (e.g., deploying mobile assets for emergency managers). FEMA also coordinates with the private sector to aid in the restoration of private networks (e.g., coordinating debris removal to enable access to cell sites, sharing information on power restoration).

The FCC monitors the status of commercial networks and provides government officials and the public with information on the status of communications, outages, and restoration efforts. To do this, the FCC requires providers to report on the status of their networks during disasters.

Disaster Information Reporting System

In anticipation of a disaster or after an unexpected disaster, the FCC may activate the Disaster Information Reporting System (DIRS). DIRS is a web-based system that providers use to report network status during disasters. The FCC announces DIRS activations through public notices and emails to providers; the notice lists the counties covered and reporting requirements. The FCC requires providers to submit daily reports on their network status for listed counties. The FCC gives network status data to federal

emergency management officials. It also allows designated state agencies to share the information with first responders, emergency communications centers, and other government agencies with a public safety role. The FCC publishes aggregated outage data (e.g., communications status reports on the FCC's Hurricane Helene website).

Mandatory Disaster Response Initiative

The FCC can activate the Mandatory Disaster Response Initiative (MDRI) for facilities-based mobile wireless providers operating in a certain geographic area in the aftermath of a disaster. In June 2022, the FCC adopted a Report and Order codifying an existing voluntary agreement between a limited group of large wireless service providers agreeing to coordinate during disasters to enable access to communications (called the Wireless Network Resiliency Cooperative Framework). The rules require providers to improve coordination during emergencies or disasters by

- providing for reasonable roaming when feasible,
- establishing mutual aid agreements with other wireless service providers,
- enhancing municipal preparedness and restoration,
- increasing consumer readiness and preparation, and
- improving public awareness and stakeholder communications on service and restoration status.

FCC rules require providers to perform these tasks when MDRI is activated. The FCC may activate MDRI when

- an authorized entity (e.g., FEMA) activates Emergency Support Function 2 (ESF-2)—a team of federal agencies designated to support restoration of communications;
- the FCC activates DIRS; or
- the FCC's Public Safety and Homeland Security Bureau Chief releases a public notice in response to a state's request to activate MDRI, where that state has activated its emergency operations center or mutual aid agreements or has proclaimed a state of emergency.

Hurricane Helene Response

Private-sector wireless service providers and the U.S. government, including FEMA and the FCC, took action before, during, and after Hurricane Helene to protect and restore communications infrastructure.

Before Hurricane Helene Made Landfall

Days before landfall, the U.S. government and private telecommunication providers began preparing for Hurricane Helene's arrival in the continental United States. On September 24, 2024, FEMA announced that it was actively preparing and pre-staging resources to support state and local government response, including Mobile Emergency

Response Support (MERS), which includes mobile emergency communications facilities, and incident teams.

On September 25, 2024, the FCC announced that at the request of the State of Florida, and in coordination with the Cybersecurity and Infrastructure Security Agency (CISA) and FEMA—the ESF-2 coordinators—it was activating DIRS and MDRI ahead of the hurricane for select counties in Florida, Georgia, North Carolina, and South Carolina. For DIRS, the FCC required providers to report outages to the FCC in listed counties. With MDRI activation, the FCC required wireless providers operating in those counties to enable roaming across networks, coordinate with each other and with state and local agencies on preparation and restoration efforts, and keep stakeholders and consumers informed of status and restoration efforts.

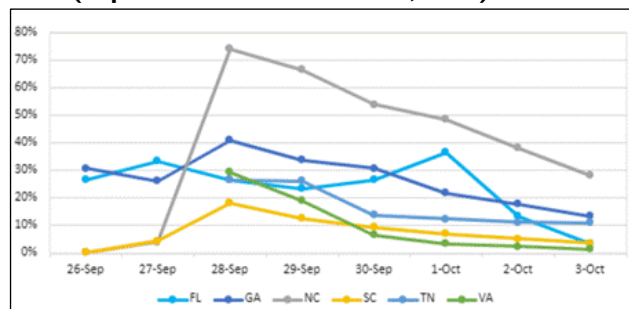
Private telecommunication providers (e.g., AT&T, Verizon, and T-Mobile) reported taking various actions to prepare for the hurricane. They fortified their networks, refueling generators and providing backup batteries at cell sites and switching centers. They reported prepositioning mobile assets (e.g., satellite cell on light trucks, satellite cell on wheels) and deploying teams to the region. Providers indicated that they were coordinating with state and local governments and with their public safety customers and were ready to receive requests for assistance. The providers also were preparing and pre-staging equipment for deployment, and providers offered preparedness guidance to consumers.

The FCC reminded public safety and national security and emergency preparedness personnel (NSEP) enrolled in Priority Telecommunication Services about the services available to enrollees. The program, managed by CISA, prioritizes (1) public safety communications on wireline and wireless networks and (2) restoration and provisioning of communication assets for NSEP. On September 26, 2024, before the hurricane made landfall, the FCC posted its first communications status report, listing counties covered by DIRS, and began tracking outages.

During and After Hurricane Helene

On September 27, 2024, the FCC expanded the activation area to include additional counties in South Carolina, Tennessee, and Virginia. It also began issuing daily communications status reports with cell site outages in each affected state and county and the percentage of cell sites down in each state during the DIRS activation period (Figure 1).

Figure 1. Percentage of Cell Sites Out of Service, by State (September 27 to October 3, 2024)



Source: FCC, “Communications Status Report for Areas Impacted by Hurricane Helene,” October 3, 2024.

Notes: The figure shows cell site outages reported to the FCC by wireless service providers operating in certain counties affected by the storm. The number of sites out in a specific area does not necessarily correspond to the availability of wireless service to consumers in that area, due to overlapping cell sites that may provide coverage and temporary solutions deployed by providers to enable connectivity.

Wireless service providers reported network outages to the FCC and on their websites; responded to public safety agency requests; and in some areas, enabled roaming.

On September 30, 2024, the FCC announced deactivation of DIRS and MDRI for certain counties but retained DIRS reporting and MDRI coordination in others, as outages and restoration efforts continued. For example, in North Carolina, FEMA deployed Starlink satellite systems in each county emergency operations center. The FCC waived eligibility requirements under its Lifeline program, to offer discounted phones and broadband services to affected individuals, and continued to report on outages.

While the FCC does not include information on specific vendors, an October 2, 2024, media report stated that Verizon and AT&T reported that 60% of their sites impacted by the storm had been restored and that they were continuing to deploy temporary cell sites to enable communications. T-Mobile reported that it had restored most sites in West Virginia and Georgia, but in the Carolinas, where access remained a challenge, restoration was ongoing. Where power was out, providers said they were continuing to supply batteries and fuel to generators. Where fiber lines were damaged, providers reported deploying mobile assets (satellite cell on wheels) and microwave solutions to temporarily restore networks. AT&T, Verizon, and T-Mobile also offered charging stations and Wi-Fi in some areas. On October 6, 2024, the FCC granted SpaceX and T-Mobile special temporary authority for Starlink direct-to-cell satellite services in certain areas to support emergency alerting.

Issues for Congress

On January 26, 2024, the FCC adopted rules requiring facilities-based mobile wireless service providers to implement the MDRI requirements by May 1, 2024. Congress may wish to explore potential lessons learned from implementation of the rule during Hurricane Helene, especially as implementing the rule relates to preparedness, coordination, and roaming. In the past, Members have been interested in expanding outage reporting to include broadband outages (H.R. 8178, 117th Congress), and the FCC has sought comment on the issue. Congress may consider changes to outage reporting. Previous Congresses also have considered legislation to improve resiliency and redundancy of cell networks by mandating or subsidizing backup power to each cell site (S. 1506, 117th Congress). While such investments could strengthen resiliency, provision of backup power sources could increase costs for providers and consumers. Finally, Congress could consider advantages and disadvantages of expanded use of and federal support for advanced technologies, including drones and satellite technologies in rural regions to support communications.

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