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*FCC Response to Hurricanes Harvey, Irma, and Maria*

Thank you, Chief Fowlkes. Good morning, Chairman Pai and Commissioners.

Hurricanes Harvey, Irma, and Maria marked the first time in U.S. history that three storms of Category 4 or stronger have hit the U.S. in the same hurricane season. The impact of these events devastated the hardest hit areas of Texas, Florida, Puerto Rico, and the U.S. Virgin Islands. Today's report will provide an overview of the actions the Commission took prior to and during the hurricanes, a survey of the hurricanes' impact on communications, and proposed next steps.

### **Emergency Preparation**

The Commission began preparing for each hurricane days before landfall. We coordinated closely with the Federal Emergency Management Agency and other Federal government partners to identify necessary resources during and after the storms. The Public Safety and Homeland Security Bureau also worked closely with the Enforcement Bureau and the Office of the Managing Director on identifying necessary resources for "on the ground" support and equipment. Commission staff reached out to public safety and service providers to let them know we were here if they needed assistance. We also supplied service providers with letters from the Department of Homeland Security to facilitate access to fuel and to gain access to their sites following the event. The Bureau, along with other Bureaus and Offices in the Commission, issued Public Notices announcing procedures for requesting emergency regulatory relief and the 24/7 availability of the FCC Operations Center, and posted consumer tips for dealing with emergencies. The Commission also created web pages devoted to each hurricane to facilitate one-stop access to situational awareness reports, Public Notices, and other resources.

As the storms made landfall, Commission staff gathered, analyzed, and shared information on the impacts to communications systems – especially those that support 911 communications and

deliver emergency alerts and other information to the public. For example, using long distance radio frequency monitoring equipment, we assessed impacts to broadcasters and first responder land mobile radio systems. And, at FEMA's request, we deployed teams to coordinate communications response needs. Driving through the hardest-hit areas shortly after landfall to gather radio-frequency survey data, these dedicated teams witnessed first-hand the devastation of eyewall landfall and the unprecedented flooding in Corpus Christi, Houston, and Beaumont, TX. This team of Public Safety and Enforcement Bureau personnel completed 38 missions at sites across Florida, Texas, Georgia, and Louisiana providing what was often the first or only confirmation that first responder land mobile radio was operational and in use or that broadcasters were still on the air providing public information. This week, at FEMA's request, we will be deploying personnel to Puerto Rico and the U.S. Virgin Islands to coordinate communications response needs, and to conduct radio frequency assessments.

The Commission also activated its Disaster Information Reporting System for each of the hurricanes. This is a voluntary web-based system that communications companies may use to report communications infrastructure status and to request assistance. The Commission analyzes this information and produces reports that are shared with FEMA and other Federal agencies with communications-related emergency support responsibilities. These agencies used the reports to understand the status of communications infrastructure in the impacted areas and to set restoration priorities. This information also formed the basis of the Commission's daily public reports on communications outages, in keeping with our agreement with the national wireless carriers in the Wireless Network Resiliency Cooperative Framework.

In addition, the Commission took several actions to provide regulatory relief and other assistance during these events. For example, Commission staff processed 48 requests for assistance from first responders and service providers. These requests included access to generator fuel and post-disaster access to facilities. The Commission also granted 91 requests for Special Temporary Authority. These STAs included granting authority for out-of-area first responders to use land mobile radios licensed in their home areas during response operations and for wireless providers to establish new microwave links to restore cellular communications. The Commission also granted temporary waiver of Lifeline requirements and waived number portability requirements to facilitate restoration of telephone services.

Since the onset of Maria, the Commission, including the Chairman, made direct contact with a number of providers and other government agencies to clarify prioritization, provide copies of FEMA notices and Environmental Protection Agency relief policies, and to improve coordination and collaboration.

## **Impact to Communications Infrastructure**

### *Wireless*

At the worst of Hurricane Harvey's communications impact, 4.7 percent of cell sites were out across the affected area, although three Texas counties had outages greater than 80 percent. Within seven days, total cell site outages declined to two percent area-wide, and no counties had more than a third of their cell sites out. Eleven days after first landfall, 1.73 percent of area cell sites remained out of service, with only two individual counties still above 10 percent.

At Hurricane Irma's peak, 27.4 percent of cell sites were out across Florida, although six counties had more than 50 percent of cell sites out and two counties more than 80 percent out. Within five days, only three counties —hard-hit Collier, Highlands and Monroe— were still above ten percent out (22, 19, and 12 percent respectively). Eight days after landfall in Florida, statewide cell site outages averaged three percent.

In Puerto Rico, 55.8 percent of cell sites were out across the 41 counties we monitored the day after Irma's landfall. On the next day, in coordination with DHS, we expanded reporting island-wide, and 37.6 percent of cell sites were reported out. Over the eight days following landfall, cell sites were restored at a steady rate, and by day eight cell site outages dropped to 6.3 percent.

Prior to Maria's landfall, communications impact was greatest in the U.S. Virgin Islands, with cell site outages remaining above 50 percent between Hurricane Irma and Hurricane Maria. As of September 18, St. John remained at 90 percent outages, St. Thomas at 65 percent, and St. Croix at 31 percent.

Hurricane Maria has brought massive damage to both Puerto Rico and the U.S. Virgin Islands. As of September 25, in Puerto Rico, 91.2 percent of cell sites were out of service. Thirty-four of 78 counties had 100 percent of their cell sites out of service, and the remainder had cell site outages exceeding 75 percent. Due to the island-wide power outages, some large

communications providers were unable to provide status information, either because their assessments were delayed, or because of their limited ability to communicate over the Internet.

In the U.S. Virgin Islands, as of September 25, 60.4 percent of cell sites were out of service. This included 76.2 percent of cell sites being out of service in St. Croix.

### *911 Call Centers*

Although most 911 call centers remained operational throughout all three hurricanes, some were rendered non-operational or suffered significant damage. In addition, 911 call centers experienced extremely high call volumes that strained and in some instances exceeded their call-taking capacity. In Harvey, a small number of 911 call centers were non-operational for some period, although most 911 calls were rerouted to other centers. In Irma, 14 Florida call centers were non-operational and unable to reroute calls during the height of the storm. In Maria, one 911 call center was reported out of service in the U.S. Virgin Islands.

### *Cable/Wireline*

Based on information received from wireline and cable providers, at least 270,000 subscribers were without service, primarily in Texas as a result of Harvey. As of September 15 nearly 1.7 million subscribers in Florida were still without service as a result of Irma, and on September 18, a week after landfall that number dropped to 893,409.<sup>1</sup> Most of these outages were due to lack of power in the affected communities. With respect to Maria, the cable and wireline networks in Puerto Rico and the U.S. Virgin Islands experienced widespread outages.

### *Broadcasters*

We used our radio-frequency monitoring capabilities to conduct thousands of status checks of AM, FM, and TV broadcasters in the impacted areas. For broadcasters, as a result of Harvey, at least two television stations and nine radio stations reported that they were out of service. As a result of Irma, at least 10 television stations and 51 radio stations reported that they were out of service. In the aftermath of Maria, we received informal reports that 22 radio stations in Puerto Rico were operational and that two television stations were on the air.

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<sup>1</sup> Figure corrected from earlier-released version.

## **Next Steps**

To date, our effort has been focused on the Commission's response activities. In the weeks and months to come, we will be working closely with our federal partners on recovery and restoration. In particular, the path ahead in Puerto Rico and the U.S. Virgin Islands will be challenging. But as we move ahead on those fronts, we must also consider what lessons can be learned from these events and applied to future emergencies. To kick off this effort, the Public Safety and Homeland Security Bureau is planning to issue a Public Notice seeking input from all stakeholders –including public safety, industry, consumer groups, and government– on what worked and areas for improving communications continuity and restoration during disasters. The Bureau also is planning to host a workshop to foster a dialogue on these issues among stakeholders and is considering what other steps can be taken to prepare for the future storms. In closing, we will continue our work to support reliable and resilient communications during times of emergency, when Americans need communications most.