

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

Public Safety and Homeland Security Bureau	)	PS Docket No. 17-344
Seeks Comment on Response Efforts	)	
Undertaken During 2017 Hurricane Season	)	
	)	

**REPLY COMMENTS OF AT&T**

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AT&T Services, Inc., on behalf of its affiliates (collectively, “AT&T”), submits these reply comments in response to the Federal Communications Commission’s (“Commission” or “FCC”) *Public Notice* seeking comment on the resiliency of the communications infrastructure, the effectiveness of emergency communications, and government and industry responses to the 2017 hurricane season.<sup>1</sup>

**I. INTRODUCTION AND SUMMARY**

The 2017 hurricane season was unprecedented, deadly, and extremely destructive. The season featured 17 named storms and ranked alongside 1936 as the fifth-most active hurricane season since records began in 1851. It was by far the costliest season on record, with a preliminary total of over \$292.23 billion in damages, which is nearly two times the cost of 2005’s total damages, essentially all of which was due to three of the season’s major hurricanes: Harvey, Irma, and Maria. These were devastating Category 4 storms resulting in damage due to wind, storm surge, sustained rainfall, and severe flooding. Despite the challenges of the 2017 hurricane season, AT&T worked tirelessly to respond to and recover from this series of impactful storms as rapidly as possible.

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<sup>1</sup> Public Safety and Homeland Security Bureau Seeks Comment on Response Efforts Undertaken During 2017 Hurricane Season, Public Notice, PS Docket No. 17-344, DA 17-1180 (2017) (“Public Notice”).

Although all the storms were highly destructive, each storm presented unique challenges due to the characteristics of the weather event and the location affected. Accordingly, the response to each of these events was necessarily driven by the specific attributes of the storm and the post-disaster environment. No two disasters are exactly alike—and no two recovery efforts will be exactly alike. The record in this proceeding shows that wireless carriers must continue to have the flexibility to adapt unique solutions to the different and frequently changing circumstances presented by individual weather events.

Once recovery is complete, every disaster presents an opportunity to reflect and identify lessons learned. Following Hurricane Katrina and Superstorm Sandy, the wireless industry identified areas for improvement and worked to develop and implement best practices to prepare for future storms. The 2017 hurricane season recovery effort and the successful restoration of mobile wireless networks was in many cases guided by such lessons. The time is now ripe for industry and government stakeholders to carefully analyze what went right as well as what went wrong with respect to restoration of telecommunications services following the 2017 hurricanes. This analysis will leave the wireless industry better equipped to respond to the next disaster, wherever it may strike.

## **II. AN INDUSTRY-LEADING NETWORK DISASTER RECOVERY PROGRAM GUIDED AT&T'S ROBUST AND EXPEDITIOUS RESPONSE TO A RECORD STORM SEASON.**

AT&T has made disaster recovery a priority ever since the formation of its Network Disaster Recovery (“NDR”) program in 1991, and AT&T has been an industry leader in planning for and recovering from catastrophic events. The NDR program establishes a plan for action both before disaster strikes, by setting the stage for rapid response, and after disaster hits, by expeditiously restoring networks. Implementation of AT&T's NDR program left AT&T well prepared for the challenges posed by the 2017 hurricane season.

As prescribed by the various hurricane preparation checklists maintained as part of the NDR program, AT&T engaged in preparedness efforts at the start of the hurricane season, such as:

- Conducting pre-planning exercises such as mock drills, demonstrations, and process development to ensure that all key players knew their roles;
- Conducting preventative maintenance on fixed and portable generators;
- Leading each Emergency Operation Center in a practice session and developing process checklists;
- Ensuring tower resilience by completing inspections per the Telecommunications Industry Association Standards, Site Risk Assessments, and conducting structural analyses; and
- Optimizing design and placement of LTE equipment to limit the risk of damage and fortifying shelters where needed.

Prior to hurricane landfall, AT&T undertook activities including:

- Identifying the impact target area and predicting locations that would be in the path of the storm;
- Ensuring that fixed generators, back-up generators, and batteries were functional and ready for use;
- Reviewing and securing generator staging yards;
- Staging generator assets strategically in and around likely impacted areas;
- Pre-staging and distributing mobile disaster response equipment including AT&T's specially designed tractor-trailers known as Emergency Communications Vehicles, which act as virtual network offices and mobile command centers;
- Staging additional logistical support equipment such as portable generators, industrial chillers, dewatering pumps, diesel, gasoline, compressed natural gas fuel tanker capability, and mobile local fuel storage cells; and
- Installing new equipment such as in-building network systems at critical sites like hospitals and emergency centers.

After the storms, AT&T worked to address any network failures and restore service as quickly as possible. In AT&T's experience, the highest percentage of cell site outages occur

approximately 12 hours after the hurricane's eye passes a location. There are three main causes of communications outage due to hurricanes: (1) loss of commercial power; (2) loss of backhaul transport communications; and (3) total tower loss. AT&T addresses loss of commercial power with a combination of fixed and portable generators.<sup>2</sup> Loss of backhaul can arise from a disruption to either the fiber optic or microwave connection to the network. To address a fiber optic-related failure, AT&T may repair (splice) the cable or need to install a new span of cable that may involve trenching or reattaching to above ground facilities (aerial cables). To address a microwave failure, AT&T assesses the damage, which may involve realigning the microwave dish or replacing equipment to restore the connection. When total tower loss occurs, AT&T responds by deploying a cell on wheels ("COW") or cell on light trucks ("COLT") to temporarily restore service until a permanent repair can be completed. In situations where both equipment and backhaul are non-functional, AT&T deploys self-contained mobile cell sites (*e.g.*, COWs, COLTs, and satellite COLTs (which employ a satellite link to provide voice and data service within 30 minutes of arriving on site)). In all cases, road access to sites is necessary for technicians to expedite restoration of service—and lack of access to sites can delay it.

Consistent with its NDR program, in each of the 2017 storms, AT&T implemented plans to provide the best and most efficient service restoration for its service areas. The unique characteristics of Hurricanes Harvey, Irma, and Maria illustrated how response efforts varied depending on the situation at hand. Despite the extreme weather conditions, AT&T's networks in Texas, Louisiana, and Florida demonstrated remarkable resiliency, in part because of the presence of reliable commercial power and resilient backhaul networks. Restoration was more

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<sup>2</sup> Fixed generators provide coverage in the immediate aftermath of a storm, but without cleared debris, ready access to the site, and availability to a continuous fuel supply, they will be of limited utility.

challenging in the Virgin Islands and Puerto Rico due to the severity of the storms, the unprecedented back-to-back nature of the storms, infrastructure obstacles (including severe damage to sea- and airports, and the power grid), and difficulties due to geography and topography.

**Hurricane Harvey** was primarily a flood event<sup>3</sup> and was a particular challenge due to the duration of the storm. The communications recovery story is all about fiber. In Houston, a higher penetration of fiber feeder to cell sites increased both the reliability and the resiliency of the wireless transport architecture. And because the electric grid also fared relatively well in the flooding, the communications outages were more limited. Throughout Hurricane Harvey, no more than 3% of AT&T cell sites were out of service. In Louisiana, only six cell sites were reported out of service in the affected area due to Hurricane Harvey,<sup>4</sup> despite the storm dropping over 17 inches of rain near Lake Charles, Louisiana.<sup>5</sup> During and after Hurricane Harvey, many wireless customers were able to use their cell phones to call for rescue from the flooding. Other members of the wireless industry also reported that their products and services performed exceptionally well under Hurricane Harvey's difficult conditions.<sup>6</sup>

**Hurricane Irma** resulted in statewide commercial power failures covering most of Florida. In some parts of the Florida Keys, which were hardest hit by Hurricane Irma, whole

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<sup>3</sup> See Comments of City of Houston, PS Docket No. 17-344 at 1 (filed Jan. 22, 2018); Comments of Verizon, PS Docket No. 17-344 at 2 ("Verizon Comments").

<sup>4</sup> FCC, Communications Status Report for Areas Impacted by Post-Tropical Cyclone Harvey (Sept. 2, 2017) available at [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-346477A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-346477A1.pdf).

<sup>5</sup> Historic Hurricane Harvey's Recap, <https://weather.com/storms/hurricane/news/tropical-storm-harvey-forecast-texas-louisiana-arkansas> (Sept. 2, 2017).

<sup>6</sup> See, e.g. Comments of Motorola Solutions, Inc., PS Docket No. 17-344 at 4 (filed Jan. 22, 2018) ("Motorola Solutions Comments"); Comments of CTIA, PS Docket No. 17-344 at 5 (filed Jan. 22, 2018) ("CTIA Comments").

neighborhoods were destroyed, including infrastructure such as utility poles. However, the outages of the Florida electric grid—which affected a majority of the state’s more than 20 million residents—were restored in less than a week. Because the poles, wires, and trees were cleaned up quickly, AT&T was able to keep most of its cell sites in service. For example, AT&T’s teams can more quickly and effectively reach backup power generators for refueling if traffic lights are functioning, and dangling power lines and road debris have been cleared. In this case, after one week, only a few hundred cell sites still remained on generator power.<sup>7</sup> Preparation was also key to keeping cell sites up despite the commercial power outages. AT&T staged over 2,400 portable generators and used 390,000 gallons of fuel for its generators. Further, the placement of COLTs and satellite COLTs helped restore wireless communications promptly in the hardest hit areas of the Florida Keys.<sup>8</sup>

**Hurricane Maria** was uniquely powerful and devastating, and AT&T’s recovery efforts in Puerto Rico and the Virgin Islands—like other carriers’—faced enormous challenges. Extreme weather conditions resulted in the near total destruction of Puerto Rico’s electric grid, and severely impacted communications and transportation channels. The electric grid was outdated and extremely susceptible to hurricane damage, resulting in widespread and lengthy outages.<sup>9</sup> The majority of the electric grid was composed of above-ground electric utility poles, which were brought down by the sustained high winds or fallen trees. As a result, the

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<sup>7</sup> A generator requires an oil change after 200 run hours or eight continuous days of operation so commercial power outages of less than eight days have a significantly reduced impact on disaster recovery resources.

<sup>8</sup> See, e.g., Comments of Viya, PS Docket No. 17-344 at 2-6 (filed Jan. 22, 2018) (“Viya Comments”).

<sup>9</sup> See Comments of T-Mobile, PS Docket No. 17-344 at 9 (filed Jan. 22, 2018) (“T-Mobile Comments”).



communications infrastructure was also severely affected by the storm because the majority of AT&T's fiber was riding on the electrical utility poles.<sup>10</sup> In many areas, the fiber backhaul was simply gone. Low hanging and fallen utility lines were easy targets for opportunists looking to steal aluminum or copper. Even where AT&T's copper lines had been replaced with fiber, its fiber cables were frequently overlashed to copper cables and were cut as a result of theft or clearing.

To address these issues, AT&T and other carriers deployed hundreds of COWs, COLTs, and portable generators,<sup>11</sup> and the most extensive generator refueling program in AT&T's history. In some cases, AT&T had to remove fallen vegetation to bring refueling trucks into remote cell sites with limited road access. Maintaining hundreds of generators running for many months required frequent oil changes and ongoing refueling. This operation required an extensive effort to get fuel to the islands, through damaged ports and staging yards, and out to often remote locations with limited road access. The effort to restore and maintain communications services on the islands was unprecedented due to the massive damage to electric and communications infrastructure, and the inability to quickly repair infrastructure—and this effort is ongoing in some areas today.

The islands' geographic isolation and mountainous terrain contributed to the restoration challenges after the storm. Unlike mainland weather events, in advance of Hurricane Irma and Maria, carriers could not pre-stage telecommunications recovery equipment because of the likelihood that it would be lost or destroyed, as the islands in their entirety were expected to be in the hurricane impact zones. Following the storm, AT&T and other carriers encountered

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<sup>10</sup> Even buried fiber can be damaged by the roots of nearby trees as they fall during and in the aftermath of the storm.

<sup>11</sup> CTIA Comments at 6.

additional logistical difficulties. AT&T's transportation and use of network recovery assets in Puerto Rico were delayed at many stages of the process, although AT&T was ultimately able to transport satellite COLTs on Federal Emergency Management Agency ("FEMA") barges as quickly as possible. AT&T undertook unprecedented cargo airlifts of trucks, tools, equipment, and personnel to complement the sea lift and on-island resources. In the days following the storms, recovery efforts were hampered by extended closure of the airport and reduced operation of the sea port, stranding resources at the entry points. Carriers also faced difficulties with transportation and delivery of assets once on the island, and the protection of these assets once placed at company locations.<sup>12</sup> Transporting equipment and accessing sites to make repairs were complicated due to flooding, subsequent road washouts, and downed trees.<sup>13</sup>

Despite these challenges, significant progress to restore service has been made, even as the electrical grid remains devastated, and the situation continues to improve. By early November, 74% of Puerto Ricans had wireless coverage, despite that less than 30% had access to commercial power at that time. In the U.S. Virgin Islands, approximately 93% of the population had wireless coverage by early November. Restoration and recovery work, by a number of industries, continues in these hard-hit locations.

### **III. AS COMMENTERS NOTED, EFFECTIVE DISASTER RECOVERY REQUIRES A FLEXIBLE RESPONSE, TAILORED TO THE INDIVIDUAL EVENTS AND COMMUNITIES AFFECTED.**

During and immediately after the catastrophic 2017 hurricanes, wireless providers including AT&T put into operation the key elements of the Wireless Network Resiliency Cooperative Framework ("Framework"). This voluntary initiative, which enhanced service

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<sup>12</sup> See also T-Mobile Comments at 10-11.

<sup>13</sup> See Verizon Comments at 16.

continuity and facilitated information sharing, was integral to the wireless industry's disaster response and service restoration efforts. The effectiveness of the Framework's approach can be attributed to its inherent flexibility. The Framework gave providers the ability to adapt to diverse and changing circumstances on the ground and to develop innovative responses as events unfolded.

The Framework proved extremely effective in the 2017 hurricane season by facilitating various collaborative efforts across the wireless industry. The Framework provides for reasonable roaming among wireless providers under disaster arrangements when technically feasible, and gives providers the freedom to develop solutions that suit the circumstances. Following the 2017 hurricanes, wireless roaming arrangements helped wireless carriers provide service to customers.<sup>14</sup> Specifically, AT&T allowed T-Mobile, Verizon, Sprint, Claro, and other small carriers to roam on its network. In Puerto Rico and the U.S. Virgin Islands, the major wireless carriers with facilities in Puerto Rico and the U.S. Virgin Islands opened up roaming to provide as many people as possible—regardless of their underlying carrier—with the coverage available on the islands.

In addition, the Framework enabled carriers to engage in innovative solutions to restore service and connect citizens. For example, commenters noted that drones were an integral part of the relief effort.<sup>15</sup> AT&T used “flying cells on wings” to temporarily provide data, voice and

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<sup>14</sup> See CTIA Comments at 11-12; Viya Comments at 11; Verizon Comments at 9-10.

<sup>15</sup> See Comments of Comcast Corporation, PS Docket No. 17-344 at 6 (filed Jan. 22, 2018) (“Comcast used drones in Florida to fly over areas that remained inaccessible to provide HD video of affected facilities.”) (“Comcast Comments”); Comments of the Wireless Infrastructure Association, PS Docket No. 17-344 at 3 (filed Jan. 22, 2018); Verizon Comments at 5.

text services in Puerto Rico in the aftermath of Hurricane Maria.<sup>16</sup> AT&T and T-Mobile partnered with Alphabet's Project Loon to provide LTE-based services to tens of thousands of people in Puerto Rico using a network of balloons.<sup>17</sup> And AT&T and Verizon both deployed drones to check towers for damage in areas affected by Hurricane Harvey.<sup>18</sup> The flexibility afforded by the Framework gave carriers the ability to experiment with these new technologies to the benefit of their customers.

The Framework also gave the wireless industry the flexibility to engage in aid efforts beyond cell service restoration.<sup>19</sup> For example, AT&T allowed customers stateside to register the cell phone number of a family member or friend located in Puerto Rico. When the Puerto Rico-based customer's cell phone connected to the network in Puerto Rico, the customer was notified that their family or friends stateside had been trying to contact them. For its customers in Puerto Rico and the U.S. Virgin Islands, AT&T waived additional fees for unlimited talk, text, and data and offered late payment forgiveness. Wireless carriers also provided aid and resources to the local communities affected by these storms. AT&T worked closely with government organizations, humanitarian groups, other telecommunications companies, and the military to

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<sup>16</sup> Rob LeFebvre, *AT&T's 'Flying Cow' Drone Provides Cell Service to Puerto Rico*, Engadget, Nov. 6, 2017, <https://www.engadget.com/2017/11/06/att-flying-cow-drone-cell-service-puerto-rico/>.

<sup>17</sup> Monica Allevan, *T-Mobile Joins AT&T in Collaborating with Project Loon in Puerto Rico*, FierceWireless, Oct. 28, 2017, <https://www.fiercewireless.com/wireless/t-mobile-joins-at-t-collaborating-project-loon-puerto-rico>.

<sup>18</sup> Monica Allevan, *Verizon, AT&T Deploy Drones to Check Towers in Areas Hit by Harvey*, FierceWireless, Sept. 5, 2017, <https://www.fiercewireless.com/wireless/verizon-at-t-deploy-drones-to-check-towers-areas-hit-by-harvey>.

<sup>19</sup> See, e.g. Comments of Charter Communications, PS Docket No. 17-344 at 5-6 (filed Jan. 22, 2018) (noting company has extended credits to affected customers); Comcast Comments at 8-9 (discussing company's giving of shelter, clothing, and assistance to non-profit organizations involved in community response efforts); CTIA Comments at 14-16 (noting carriers offered free services to affected customers, assisted with relief efforts, and made charitable contributions).

coordinate recovery efforts. AT&T facilitated “Text to Give” campaigns, allowing customers to text financial contributions to the American Red Cross to help those affected by Hurricane Maria and Harvey. In addition, AT&T donated \$350,000 in aid, divided between the Greater Houston Community Fund, the American Red Cross Hurricane Harvey Fund and the Coastal Bend Community Foundation in South Texas, to help with recovery efforts in areas impacted by Hurricane Harvey.

The coordination and flexibility provided for in the Framework helped the wireless industry collaborate and develop innovative solutions. AT&T supports the recent United States Government Accountability Office recommendation that the FCC should promote awareness of the Framework,<sup>20</sup> but believes that developing specific performance measures for the Framework will inhibit cooperation among the members. Further, there is no need to produce a new framework covering the entire communications systems including backhaul, as one commenter suggested.<sup>21</sup> The existing Framework works well because it represents a true “meeting of the minds” of wireless industry stakeholders who all share the same goals. Rethinking the Framework, which has already had significant positive effects, risks taking a step backward with respect to disaster response.

#### **IV. THE WIRELESS INDUSTRY AND THE FEDERAL GOVERNMENT SHOULD EVALUATE “LESSONS LEARNED” FROM THE 2017 HURRICANE SEASON AND CONTINUE TO IMPROVE UPON THEIR ABILITIES TO PROVIDE A**

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<sup>20</sup> U.S. Government Accountability Office, GAO-18-198, Report to the Ranking Member, Committee on Energy and Commerce, House of Representatives, *Telecommunications: FCC Should Improve Monitoring of Industry Efforts to Strengthen Wireless Network Resiliency* at 35 (Dec. 2017) available at <https://www.gao.gov/assets/690/688927.pdf>.

<sup>21</sup> T-Mobile Comments at 13.

## **WELL-COORDINATED RESPONSE TO DISASTERS.**

Following a disaster, it is always useful to conduct a post-event review of network performance and disaster recovery efforts. This feedback helps improve restoration of services for the next event, and wireless carriers have proven adept in applying lessons learned.<sup>22</sup> AT&T remains committed to preparing for future disasters, and already has identified the following opportunities for improvement when the next disaster strikes.

Post-disaster, restoring communications should be a governmental priority, and the FCC should work with FEMA and other agencies, states, and localities to that end. FEMA in particular plays a key coordination role following a disaster. Quite reasonably, in Puerto Rico and the U. S. Virgin Islands, FEMA prioritized provision of food, water, fuel and medicine over the restoration of communications networks. But distribution of these vital supplies could have been facilitated through the restoration of communications. Governmental agencies should consider how to properly coordinate restoration of communications concurrent with providing other critical services. In addition, FEMA's disaster recovery approach for islands should be analyzed to ensure that the agency can effectively and quickly grant access to geographically isolated areas. The Commission could also potentially perform a constructive role through communication and coordination with federal electric utility regulators.

The obstacles faced in Puerto Rico following Hurricane Maria will be especially instructive to analyze. No discussion about the resiliency of the communications infrastructure in Puerto Rico and the industry's ability to respond to natural disasters would be complete

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<sup>22</sup> See CTIA Comments at 2; Motorola Solutions Comments at 8 (noting application of lessons learned from Hurricane Katrina).

without addressing the “fragile and unreliable nature of Puerto Rico’s electric power grid.”<sup>23</sup> Undoubtedly, remedying the weakness of the electrical grid should be a top priority. Further, asking companies to consider having a power backup alternative outside the island’s electric utility is unrealistic.<sup>24</sup> Communications companies cannot do the work of electric companies. Power provided by stand-by generators is a short-term solution to keep communications networks up and running during a crisis but generators are expensive to operate and difficult to provision—they are no substitute for reliable commercial power. Instead, resources should be devoted to updating and hardening the existing commercial power infrastructure.

In the short term, network resiliency can be improved through greater collaboration between electric companies and wireless communications companies. In Puerto Rico, most of the backhaul fiber on the island was aerial fiber placed on electric utility poles. When these poles were destroyed, AT&T provided coverage via portable cell towers connected to satellite backhaul. The risk of aerial fiber being destroyed in a storm could be reduced going forward if electric companies and wireless companies coordinate trenching of electric and fiber facilities. However, not all fiber can or should be trenched as, for example, it may be unduly expensive and difficult to bury fiber to remote locations or in mountainous areas. In these situations, carriers should continue to use best practices regarding placement of mobile restoration assets in areas where aerial fiber towers may be destroyed.

The Commission’s Disaster Information Reporting System (“DIRS”) could also be improved to provide more flexibility and value. While the information collected by DIRS is

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<sup>23</sup> Comments of the Puerto Rico Telephone Company, PS Docket No, 17-344 at 6 (filed Jan. 22, 2018).

<sup>24</sup> Comments of the Puerto Rico Telecommunications Regulatory Board, PS Docket No. 17-344 at 13 (filed Jan. 22, 2018) (“PRTRB Comments”).

likely helpful to Federal, state, or local agencies regarding communications status, it is not especially helpful for communications industry restoration efforts. AT&T's response efforts during the 2017 hurricane events relied on more timely information from immediate contact with other service providers (directly and via the Department of Homeland Security National Coordinating Center for Communications) to coordinate emergency response. Further, DIRS reporting for sustained outages needs to be revised as reporting daily for an effort measured in months is not practical. The protracted DIRS activation for Hurricane Maria, beyond the period of substantial progress in restoration, continues to require significant effort on the part of carriers in providing updates. Wireless carriers should not be compelled to divert limited resources away from disaster recovery to respond to daily information requests.<sup>25</sup>

Public Safety communications are undoubtedly vital during and after disasters, and these voice and data communications must be prioritized. The federal government and AT&T have already taken an important first step in advancing the resiliency of the nation's First Responder community communications by funding and implementing the nationwide FirstNet public safety broadband network. Today, we are providing FirstNet services to public safety entities with priority access to AT&T's wireless network and, for eligible first responders, with preemption capabilities as well, which improves response efforts and helps, ultimately, to save lives.

Wireless Emergency Alerts ("WEA") and Next Generation 911 ("NG-911") both have important roles to play in disaster scenarios. The 2017 hurricane season saw extensive use of the WEA system, which worked as designed to provide notice to those in the path of the hurricanes

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<sup>25</sup> See T-Mobile Comments at 14.



and the resulting flooding.<sup>26</sup> During and after disasters, NG-911 is critical for properly routing emergency calls, particularly where calls to overwhelmed or destroyed Public Safety Answering Points (“PSAPs”) can be routed to more appropriate PSAPs. AT&T continues to support the Commission’s efforts to facilitate the implementation of more nimble NG-911 networks across the country.

Finally, AT&T encourages improved public education regarding natural disasters. These types of efforts can significantly help prepare the public for coping with unexpected disasters of all types. In addition, formal and regular drills that simulate natural disasters, which include impacts to the nation’s communications infrastructure, will serve to prepare government agencies, the public, and telecommunications carriers alike for the disasters that may lay ahead.

## **V. CONCLUSION**

AT&T strives to efficiently deliver the highest levels of service, quality, and reliability under all circumstances. In the 2017 hurricane season, AT&T’s industry-leading NDR program and participation in the Framework enabled AT&T to maintain and restore service as safely and efficiently as possible. AT&T worked closely with Territorial and Federal authorities on a daily basis to coordinate activities and communications status updates. AT&T shares the Commission’s commitment to examining the response efforts undertaken by both government and industry, and to identifying lessons learned with the goal of improving disaster response when the next emergency strikes.

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<sup>26</sup> See PRTRB Comments at 7 (“The government agencies issued alerts to the public through EAS, WEA and they were easy to understand, read and were geographically accurate.”); *see also* CTIA Comments at 2; Verizon Comments at 11.

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