

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	
Improving the Resiliency of Mobile Wireless	)	PS Docket No. 11-60
Networks	)	

**COMMENTS OF T-MOBILE USA, INC.**

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**COMMENTS OF T-MOBILE USA, INC.**

T-Mobile USA, Inc. (“T-Mobile”)<sup>1</sup> submits these comments in response to the *Public Notice*<sup>2</sup> in the above-referenced proceeding seeking comment on potential ways for measuring the effectiveness of the 2016 Wireless Network Resiliency Cooperative Framework (“Framework”).<sup>3</sup> As discussed below, the Commission already has tools at its disposal for measuring the effectiveness of the Framework. Based on information gathered via these tools, the Framework has proven effective in ensuring network resiliency and facilitating service restoration in the wake of disasters.

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<sup>1</sup> T-Mobile USA, Inc. is a wholly-owned subsidiary of T-Mobile US, Inc., a publicly traded company.

<sup>2</sup> *Public Safety and Homeland Security Bureau Seeks Comment on the Effectiveness of the Wireless Network Resiliency Cooperative Framework and for the Study on Public Access to 911 Services During Emergencies*, Public Notice, DA 18-614 (rel. June 13, 2018) (“*Public Notice*”), <https://docs.fcc.gov/public/attachments/DA-18-614A1.pdf>.

<sup>3</sup> See Federal Communications Commission, Wireless Resiliency Cooperative Framework, <https://www.fcc.gov/wireless-resiliency-cooperative-framework> (last visited July 11, 2018); see also Letter from Joan Marsh, AT&T Services, Inc.; Charles McKee, Sprint; Grant Spellmeyer, U.S. Cellular; Scott Bergmann, CTIA; Steve Sharkey, T-Mobile USA; and William H. Johnson, Verizon, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket Nos. 11-60 & 13-239, at 1 (dated Apr. 27, 2016) (“Framework”), <https://ecfsapi.fcc.gov/file/600017-07365> (“[A] voluntary initiative that will enhance coordination and communication to advance wireless service continuity and information sharing during and after emergencies and disasters.”); *Improving the Resiliency of Mobile Wireless Communications Networks*, Order, 31 FCC Rcd 13745 (2016) (“*Framework Order*”) (recommending the Framework).

## INTRODUCTION AND SUMMARY

Developed in 2016, the Framework is an industry-led, voluntary initiative that imposes cooperation and mutual aid obligations upon declaration of the Emergency Support Function 2 and the activation of the FCC's Disaster Information Reporting System ("DIRS") in the wake of network impactful events. The Framework contains five prongs to improve coordination and communication among carriers to advance wireless service continuity and information sharing during and after emergencies. Specifically, the Framework:

- Provides for reasonable roaming among wireless providers under disaster arrangements when technically feasible;
- Fosters mutual aid among wireless providers during emergencies;
- Enhances municipal preparedness and restoration by committing to convene with local government public safety representatives to develop best practices, and to provide contact information for a provider/Public Safety Answering Point contact database;
- Increases consumer readiness and preparation through development and dissemination with consumer groups of a "Consumer Readiness Checklist;" and
- Improves public awareness and stakeholder communications on service and restoration status through Commission posting of data on cell site outages on an aggregated, county-by-county basis in the relevant area through its DIRS reports.

Although important, the Framework is but one piece of a comprehensive, multilateral approach carriers have undertaken to improving the resilience of our nation's wireless networks. To mitigate communications service disruptions, the wireless industry annually dedicates substantial capital to fortify its networks to withstand emergencies, weather-related and otherwise. T-Mobile, for example, devotes significant funding and other resources on an annual basis to network improvements such as increasing capacity, densification, and redundancy across its coverage area, as well as conducting regular disaster recovery drills. T-Mobile also employs best practices pertaining to its network architecture and day-to-day operations as part of its continuous hardening and resiliency processes. Further, in advance of this hurricane season, T-

Mobile coordinated with other carriers, vendors, and industry partners regarding mutual aid with respect to backhaul and roaming support.

By making internal, targeted investment and resource allocation decisions and working collaboratively with other public and private entities to facilitate disaster preparedness and recovery, T-Mobile's disaster response has been robust, proactive, and effective. This breadth of investment and precaution is the result of a vibrant market for wireless services that creates strong incentives for providers, like T-Mobile, to deliver quality service to their wireless consumers and protect their significant network investments from harm. Given the success of recovery efforts, including the Framework, regulatory intervention is unwarranted.

The Commission has multiple tools at its disposal for tracking the effectiveness of the Framework in improving network resiliency. *First*, the complaint process is a valuable metric that can be used by the FCC to assess ongoing cooperation among industry stakeholders and determine whether any governmental intervention is needed. *Second*, the Commission is empowered to solicit comment regarding network restoration efforts, as it did last year, in the wake of one of the top ten most active hurricane seasons in history.<sup>4</sup> Indeed, despite the historic destruction of the 2017 hurricane season, both of these metrics attest to the Framework's significant achievements.<sup>5</sup>

Based on T-Mobile's experience, the success of the Framework and industry response in the wake of disasters is due to flexibility. Flexibility allowed carriers to effectively and

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<sup>4</sup> See, e.g., Jonathan Erdman, *2017 Atlantic Hurricane Season Among Top 10 Most Active in History*, Weather.com (Oct. 2, 2017), <https://weather.com/storms/hurricane/news/2017-atlantic-hurricane-season-one-of-busiest-september>.

<sup>5</sup> See Comments of CTIA, PS Docket No. 17-344, at 10 (filed Jan. 22, 2018) ("CTIA Hurricane Comments"); Comments of T-Mobile USA, Inc., PS Docket No. 17-344, at 3, 7 (filed Jan. 22, 2018) ("T-Mobile Hurricane Comments"); Comments of Verizon, PS Docket No. 17-344, at 19-20 (filed Jan. 22, 2018).

dynamically allocate resources thereby improving responses and is the cornerstone of the Framework. The FCC should continue to support this proven model and decline to adopt any additional, mandatory requirements that may distract or divert vital resources from service restoration efforts.

In light of the success of the Framework for wireless carriers, T-Mobile believes that a similar cooperative framework model among backhaul providers also likely would improve wireless network resiliency. As comments filed in the 2017 Hurricane Season Public Notice proceeding reveal, the majority of wireless outages were the result of lost electrical power and backhaul. Thus, any steps that can be taken to increase the transparency of efforts to repair backhaul facilities, as well as the electrical grid, will have a direct and beneficial impact on wireless restoration activities.

As a final matter, T-Mobile lauds the Commission for seeking input pursuant to the RAY BAUM'S Act regarding potential methods for improving access to 911. Although both the RAY BAUM'S Act and the *Public Notice* apparently presume that Wi-Fi may be a viable platform for ensuring access to 911 during emergencies, this presumption may overlook concerns relating to technical feasibility, privacy, cybersecurity, and congestion.

## **I. THE FCC IS ALREADY EMPOWERED TO ASSESS THE SUCCESS OF THE FRAMEWORK.**

### **A. The Commission Has Data Directly Relevant to the Success of the Framework.**

In response to the Bureau's request for comments on "potential methods of measuring the effectiveness of the Framework," T-Mobile notes that the complaint process is a valuable tool for measuring the success of the Framework. Carriers are well versed in the Commission's complaint processes and therefore there is no need to create a new vehicle for tracking issues

with the Framework. If the mutual aid envisioned by the Framework was not forthcoming in the wake of disasters, wireless carriers at their discretion can notify the Commission or otherwise seek agency assistance. The dearth of such instances indicates that the Framework is working effectively.

Indeed, despite the uniquely powerful 2017 hurricane season,<sup>6</sup> wireless service in many severely-affected areas was either minimally affected or restored to pre-hurricane levels within days.<sup>7</sup> Carriers, for the most part, demonstrated their exceptional ability to pool resources and work cooperatively under very challenging circumstances. Ultimately, this is the lodestar of the Framework's success.

Carrier escalations, made by way of the FCC's complaint process that is currently in place, inform the FCC generally about the degree of stakeholder cooperation in their disaster recovery efforts, while presenting a less burdensome avenue for adversely-affected wireless providers to seek and obtain mutual aid from other carriers. The inherently individualized nature of a complaint is an ideal vehicle for evaluating the success of the Framework in the wake of an emergency event. An adversarial procedure further helps the FCC better understand how any particular uncooperative action, should it occur, may impede another carrier's restoration efforts. This approach both mirrors and supports the model of flexibility exemplified by the Framework.

**B. The FCC's Current Approach of Ad Hoc Data Collection is Preferable to Regular, Mandatory Reporting.**

Any collection of data regarding the effectiveness of the Framework should be done on a periodic basis and tailored to the unique circumstances triggering the applicability of the

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<sup>6</sup> See, e.g., A.J. Willingham, *A look at four storms from one brutal hurricane season*, CNN (Nov. 21, 2017), <http://www.cnn.com/2017/10/10/weather/hurricane-nate-maria-irma-harvey-impact-look-back-trnd/index.html>.

<sup>7</sup> See CTIA Hurricane Comments at 5; T-Mobile Hurricane Comments at 7.

Framework. Disasters are unique and the unique nature of these events can create impacts that affect certain carriers' networks more than others. Remediating those harms is necessarily tied to carrier-specific considerations, such as the design and structure of the network and the carrier's available equipment and personnel. Thus, data collection tailored to the unique circumstances of individual disasters – compiled on an “as needed” basis – presents an effective approach to measuring the effectiveness of the Framework and is less burdensome than static, mandatory longer-term reporting requirements.

Carriers should not be compelled to orient their precious recovery resources around static metrics which may not be properly tailored to capture the impact of a particular event on an individual carrier. The Commission previously recognized this problem – particularly the difficulty in identifying static metrics – when it opted to rely on the Framework in lieu of mandatory regulations.<sup>8</sup> By seeking individualized comment on network resiliency and restoration efforts in the wake of unique disasters, the Commission has thus far taken the right approach to measuring the success of the Framework.<sup>9</sup> Indeed, in many ways the FCC's approach following the 2017 hurricane season was ideal: in the immediate aftermath of the storms, it allowed carriers flexibility to take the lead on managing their network restoration priorities; it was responsive and adaptable to carriers' imminent needs for regulatory relief as they worked to restore service to affected communities; and, once the tumult of post-hurricane recovery began to ebb, it sought stakeholder input regarding their efforts to inform future disaster response.<sup>10</sup>

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<sup>8</sup> *Framework Order*, 31 FCCR at 13749.

<sup>9</sup> See CTIA Hurricane Comments at 22; *see also* Comments of Viya, PS Docket No. 17-344, at 19-20 (filed Jan. 22, 2018) (“Viya Hurricane Comments”).

<sup>10</sup> See Viya Hurricane Comments at 19.



Comments filed in response to the 2017 Hurricane Season Public Notice reveal that the Framework successfully advanced wireless service continuity and restoration.<sup>11</sup> CTIA, for example, observed in its comments that “roaming arrangements and the provision of mutual aid among carriers ... helped customers stay connected during unprecedented conditions,” while mutual aid commitments allowed carriers to share resources, such as “space on a cargo plane to transport generators to Puerto Rico following Hurricane Maria.”<sup>12</sup>

As a result of such stakeholder input, the FCC was able to report to the Governmental Accountability Office (“GAO”) that several national carriers had implemented mutual aid arrangements following Hurricanes Irma and Maria.<sup>13</sup> It also reported, for example, that four wireless carriers had opened up roaming in Puerto Rico to collectively serve the maximum population with the current coverage available following Hurricane Maria.<sup>14</sup> Indeed, based on the data collected in the wake of the 2017 hurricane season, the FCC was able to inform its policy-making decisions to determine that additional funding was needed in Puerto Rico and the U.S. Virgin Islands.<sup>15</sup>

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<sup>11</sup> CTIA Hurricane Comments at 8-12.

<sup>12</sup> *Id.* at 10-12.

<sup>13</sup> U.S. Government Accountability Office, GAO-18-198, Telecommunications: FCC Should Improve Monitoring of Industry Efforts to Strengthen Wireless Network Resiliency, at 24 (2017) (“GAO Report”), <https://www.gao.gov/assets/690/688927.pdf>. Notably, this included both signatory and non-signatory wireless carriers.

<sup>14</sup> *Id.*; see also FCC, Communications Status Report for Areas Impacted by Hurricane Maria, at 2-3 (Oct. 12, 2017), [https://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db1012/-DOC-347207A1.pdf](https://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db1012/-DOC-347207A1.pdf).

<sup>15</sup> *The Uniendo a Puerto Rico Fund and the Connect USVI Fund et al.*, Order and Notice of Proposed Rulemaking, FCC 18-57 (rel. May 29, 2018) <https://docs.fcc.gov/public/attachments/-FCC-18-57A1.pdf>.

This experience demonstrates that the FCC’s current information collection approach regarding network resiliency generally, and the Framework in particular, is wholly sufficient. Establishing additional metrics would require providers to engage in costly and time-intensive reporting obligations – at a time when providers’ resources are stretched most thin and when reporting such metrics may not provide a real picture of recovery efforts. T-Mobile believes the Framework, as well as the FCC’s oversight thereof, has been proven to be effective. Thus, there is no need to impose costly or distracting mandatory metrics or reporting requirements.

If, despite the foregoing, the Commission wishes to consider adopting new rules and metrics intended to assess the Framework, it should first allow the industry experts to work on, develop, and validate appropriate and effective metrics. Because such necessary efforts have not been undertaken, imposing any specific requirements at this time would be premature.

## **II. THE COMMISSION SHOULD ENCOURAGE BACKHAUL PROVIDERS TO ENTER INTO A VOLUNTARY COOPERATIVE ARRANGEMENT.**

Given the importance of backhaul facilities for wireless service continuity, the Commission should encourage backhaul providers to work together in developing a consensus agreement similar to the Framework established by the wireless carriers. As the GAO correctly noted, one “key dependency” for wireless networks are backhaul facilities that transport voice and data traffic from end users to major networks.<sup>16</sup> Because of this dependency, transparency between backhaul providers and wireless carriers is essential. It is also, in T-Mobile’s experience, sometimes lacking.

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<sup>16</sup> GAO Report at 6.

For example, in Puerto Rico only 2% of T-Mobile's towers were destroyed by Hurricanes Irma and Maria.<sup>17</sup> However, because T-Mobile's network in Puerto Rico was heavily reliant on aerial fiber-based backhaul that was co-located on power lines which were decimated by the hurricanes, the network was disabled in many areas. T-Mobile's recovery efforts thus focused primarily on alternative backhaul solutions, such as utilizing wired backhaul from other LECs and deploying new satellite and microwave links for wireless backhaul.<sup>18</sup> With better information from backhaul providers regarding the status of their restoration efforts and priorities, T-Mobile would be better equipped to target and optimize its backhaul restoration planning.

In sum, in light of the success of the Framework among wireless carriers, the Commission should encourage backhaul providers to propose their own voluntary cooperative agreement. Such an arrangement would continue to allow backhaul providers flexibility to prioritize their own network needs, while providing wireless providers with more comprehensive visibility into the state of the broader networking ecosystem.

### **III. THE FCC SHOULD CONDUCT FURTHER STUDY BEFORE ADOPTING RULES REGARDING 911 CALLING OVER WI-FI HOTSPOTS.**

T-Mobile lauds the goal of ensuring access to 911 during times of emergencies and the Commission's investigation as part of its duties established by the RAY BAUM'S Act. Although both the RAY BAUM'S Act and the *Public Notice* appear to presume that Wi-Fi may be a viable platform for ensuring access to 911 during emergencies,<sup>19</sup> further study is required to

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<sup>17</sup> T-Mobile Hurricane Comments at 11.

<sup>18</sup> *Id.* at 10.

<sup>19</sup> See *Consolidated Appropriations Act, 2018*, Pub.L. 115-141, Division P, Repack Airwaves Yielding Better Access for Users of Modern Services (RAY BAUM'S) Act, Title III, Section

validate those presumptions. While T-Mobile agrees that 911 access is vitally important during emergencies, it has questions about some of the assumed public benefits associated with mandating access to password-protected, provider-owned Wi-Fi hotspots for 911 calling.<sup>20</sup>

First, Wi-Fi hotspots often may not be available when wireless service is disabled. Wireless service outages are generally traceable to outages in backhaul and electrical power. Wi-Fi hotspots, like wireless networks, also require backhaul and power in order to transmit a signal. Thus, Wi-Fi hotspots often will be disabled – and thus unable to provide 911 access – when wireless networks are unavailable. In fact, the likelihood of Wi-Fi access points being available when wireless macrocells are out of service is very small as wireless carriers plan extensively for restoring service after a disaster. Carriers may deploy, for example, temporary microwave links where there are backhaul outages or utilize generators when there is no electricity. These resources generally are unavailable to Wi-Fi networks immediately after a disaster.

Second, in the rare instance in which backhaul and power are available but the wireless network infrastructure is damaged or otherwise not functional, Wi-Fi access point owners would need to remove password protection from the applicable Wi-Fi hotspots in order to permit 911 calling. In other words, the removal of requiring a password would need to apply to all types of calls because there is no mechanism to remove a password requirement solely to call 911. This engenders serious cybersecurity and privacy vulnerabilities, jeopardizing both the ability of

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301 of RAY BAUM'S Act is titled: "Securing Access to Networks in Disasters, Study on network resiliency."

<sup>20</sup> T-Mobile currently supports 911 calls made by customers of other carriers without putting those calls through an authentication process (*i.e.*, simless). Thus, if a competitor's network is down, 911 calls made by the competitor's customers with technically compatible devices would be seamlessly connected over the T-Mobile network.

wireless providers to protect their networks from cyberattacks and the sensitive information that callers would be transmitting in their communications with emergency response services.

Moreover, although disabling password protection on such hotspots could theoretically permit Wi-Fi-enabled 911 calling, it would invite the possibility of severe congestion issues. During an emergency, there would likely be widespread outages of communications service, and consumers would immediately connect to any functioning Wi-Fi networks that were available and unprotected. Further, in order to achieve the Commission's goals of facilitating greater access to emergency services, Wi-Fi networks also would need to be reconfigured to prioritize 911 calls. Technical standards for such prioritization do not currently exist.

In sum, although T-Mobile applauds the Commission's commitment to finding alternative technological solutions to accessing 911 during emergencies, enabling caller access to Wi-Fi hotspots would likely yield few, if any, benefits at this time. At a minimum, further study is necessary to assess the proposal's substantial privacy, cybersecurity, and congestion issues as well as the technical feasibility of the proposal. As a result, the Commission should take this opportunity to develop and assess the record and prepare the required report on "the public safety benefits, technical feasibility, and cost[s]" of this proposal, but it should refrain from taking any further regulatory actions at this time.<sup>21</sup>

## CONCLUSION

As the record in the 2017 Hurricane Season Public Notice reveals, the Framework helped achieve enormous successes in the face of historic challenges. Based on this success, the Commission should encourage backhaul providers to follow this model and enter into a voluntary arrangement that supports cooperation and transparency. T-Mobile, however, urges

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<sup>21</sup> *Public Notice* at 3.

the Commission to abandon consideration of any mandatory, one-size-fits-all reporting obligations or performance metrics that will divert vital resources from service restoration efforts. Finally, in light of technical, practical, privacy, and cybersecurity concerns, the Commission should conduct additional studies before it considers any requirement that 911 callers be permitted to bypass password protections and gain access to Wi-Fi hotspots.

Respectfully submitted,

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