



VIA ECFS

May 20, 2019

Marlene H. Dortch, Secretary
Office of the Secretary
Federal Communications Commission
445 12th Street, S.W.
TW-A325
Washington D.C. 20554

Re: Improving The Wireless Resiliency Cooperative Framework [PS Docket No. 11-60]

Dear Ms. Dortch:

Enclosed for filing in the above-referenced Public Notice are reply comments of the Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC).

Should you have any questions concerning this filing, please do not hesitate to contact me via email at helena.mitchell@cacp.gatech.edu.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "H Mitchell", is written above the typed name.

Helena Mitchell
Principal Investigator, Wireless RERC
Center for Advanced Communications Policy
Georgia Institute of Technology

Enclosure

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Improving The Wireless Resiliency Cooperative) PS Docket No. 11-60
Framework)
)

REPLY COMMENTS OF
GEORGIA INSTITUTE OF TECHNOLOGY (GEORGIA TECH), CENTER FOR ADVANCED
COMMUNICATIONS POLICY (CACP)
AND THE REHABILITATION ENGINEERING RESEARCH CENTER FOR
WIRELESS INCLUSIVE TECHNOLOGIES (WIRELESS RERC)

Georgia Tech’s Center for Advanced Communications Policy (CACP) in collaboration with the Rehabilitation Engineering Research Center for Wireless Inclusive Technologies¹ (Wireless RERC) hereby submits reply comments in the above-referenced *Public Notice* released on April 1, 2019. CACP is recognized at the state and national level as a neutral authority that monitors and assesses technical developments, identifies future options, and provides insights into related legislative and regulatory issues. CACP evaluates technological trends that can impact issues as diverse as wearable technologies, the Internet of Things, emergency communications, and communications and technology access by people with disabilities.

CACP is the home of the Wireless RERC. The Wireless RERC mission is *to integrate established wireless technologies with emerging wirelessly connected devices and services for a transformative future where individuals with disabilities achieve independence, improved quality of life, and enhanced community participation*. Over the past 18 years, subject matter experts at CACP and the Wireless RERC have been actively involved with research and regulatory issues concerning accessible wireless technologies and services. Additionally, both entities have been

¹ The Rehabilitation Engineering Research Center for Wireless Inclusive Technologies (Wireless RERC) is sponsored by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90RE5025-01). NIDILRR is within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this filing do not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government.

studying the accessibility of technologies and services used in the emergency communications domain. The comments respectfully submitted below are based on subject matter expertise developed over the past 18 years. Findings from our consumer surveys and focus groups, policy research, and development efforts inform the recommendations made herein.

Reply to comments made by CTIA.

The Wireless RERC concurs with comments made by CTIA, maintaining that the Wireless Resiliency Cooperative Framework (Framework) has been an effective tool for preparedness, response, recovery, and relief efforts. As per CTIA’s comments in response to the Hurricane Response Public Notice, the wireless networks demonstrated preparedness and mitigation efforts to maintain service during the hurricanes, and the towers by and large durably resisted the hurricane winds.² For example, Verizon reported that 98% of their towers in the impacted areas of Texas maintained functionality, while T-Mobile reported 85% of their towers remained operational. Further, service restoration in many cases was reportedly expedient. When it was not, other factors, not attributable to the wireless carriers were at play, such as electrical power outages.³ Though wireless carrier network resiliency has improved significantly, as demonstrated during the 2017 and 2018 hurricane season, it is the gaps in service that are concerning. This is not meant to suggest that 100% resiliency is the expectation, but rather to acknowledge that natural and human-made disaster events disrupt communications in unanticipated ways, and with more collaboration among stakeholders, including local and state governments, public utilities, the public, and wireless device manufacturers, communications resiliency in the wake of disaster can be supported by all players.

That said, the Wireless RERC is in general support of maintaining the voluntary and

² CTIA. (2017). Reply comments submitted in response to the *Public Notice Response Efforts Undertaken During 2017 Hurricane Season* [17-344]. Available at <https://ecfsapi.fcc.gov/file/1022225667281/180221%20CTIA%20Hurricane%20Response%20PN%20Reply%20Comments%20FINAL.pdf>

³ Ibid, 7.

flexible nature of the Framework. As contended by CTIA, the flexibility of Framework enabled providers to share resources and “to tailor their relief efforts to the unique needs of those communities affected by Hurricane Harvey. For example, Verizon deployed five emergency response vehicles to communities affected by Harvey to distribute devices and supplies and provide charging stations.⁴” This example illustrates how power utility effects communications resiliency. When networks have been restored to areas experiencing power outages, many are still unable to use their wireless devices due to an inability to charge the batteries. This may be particularly disturbing for people with disabilities who rely on the accessible and assistive technology features of their wireless devices to send and receive critical information. “Many members of the deaf and hard of hearing community also depend on wireless emergency text alerts on their mobile devices such as Android, iPhone, Tablets, iPads, etc. as a reliable source of emergency alerts. Outages of wireless networks thus present a special problem for the deaf and hard of hearing community.⁵” As such, the Wireless RERC recommends including device manufacturers in discussions about how to optimize the battery life of these devices, particularly, leading up to and post-disaster. There are currently recommendations that center on limiting the functionality of the phone to conserve battery, such as turning off location and GPS services, however, it is these very services that could allow for people to be found during post-disaster search and rescue. Including device manufacturers as a key communications resiliency stakeholder, could prove an asset to mitigating the effects of post-disaster power consumption of wireless devices.

In addition, the Wireless RERC is currently in the process of assessing ways in which battery life can be extended, especially during emergencies. We will file ex parte comments on our results after our study concludes later in 2019.

⁴ Comments of CTIA. (2019). In the Matter of Improving The Wireless Resiliency Cooperative Framework [11-60]. Washington, D.C., April 29, 2019. Available at <https://www.fcc.gov/ecfs/filing/104302566615471>

⁵ Comments of Consumer Groups. (2019). In the Matter of Improving The Wireless Resiliency Cooperative Framework [11-60]. Washington, D.C., April 29, 2019. Available at <https://www.fcc.gov/ecfs/filing/10430247040772>

Reply to comments made by Verizon Wireless.

The Wireless RERC agrees with Verizon’s assertion that “the Framework also should continue to preserve wireless providers’ ability to determine, based on sound engineering principles and objective factors like available coverage and traffic demands, where and how to allocate their assets and services in a locality to most effectively and efficiently respond to a disaster.⁶” The impacts of large-scale disasters are highly variable, and continually changing as events unfold. Predictions about areas that will be (or not) in the path of a hurricane and the resulting wind and/or water damage are just that, estimates, not exactitudes. Prescribing a metric for where and how much pre-positioning of assets based on population size could potentially delay restoration to the hardest impacted areas that contain some of our nation’s more vulnerable to disaster populations. For example, the population-size formula would systematically exclude rural areas from pre-disaster positioning of assets. There is a higher prevalence of disability in rural America compared to urban areas.⁷ This fact, coupled with a population-size formula, places rural residents with disabilities in jeopardy of extended delays to wireless services that they rely on for accessible communications.

Furthermore, rural counties represent a large proportion of communities living in persistent poverty comprised of residents without the financial resources to comply with evacuation orders. As such, we suggest that Verizon’s recommendation regarding criteria for mutual aid to “include factors such as the actual coverage loss (rather than simply sites out of service), the expected service restoration time, projected capacity demands, *and users’ access to the affected area* [emphasis added],⁸ **consider the many residents, living in poverty and those otherwise unable to evacuate, such as the elderly.** Though the area may have been

⁶ Comments of Verizon. (2019). In the Matter of Improving The Wireless Resiliency Cooperative Framework [11-60]. Washington, D.C., April 29, 2019. Available at <https://www.fcc.gov/ecfs/filing/10430525524260>

⁷ Caruthers, A. (2017). Disability in rural America. Retrieved from <https://www.communitycommons.org/2017/02/disability-in-rural-america/>

⁸ Comments of Verizon. (2019). In the Matter of Improving The Wireless Resiliency Cooperative Framework [11-60]. Washington, D.C., April 29, 2019. Available at <https://www.fcc.gov/ecfs/filing/10430525524260>

designated as mandatory evacuation, reports have shown that people with disabilities and the elderly often remain in these areas. Having the flexibility to quickly restore communications access via wireless devices would literally be a lifeline for residents who need saving by search and rescue parties.

Reply to comments made by the Telecommunications for the Deaf and Hard of Hearing, Inc. (“TDI”), Hearing Loss Association of America (“HLAA”), National Association of the Deaf (“NAD”), Coalition on Inclusive Emergency Planning/Washington State Independent Living Council (“CIEP/WASILC”), and California Coalition of Agencies Serving the Deaf and Hard of Hearing, Inc. (“CCASDHH”) (collectively “Consumer Groups”)

The Wireless RERC agrees with the Consumer Groups recommendation that “The Framework should specifically encourage carriers and municipalities to interact and coordinate with the deaf and hard of hearing community to get input on how best to meet their needs for emergency information and responses to wireless outages and restoration.”⁹ Just as disaster events uniquely impact wireless networks, network outages have unique impacts on people with disabilities. Individuals with disabilities can be a vulnerable population during emergency situations for several reasons. This diverse demographic represents those with cognitive, physical, sensory, and psychiatric disabilities.

Additionally, many older adults acquire disabilities as they age and must also be considered in regards to emergency services.¹⁰ A commonly overlooked segment of the population by emergency managers includes people with disabilities and older adults. The assumption that they can safely and effectively evacuate independently creates a dangerous situation for those who are unable to do so (a) without assistance or (b) without operating

⁹ Comments of Consumer Groups. (2019). In the Matter of Improving The Wireless Resiliency Cooperative Framework [11-60]. Washington, D.C., April 29, 2019. Available at <https://www.fcc.gov/ecfs/filing/10430247040772>

¹⁰ Dyer, C. B., Regev, M., Burnett, J., Festa, N., & Cloyd, B. (2008). SWiFT: A rapid triage tool for vulnerable older adults in disaster situations. *Disaster medicine and public health preparedness*, 2(S1), S45-S50.

communications networks.¹¹ In fact, people with disabilities experience a higher chance of mortality during emergencies.¹² To prepare communities to respond appropriately and educate on how to stay abreast of outage information, state and local governments, in coordination with wireless providers that serve the area could develop accessible and inclusive outreach materials and disseminate the same across multiple media pathways in the form of PSAs on television and radio, as well as, social media.

In closing, wireless communications infrastructure and the devices they support are increasingly integral to recovery and response efforts. As such, the Wireless RERC commends the voluntary actions and investments of the wireless industry to strengthen their networks to withstand disaster events. However, we contend that more can be done to ensure that people with disabilities are included in the planning and deliberations, and consequential actions of the Framework.

Respectfully submitted,



Salimah LaForce, and
Helena Mitchell, Ph.D.
Georgia Institute of Technology
500 10th Street, 3rd Fl. NW
Atlanta, GA 30332-0620
Phone: (404) 385-4640

Dated this 20th day of May 2019

¹¹ Fox, M. H., White, G. W., Rooney, C., & Rowland, J. L. (2007). Disaster Preparedness and Response for Persons With Mobility Impairments Results From the University of Kansas Nobody Left Behind Study. *Journal of Disability Policy Studies, 17*(4), 196-205.

¹² Chou, Y.-J., Huang, N., Lee, C.-H., Tsai, S.-L., Chen, L.-S., & Chang, H.-J. (2004). Who is at risk of death in an earthquake? *American Journal of Epidemiology, 160*(7), 688-695.