

**February 22, 2024 AT&T Mobility Network Outage  
REPORT AND FINDINGS**

A Report of the Public Safety and Homeland Security Bureau  
Federal Communications Commission

July 22, 2024

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## **I. INTRODUCTION**

1. On Thursday, February 22, 2024, at 2:45 AM Central Standard Time,<sup>1</sup> AT&T Mobility LLC (AT&T Mobility) experienced a nationwide wireless service outage that lasted at least twelve hours.<sup>2</sup> The outage affected users in all 50 states as well as Washington, D.C., Puerto Rico, and the U.S. Virgin Islands. Based on information provided by AT&T Mobility, all voice and 5G data services for all users of AT&T Mobility were unavailable as a result of the outage, affecting more than 125 million registered devices, blocking more than 92 million voice calls, and preventing more than 25,000 calls to Public Safety Answering Points (PSAPs or 911 call centers). The outage also cut off service to the devices operated by public safety users of the First Responder Network Authority (FirstNet). Voice and 5G data services were also unavailable to users from mobile virtual network operators (MVNOs) and other wireless customers who were roaming on AT&T Mobility's network.

2. AT&T Mobility implemented a network change with an equipment configuration error on Thursday, February 22, 2024 at 2:42 AM. Just three minutes later, the nationwide outage began. Once implemented, this configuration error caused the AT&T Mobility network to enter "protect mode" to prevent impact to other services, disconnecting all devices from the network, and prompting a loss of voice and 5G data service for all wireless users. It took close to two hours to roll back the network change. Full service restoration, however, took at least 12 hours because AT&T Mobility's device registration systems were overwhelmed with the high volume of requests for re-registration onto the network.

3. The Federal Communications Commission's (FCC's or Commission's) Public Safety and Homeland Security Bureau (Bureau) investigated this outage, its effects, and AT&T Mobility's response. Bureau staff reviewed and analyzed network outage reports and written responses submitted by AT&T Mobility, and interviewed AT&T Mobility personnel. This public report represents the Bureau's findings and recommendations. As explained in detail below, the Bureau finds that the extensive scope and duration of this outage was the result of several factors, including a configuration error, a lack of adherence to AT&T Mobility's internal procedures, a lack of peer review, a failure to adequately test after installation, inadequate laboratory testing, insufficient safeguards and controls to ensure approval of changes affecting the core network, a lack of controls to mitigate the effects of the outage once it began, and a variety of system issues that prolonged the outage once the configuration error had been remedied. This outage provides stakeholders with the opportunity to learn valuable lessons about adherence to industry-developed best practices and the challenges of network restoration following a large-scale outage. This "sunny day"<sup>3</sup> outage highlights the need for network operators to adhere to their internal procedures and industry best practices when implementing network changes, to implement sufficient network controls to mitigate configuration errors so they do not escalate and disrupt network operations, and to have appropriate systems and procedures in place with adequate capacity to facilitate prompt recovery from large-scale outages.

## **II. BACKGROUND**

4. As designated by Congress, the Commission plays a vital role in ensuring and maintaining

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<sup>1</sup> Unless otherwise noted, all times in this report are Central Standard Time.

<sup>2</sup> Press Release, New York State Attorney General Letitia James, Attorney General James Announces Investigation of Recent AT&T Outage (Feb. 29, 2024), <https://ag.ny.gov/press-release/2024/attorney-general-james-announces-investigation-recent-att-outage>.

<sup>3</sup> For this report's purposes, the term "sunny day outage" refers to an outage that results from circumstances other than severe weather or other natural disasters. Sunny day outages can result from a multitude of different events, such as equipment configuration errors, equipment failures, and software bugs.

the reliability and resiliency of the nation's communications networks so that the public can communicate when needed. One of the Commission's priorities is to ensure that communications are reliable and readily available, consistent with its statutory mission to protect the "safety of life and property."<sup>4</sup> Accordingly, it is critical for the millions of customers dependent on the AT&T Mobility network to be able to reach 911 and for FirstNet users to maintain connectivity during an outage, given FirstNet's role as public safety's dedicated communications network.

5. The Commission stays abreast of disruptions to the Nation's communications infrastructure through outage reports filed by communications providers in the agency's Network Outage Reporting System (NORS) in the wake of major disruptions to their networks.<sup>5</sup> As part of this reporting framework, Commission rules require wireless service providers, such as AT&T Mobility, to report to the Commission "significant degradation[s] in the ability of an end user to establish and maintain a channel of communications as a result of failure or degradation in the performance of a communications provider's network."<sup>6</sup> An outage that occurs on facilities that a wireless service provider owns, operates, leases, or otherwise uses is reportable when it is at least 30 minutes in duration and, *inter alia*, potentially affects at least 900,000 user minutes of telephony or potentially affects a 911 special facility (e.g., a PSAP).<sup>7</sup> Wireless providers must submit a notification in NORS within 120 minutes of discovering that a reportable outage has occurred.<sup>8</sup> Wireless providers must also file an Initial Outage Report no later than 72 hours after discovering the outage, and a Final Outage Report not later than 30 days after discovering the outage.<sup>9</sup> The Commission requires wireless providers to notify 911 special facilities as soon as possible when they discover outages that could affect them.<sup>10</sup> Wireless providers must convey all available and potentially useful information to the 911 special facility to help mitigate

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<sup>4</sup> 47 U.S.C. § 151.

<sup>5</sup> NORS is the Commission's web-based filing system through which communications providers covered by the part 4 outage reporting rules must submit reports to the Commission. These reports are presumed confidential to protect sensitive and proprietary information about communications networks. *See* 47 CFR § 4.2.

<sup>6</sup> *See* 47 CFR § 4.5(a); *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 16830, 16895-902, paras. 127-143 (2004) (*2004 Part 4 Report and Order*).

<sup>7</sup> *See* 47 CFR § 4.9(e)(1)(ii), (v); *see also* 47 CFR § 4.9(e)(1)(i), (iii), (iv) (requiring a wireless service outage be reported when it affects a Mobile Switching Center, when it affects at least 667 OC3 minutes, or when it potentially affects any special offices and facilities). While we note that the Commission adopted 988 outage reporting rules in July 2023, these rules are not yet in effect and thus are not applicable to this incident. *See Ensuring the Reliability and Resiliency of the 988 Suicide & Crisis Lifeline; Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; Implementation of the National Suicide Hotline Improvement Act of 2018*; PS Docket Nos. 23-5 and 15-80; WC Docket No. 18-336, Report and Order, FCC 23-57 (July 21, 2023).

<sup>8</sup> *See* 47 CFR § 4.9(e)(1); 47 CFR § 4.11 (specifying additional information that these reports must contain).

<sup>9</sup> *See* 47 CFR § 4.9(e)(4).

<sup>10</sup> *See 2004 Part 4 Report and Order*; 47 CFR § 4.9. Further, the Commission adopted PSAP notification requirements in November 2022, but they are not in effect, which means that they are not applicable to this outage. *See Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; Improving 911 Reliability; New Part 4 of Commission's Rules Concerning Disruptions to Communications*; PS Docket Nos. 15-80 and 13-75; ET Docket No. 04-35, Second Report and Order, 37 FCC Rcd 13847 (2022); *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; Improving 911 Reliability; New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, PS Docket Nos. 15-80 and 13-75; ET Docket No. 04-35, Order on Reconsideration, FCC 24-73 (July 11, 2024).

the effects of the outage on callers to that facility.<sup>11</sup> The Commission does not currently require FirstNet to file outage reports in NORS, although it has an open rulemaking proceeding considering this issue.<sup>12</sup>

### III. INCIDENT AND RESPONSE

#### A. Event Summary

6. **Misconfigured Network Element.** On Thursday, February 22, 2024, at 2:42 AM, an AT&T Mobility employee placed a new network element into its production network during a routine night maintenance window in order to expand network functionality and capacity. The network element was misconfigured. The configuration of the network element did not conform to AT&T's established network element design and installment procedures, which require peer review. As a result, the misconfiguration of the network element was not detected before the network element was introduced into AT&T Mobility's network. As a result of the error in configuration, downstream network elements propagated the error further into the network. This triggered an automated response that shut down all network connections to prevent the traffic from propagating further into the network. The shutdown isolated all voice and 5G data processing elements from the wireless towers and switching elements, preventing these services from being available. This resulted in the AT&T Mobility network disconnecting all devices from voice services and 5G data, including FirstNet devices, registered to AT&T Mobility's network, beginning a nationwide wireless outage. This occurred at 2:45 AM, just three minutes after the misconfigured network element was placed into production.

7. **Registration Congestion.** AT&T Mobility technical and leadership personnel were engaged to identify the issue. AT&T's Network Operations performed a rollback that removed the misconfigured network element and began the restoration of the network to normal operations. While most of AT&T Mobility's subscribers were re-connected to the network by early morning, traffic congestion from mass mobile device registrations prevented some subscriber devices from connecting to the network. Most of these congestion issues were resolved by mid-day.

8. **Mitigation and Restoration Efforts.** After rolling back the maintenance action, AT&T Mobility prioritized the restoration of FirstNet devices and infrastructure over commercial and residential users which AT&T Mobility asserts is part of its commitment as public safety's partner.<sup>13</sup> By 5:00 AM on February 22, 2024, FirstNet infrastructure was restored.<sup>14</sup> FirstNet device registrations were approaching normal levels shortly thereafter. Restoring service to commercial and residential users took several more hours as AT&T Mobility continued to observe congestion as high volumes of AT&T Mobility user devices attempted to register on the AT&T Mobility network. This forced some devices to revert back to SOS mode.<sup>15</sup> For the next several hours, AT&T Mobility engineers engaged in additional

<sup>11</sup> See 2004 Part 4 Report and Order, 47 CFR § 4.9(e).

<sup>12</sup> See *Resilient Networks, Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, PS Docket Nos. 21-346 and 15-80, and ET Docket No. 04-35; *Second Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 24-5, at paras. 60-63 (Jan. 26, 2024).

<sup>13</sup> See Donny Jackson, *AT&T suffers extended nationwide outage, prioritizes FirstNet restoration*, Feb. 22, 2024), <https://urgentcomm.com/2024/02/22/att-suffers-extended-nationwide-outage-prioritizes-firstnet-restoration/>.

<sup>14</sup> See Joe Wassel, *Update on February 22 Network Outage*, (Feb. 29, 2024), <https://www.firstnet.gov/newsroom/blog/update-february-22-network-outage#:~:text=AT%26T%20says%20the%20outage%20was,restoration%20of%20public%20safety%20services>.

<sup>15</sup> SOS mode is a limited service mode where a device is not connected to a network, but is still able to make emergency calls. See, e.g., Apple, *If you see SOS, No Service, or Searching on your iPhone or iPad*,

(continued....)

actions, such as turning off access to congested systems and performing reboots to mitigate registration delays. At 12:30 PM – nearly ten hours after the outage began – AT&T Mobility determined that registrations had finally normalized.<sup>16</sup> However, call failures were still occurring after this time. It took several more hours before performance indicators returned to normal levels. At that point, the outage was resolved and full voice and data services were restored to all customers, over 12 hours after the incident began.

**B. Actions to Notify and Alert Customers**

9. **FirstNet Customers.** AT&T Mobility notified FirstNet customers of the outage starting at 5:53 AM on February 22, 2024. That notification, however, was distributed more than three hours after the outage began and approximately 53 minutes after FirstNet’s infrastructure was restored. A final notification was sent at 4:40 PM.

10. In addition, AT&T Mobility and FirstNet issued FirstNet-specific public statements in the morning communicating that service was affected for some subscribers across the country<sup>17</sup> and advising that service is currently running normally across the FirstNet network. At 11:30 AM, a message was issued by FirstNet via social media stating that “[s]ome FirstNet subscribers may have experienced a service disruption this morning” and confirming that FirstNet service was operating normally.<sup>18</sup>

11. **AT&T Mobility Customers.** On February 22, 2024 at 7:05 AM, AT&T Mobility issued a public statement about the outage stating that “[s]ome of our customers are experiencing wireless service interruptions this morning” and encouraging the use of Wi-Fi calling until service was restored. However, some users reportedly experienced a 502 Bad Gateway error when attempting to turn on Wi-Fi calling.<sup>19</sup> AT&T Mobility provided additional updates periodically throughout the morning. At 2:10 PM, AT&T Mobility released a statement to media outlets indicating that wireless service had been restored to all of its affected customers.<sup>20</sup> At 6:46 PM, AT&T Mobility issued a statement providing initial findings about the outage’s cause, asserting its belief based on initial review that the “outage was caused by the application and execution of an incorrect process used as [it was] expanding [its] network, not a cyberattack.”<sup>21</sup>

12. **PSAP Notification.** AT&T Mobility indicated it notified all of the affected PSAPs nationwide about the outage and the status of the restoration.

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<https://support.apple.com/en-us/HT201415> (last visited June 20, 2024). In this incident, if any device in SOS mode connected to a non-AT&T network, it could make 911 calls; however, if it connected to an AT&T network, it could not.

<sup>16</sup> Normalized in this context refers to the number of active registrations being within normal parameters for the network.

<sup>17</sup> Congressional Research Service, AT&T Network Outage: Impact on Public Safety Services at 1 (2024) <https://sgp.fas.org/crs/misc/IF12613.pdf> (Congressional Research Service Report).

<sup>18</sup> See FirstNet, Built with AT&T (@FirstNet), X (Feb. 22, 2024, 2:06 PM), <https://x.com/FirstNet/status/1760727848992547256>. We note that X (formerly Twitter) is a closed social network, and as such, a person not logged in (or not an “X” subscriber) would not be able to routinely subscribe to updates, or (as a non-subscriber) even seen this message.

<sup>19</sup> See, e.g., Brandon Jirod, *Getting a 502 Bad Gateway error on AT&T? Here’s what it means*, (Feb. 22, 2024), <https://www.pnj.com/story/news/2024/02/22/att-outage-502-bad-gateway-error-wifi-calling/72698740007/>.

<sup>20</sup> Congressional Research Service Report at 1.

<sup>21</sup> *Id.*

## C. Effects of the Outage

### 1. Overall Impact

13. All users of AT&T Mobility's network, including AT&T Mobility subscribers, Cricket subscribers, FirstNet customers, and customers of MVNOs with access to AT&T Mobility's network were impacted by the outage, affecting more than 125 million registered devices and blocking more than 92 million voice calls. The impacted users reside in all 50 states as well as Washington, D.C., Puerto Rico, and the U.S. Virgin Islands. The outage resulted in lost connectivity impacting all Voice over Long Term Evolution (VoLTE) and all 5G voice and data services provided by AT&T Mobility, including originating calls to 911, for all of the users listed above. FirstNet users also lost connectivity during the outage. Users from other wireless carriers who were roaming on AT&T Mobility's network were also affected.

### 2. Impact on 911

14. No 911 calls from AT&T Mobility-served wireless devices could be routed to the destination PSAP while the voice services were disconnected. All such attempted 911 calls therefore failed preventing more than 25,000 calls to PSAPs or 911 call centers. This includes devices that were in SOS mode while attached to AT&T towers. When a device is in SOS mode, it cannot register to the network, but in most instances the device can still reach 911. However, all voice services on the AT&T Mobility network were unavailable during the outage, including calls to 911 made by phones in SOS mode that were attempted over the AT&T Mobility network. AT&T customers whose devices in SOS mode attached to other carriers could complete 911 calls through those networks.<sup>22</sup>

15. As service was restored, 911 calls were delivered to PSAPs with Automatic Location Identification (ALI) and Automatic Number Identification (ANI).<sup>23</sup>

### 3. Impact on FirstNet

16. All 4G voice and 5G voice and data infrastructure were impacted between 2:45 AM and 5:00 AM, causing loss of service for FirstNet subscribers. AT&T Mobility prioritized the restoration of FirstNet before other services. FirstNet device registrations approached normal shortly after the restoration of the FirstNet dedicated network elements that are connected to AT&T Mobility's network.

### 4. Impact on Wireless Priority Service (WPS)

17. WPS would not have been available during the outage to devices not registered on the network.<sup>24</sup> The volume of Wireless Priority Service calls on the AT&T Mobility network during the outage event was less than two thirds of the typical volume for that same time period, suggesting some WPS calls also failed.

### 5. Impact on Wireless Emergency Alert (WEA) Messages

18. AT&T Mobility wireless users' ability to receive WEAs was not materially impacted by the outage. Despite losing connectivity to AT&T Mobility's 5G network elements due to the outage, AT&T

<sup>22</sup> See, e.g., Marlene Lenthang and Kathleen Itoh, *AT&T service restored after customers hit by widespread cellular outages in the U.S.* (Feb. 22, 2024), <https://www.nbcnews.com/news/us-news/t-verizon-t-mobile-customers-hit-widespread-cellular-outages-us-rcna139938>.

<sup>23</sup> Under part 9 of the Commission's rules, 911 calls generally must include ANI and ALI information. See generally 47 CFR pt. 9, "911 Requirements."

<sup>24</sup> WPS is a Federal program that authorizes cellular communications service providers to prioritize calls over wireless networks. This program is available to certain organizations that use telecommunication services necessary for the public health, safety, and maintenance of law and order. See generally 47 CFR pt. 64, Appx B.



Mobility's 4G/LTE commercial network elements were available to broadcast WEAs throughout the duration of the outage. For example, AT&T Mobility received six WEA messages from Federal Emergency Management Agency (FEMA)'s Integrated Public Alert & Warning System (IPAWS) gateway during the outage, the first at 2:56 AM, and broadcast the WEA message over AT&T Mobility's 4G/LTE commercial network in accordance with the geographic parameters assigned by the alert originator. According to AT&T Mobility, its devices operating in SOS mode (which AT&T Mobility users would have been in for some duration of time) likely could receive WEA messages.

#### **D. Bureau Findings and Analysis Regarding Causes and Contributing Factors**

19. The Bureau finds that the extensive scope and duration of this outage was the result of several factors, all attributable to AT&T Mobility, including a configuration error, a lack of adherence to AT&T Mobility's internal procedures, a lack of peer review, a failure to adequately test after installation, inadequate laboratory testing, insufficient safeguards and controls to ensure approval of changes affecting the core network, a lack of controls to mitigate the effects of the outage once it began, and a variety of system issues that prolonged the outage once the configuration error had been remedied. We discuss each of these factors below.

20. ***Lack of Peer Review.*** The direct cause of the outage was an error by an employee who misconfigured a single network element, ultimately causing the AT&T Mobility network to respond by entering Protection Mode and disconnecting all wireless devices. Adequate peer review should have prevented the network change from being approved, and, in turn, from being loaded onto the network. This peer review did not take place.

21. ***Failure to Adequately Test Post Installation.*** In addition to AT&T Mobility's assertion that the outage was caused by the execution of an incorrect process, another procedural error also may have contributed to the outage. Specifically, post-installation testing is a well-established best practice to ensure network changes are implemented properly without adverse effect.<sup>25</sup> To the extent that testing was performed when the misconfigured network element was placed into the production network on February 22, 2024, they were inadequate and failed to identify the incorrect behavior of the network element which began just three minutes after the network change was implemented. An effective post installation test may have helped detect the misconfigured network element more quickly, thereby allowing AT&T Mobility to initiate corrective action more expeditiously. AT&T Mobility either lacked sufficient oversight and controls in place to ensure these test processes were followed, or if they were, then the processes themselves were insufficient.

22. ***Failure to Conduct Adequate Lab Testing.*** Lab testing by AT&T did not discover the improper configuration of the network element that caused the outage and did not identify the potential impact to the network of that or similar misconfigurations. To the extent such testing was intended to include operation in a production-representative environment it either failed to effectively emulate the live environment or failed to test the impact of this misconfiguration on the wider network. Any such testing should have identified the issue prior to the occurrence of the outage.

23. ***Insufficient Safeguards and Controls to Ensure Approval of Changes Affecting Network.*** Responsible network management principles and organizational best practices dictate that network changes must be thoroughly tested, reviewed, and approved before they are implemented within the

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<sup>25</sup> Network Operators, Service Providers, and Public Safety should verify complex configuration changes before committing them and test after the change to ensure the appropriate and expected results. FCC Open Data, *CSRIC Best Practices*, <https://opendata.fcc.gov/Public-Safety/CSRIC-Best-Practices/qb45-rw2t/data> (last visited June 26, 2024) (quoting CSRIC Best Practice 13-10-0615).



network.<sup>26</sup> These safeguards help protect the network against potential risks by helping to ensure that those risks are identified and remediated before they cause service interruptions. Here, the misconfiguration of the network element was not detected before the network element was introduced into AT&T Mobility's network due to a failure to conform to AT&T's established network element design and installment procedures, which require peer review.

24. Two steps led to the network element configuration error reaching the AT&T Mobility network. The first step was the incorrect configuration by an AT&T Mobility employee. The second step was the loading of the network change encompassing the configuration error into the AT&T Mobility network by another AT&T Mobility employee. The fact that the network change was loaded onto the AT&T Mobility network indicates that AT&T Mobility had insufficient oversight and controls in place to ensure that approval had occurred prior to loading.

25. ***Insufficient Controls to Mitigate the Effects of the Configuration Error.*** The downstream network element lacked controls specific to mitigating this error and therefore was unable to mitigate the effects created by the misconfigured network element. Because the network element was lacking these controls, it passed traffic further into the network. This triggered Protection Mode to prevent significant failures from cascading into other systems. The Protection Mode condition caused all AT&T Mobility customers to be disconnected from the network. If the downstream network element was configured to have proper controls prior to the installation of the misconfigured network element, the outage would have been prevented.

26. ***System Limitations Created Registration Congestion, Prolonging the Outage.*** As discussed above, once the network entered Protection Mode, all devices were dropped from the network. Once Protection Mode is lifted, user devices must re-register in the network to be recognized and be provided service. Here, once the misconfigured network element was backed out, all user devices automatically tried to simultaneously re-register to reconnect to the network. The influx of device registration attempts far exceeded what AT&T Mobility's network management systems could handle, resulting in widespread congestion. This congestion caused devices to be delayed in registering to the network, thereby prolonging the outage. For the next several hours, AT&T Mobility employees engaged in additional actions to mitigate registration delays and better manage the large number of devices making simultaneous registration attempts. At 12:30 PM, AT&T Mobility determined that registrations had normalized. While most of AT&T Mobility's network returned to normal operations by mid-day, certain 911 calls failed throughout the afternoon due to congestion caused by mass mobile device registrations onto the network.

27. Despite configuring its network to enter Protection Mode to prevent propagating errors to other parts of the network, AT&T failed to prepare for the registration congestion associated with the network recovering from Protection Mode, or to sufficiently mitigate that congestion after the fact. As noted above, AT&T Mobility experienced many challenges and delays registering the high volume of devices to the AT&T Mobility network on February 22, 2024. It took AT&T Mobility more than 10 hours once the network was restored to fully remediate the network congestion and other issues stemming from registration. More robust registration systems with greater capacity would have enabled AT&T Mobility to more quickly and efficiently recover after the network entered into Protection Mode. Had such systems been in place here, they would have reduced the duration and impact of the outage.

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<sup>26</sup> See, e.g., CSRIC Best Practice 13-10-0615 (Network Operators, Service Providers, and Public Safety should verify complex configuration changes before committing them and test after the change to ensure the appropriate and expected results).

#### IV. CORRECTIVE ACTIONS BY AT&T MOBILITY

28. Since the outage, AT&T has taken numerous steps to prevent a reoccurrence. Within 48 hours of the outage, AT&T implemented additional technical controls in its network. This included scanning the network for any network elements lacking the controls that would have prevented the outage, and promptly putting those controls in place. AT&T has engaged in ongoing forensic work and implemented additional enhancements to promote network robustness and resilience. In addition, post-outage, AT&T has implemented additional steps for peer review and adopted procedures to ensure that maintenance work cannot take place without confirmation that required peer reviews have been completed.<sup>27</sup>

#### V. RECOMMENDATIONS FOR NEXT STEPS

29. Over the course of the approximately 12 hour duration of the outage, millions of people were without wireless service at various stages and various times.<sup>28</sup> As a result of this outage, not only were members of the public without a reliable connection to 911 services, but they were unable to reach family members, employers, health care professionals, schools, and other forms of assistance. Indeed, AT&T Mobility's outage caused serious disruptions to members of the public. This outage illustrates the need for mobile wireless carriers to adhere to best practices, implement adequate controls in their networks to mitigate risks, and be capable of responding quickly to restore service when an outage occurs. Sound network management practices of critical infrastructure and AT&T Mobility's own processes demand that only approved network changes that are developed pursuant to internal procedures and industry best practices, should be loaded onto the production network. It should not be possible to load changes that fail to meet those criteria. The Bureau plans to release a Public Notice, based on its analysis of this and other recent outages, reminding service providers of the importance of implementing relevant industry-accepted best practices, including those recommended by the Communications Security, Reliability, and Interoperability Council.<sup>29</sup> The Bureau has referred this matter to the Enforcement Bureau based on PSHSB's investigation into the February 22, 2024 outage for potential violations of parts 4 and 9 of the Commission's rules.

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<sup>27</sup> See Letter from Suzanne M. Tetreault et al., Wilkinson Barker Knauer, LLP, Counsel for AT&T Services, Inc. et al., to Debra Jordan, Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission at Exh.t A (July 17, 2024) (on file with Bureau staff).

<sup>28</sup> See, e.g., Fiona Leishman, *AT&T speaks out after nationwide outage leaves millions without mobile service*, (Feb. 22, 2024), <https://www.themirror.com/news/us-news/att-speaks-out-after-nationwide-352945>.

<sup>29</sup> FCC Open Data, *CSRIC Best Practices*, <https://opendata.fcc.gov/Public-Safety/CSRIC-Best-Practices/qb45-rw2t/data> (last visited July 19, 2024) (referencing CSRIC Best Practice 13-9-0574).