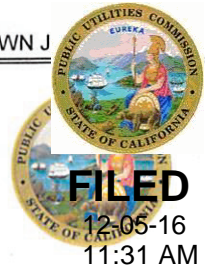


PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



December 2, 2016

Agenda ID # 15370
Quasi-Legislative

TO PARTIES OF RECORD IN INVESTIGATION 14-05-012:

This Proposed Decision was filed on November 15, 2016 and is now being re-filed because 1) an error in Appendix D was discovered and is being corrected, and 2) Appendix E was inadvertently omitted. The PD is otherwise unchanged. Inaccurate references in the body of the decision to Appendices will be corrected in the final decision to be issued after receipt and review of comments. This item may be heard, at the earliest at the Commission's December 15, 2016 Business Meeting.

Karen V. Clopton, Chief
Administrative Law Judge

KVC: vm2

Attachment

Decision PROPOSED DECISION OF COMMR CATHERINE J. SANDOVAL
(Mailed 11/15/16)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Investigation to
Address Intrastate Rural Call
Completion Issues.

Investigation 14-05-012
(Filed May 15, 2014)

**DECISION ON RURAL CALL COMPLETION ISSUES, OTHER CALL
COMPLETION ISSUES AND CALL INITIATION ISSUES INCLUDING LACK
OF 911 ACCESS AND DIAL TONE**

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**DECISION ON RURAL CALL COMPLETION ISSUES, OTHER CALL
COMPLETION ISSUES AND CALL INITIATION ISSUES INCLUDING LACK
OF 911 ACCESS AND DIAL TONE**

Summary

We direct carriers to educate their Multi-line Telephone System service (MLTS) customers about steps to enable short code access. We direct carriers who program MLTS systems to enable short code access, with an opt-out for Multi-Line System (MLS) operators for some short codes as discussed herein. We direct meetings with the 2-1-1 coalition, the 8-1-1 coalition¹, as described below to effectively enable this short code access. We refer to the proceeding that will implement Senate Bill (SB) 1212 to bring 2-1-1 statewide to determine whether additional steps are prudent and necessary to ensure 2-1-1 access, including from MLTS users.

We direct the Commission's the Commission's Consumer Affairs Branch (CAB) to reach out to the consumers who spoke at the Public Participation Hearings (PPHs) about the lack of route diversity or resiliency for Public Safety Answering Points (PSAPs) and County Office of Emergency Services (OES) offices and offer CAB's informal complaint resolution services. Those consumers may also file a formal complaint with the California Public Utilities Commission (Commission).

We encourage carriers to offer diversity, resiliency, and redundancy options to Emergency Services Offices and public safety access managers.

We refer to the Commission's Safety Enforcement Division (SED) to determine whether practices such as affixing telephone lines to trees are inconsistent with General Order (GO) 95. SED may issue citations, as appropriate for violations of GO 95. We direct SED to issue guidance clarifying the duty to affix lines to proper support

¹ 8-1-1 is a call before you dig program, coordinated by the Underground Service of America, to prevent dig-ins of underground utility infrastructure.

structures and addressing the issue of lines attached to trees, dead, diseased, or alive. We refer to SED to determine what additional steps are warranted to ensure compliance with vegetation management duties, including through the citation program, issuance of guidance about vegetation management duties in light of the tree mortality epidemic, and, if warranted, an adjudicatory Order Instituting Investigation (OII).

We refer to the Commission's Consumer Protection and Enforcement Division (CPED) to analyze whether an adjudicatory OII should be brought for any violations of state law or this Commission's rules, orders, and Decisions arising from: 1) the April 9, 2014 outage started by Intrado's systems in Colorado that led to the loss of 9-1-1 access in several states including in eight Northern California counties where Verizon Business supplied 9-1-1 access services to AT&T Mobility and Verizon, Wireless customers; 2) the outages resulting from fiber cuts in Mendocino and Humboldt counties including the August 3, 2014 outage, the September 3, 2015 outage, and the December 9, 2015 outage, each of which resulted in the loss of dial tone and in several cases 9-1-1 access for thousands in one or several counties; 3) the outages following the Verizon-Frontier transition in April-May 2016.

We direct the Commission's CPED to initiate investigations of the two major CPs, Verizon Business and Level 3 (who settled with the Federal Communications Commission (FCC) and paid fines regarding Call Completion issues, and were ordered to take corrective actions on their handling of CCP), to obtain more information about the above mentioned gaps in their intrastate long distance traffic data for calls originating from or intended to a destination in California, and recommend appropriate action. CPED shall request under this Commission's authority under the California Public Utilities Code (Cal. Pub. Util. Code) section 313 and California law, to obtain the data it needs from Verizon Business and Level 3 to analyze compliance with the duty of a carrier operating in California to carry and complete calls, under Cal. Pub. Util. Code

section 558, to provide safe, reliable service under Cal. Pub. Util. Code section 451, and other Commission rules, orders, Decisions, and the California Public Utilities Code.

We direct Communications Division and Legal Division to prepare a resolution to submit comments to the FCC to request review of whether adequate reporting was submitted under Network Outage Reporting System (NORs) and FCC rules, orders, and Decisions, and federal law for the August 3, 2014, September 3, 2015, and December 9, 2015 outages in Mendocino, Humboldt, and Del Norte Counties. The comments shall request review of whether voice outages that resulted from Optical Carrier 3 (OC3) or transport outages were adequately reported, including the loss of end-to-end 9-1-1 service for hundreds or thousands of customers affected by the OC3 or transport outage.

We direct carriers to meet and confer with California's federally-recognized tribes and County OES offices to determine if action is needed to make residential addresses visible to the 9-1-1 database, including assigning a unique address by mutual agreement in areas where all households currently have the same address.

We direct respondents to provide to city, county, and federally recognized tribal OES officials an emergency contact name and number available 24 hours a day, 7 days a week, not a general 800 or 8xx number. We direct a meet and confer with OES officials, Communications Division, and SED to discuss communications during and after emergencies such as fires and means to shorten the time for accessible communications.

We direct Communications Division to prepare and make available to carriers within 90 days of the adoption of this Decision a format for reporting outages 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage. This order does not limit the Commission's authority to require other data and records under Cal. Pub. Util. section 313, and inspection rights under Cal. Pub. Util. Code section 314.

We encourage all respondents to on a voluntary basis report outages of 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts. We encourage such reports to be made as soon as possible, and such reports should be communicated no later than 60 minutes after their discovery of such outages.

This Decision directs that Phase II of this Proceeding will explore whether the Commission should require Carriers of Last Resort (COLRs) or other respondents to report outages to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts. Phase II shall consider whether outage reporting should be made to those OES official contacts, what level of outages should be reported, and which types of carriers, if any, should be required to provide outage such reporting. A Working Group shall be convened in Phase II including Communications Division, Safety and Enforcement Division, the parties, and inviting Cal OES, City, County, and federally recognized tribal OES officials to discuss and recommend outage reporting thresholds, requirements, and protocols that reflect California's public safety needs and this Commission's responsibilities. The Commission shall consider those recommendations in Phase II of this proceeding.

We direct Communications Division to monitor reports of outages submitted to the Commission of 300,000 user minutes lasting 30 minutes or more, OC3 outages and their effect on user minutes, and other outages that fall below the Major Service Interruption threshold of GO 133-D, Section 4. Communications Division retains the authority under Cal. Pub. Util. Code section 313 to request data about other outages. Communications Division is directed to prepare and submit analysis of outage information for consideration in Phase II of this Decision.

We direct the Commission's News and Public Information Office continue and enhance the Call Completion survey and reporting tool now available on the CPUC's

Commission's web site developed during this OII, and to look into the feasibility of developing an App to allow for easy mobile input and viewing of material relevant to telephone corporation compliance with Commission rules including outages, 9-1-1 access and initiation failures, call completion failures, and any associated causes such as compliance with pole safety rules and GO 95 and GO 128.

This proceeding remains open.

1. Proceeding History and Summary of Key Findings

1.1. Proceeding History

The Commission opened this Order Instituting Investigation (OII) in May 2014, I.14-05-012, to review intrastate call completion failures in California, particularly in rural areas of the state.² The OII stated "we seek comments to better understand causes of rural call completion failures, evaluate how intrastate call completion failures can be addressed at the state level, how carriers can be encouraged to address call completion failures, what existing rules could be revised or amended, and what new rules might be adopted." In this OII, call completion issues and failures are defined as calls that were initiated, but not completed by a carrier, for any reason, whether from an urban to a rural area, [hereinafter "rural call completion problems" or "RCCP"], or other types of calls not completed including calls to 9-1-1, short code calls that cannot access a short code such as 2-1-1 or 8-1-1 (a problem we found through this OII with some Multi-line Telephone System (MLTS), also known as PBX systems), or other issues with call completion such as false disconnected messages as described in more detail below.

California law creates a statutory duty for telephone corporations to carry and complete calls. CA Pub. Util. Code § 558 states:

Every telephone corporation and telegraph corporation operating in this State shall receive, transmit, and deliver, without discrimination or delay,

² OII, I.14-05-012, p. 2.

the conversations and messages of every other such corporation with whose line a physical connection has been made.

A carrier that doesn't complete calls violates this state law duty.

In May 2015 the Assigned Commissioner's Scoping Memo and Ruling amended the scope of the OII to include a "review of 911 call completion and access issues, including, but not limited to, those due to loss of dial-tone for reasons other than service cancellation."³ The Amended Scoping Memo observed:

Since the issuance of this Order Instituting Investigation (OII), a number of 911 outages and investigations have occurred, including: 1) an inquiry by the Federal Communication's Public Safety and Homeland Security Bureau into the circumstances of a multi-state 911 outage on April 9 and 10, 2014, which resulted in a Consent Decree between the FCC's Enforcement Bureau and Verizon Business, and a fine of \$3.4 million; 2) the recent 911 outage in the Napa area after the August 24, 2014 earthquake; and 3) reports of extended 911 outages associated with loss of dial-tone after rainstorms in December 2014 and in 2015.⁴

Since the adoption of the Scoping Memo in May 2015, more outages occurred and were reported to the Commission through this OII. The Amended Scoping Memo Ordering Paragraph 2(a) amended this proceeding to include "(a) review of 911 call completion and access issues, including, but not limited to, those due to loss of dial-tone for reasons other than service cancellation." This amended scope was established "(b)ased on a review of parties' comments and replies to the questions posed in I.14-05-012, consideration of the requirements of Cal. Pub. Util. Code §§ 451 and 2883 [requiring all local telephone corporations with the exception of certain mobile telephony and mobile

³ Amended Scoping Memo, p. 4. This document is titled "Amended Scoping Memo," as it amends the preliminary scoping memo in the OII.

⁴ Scoping Memo, p. 2.

satellite services to provide “every subscriber of tariffed residential basic exchange service with access to ‘911’ emergency service.”].⁵

In this proceeding we took comment on the adoption of the OII and on the Amended Scoping Memo. Communications Division issued several data requests throughout this proceeding relevant to call completion and call access issues. We held Public Participation Hearings (PPHs) in San Andreas, Ukiah, Happy Camp, Eureka, Guernville, Middletown, Santa Cruz, Long Beach, and Visalia. We held a Workshop to discuss several proceeding issues in San Francisco. An Assigned Commissioner Ruling (ACR) sought party comments on the themes raised in the Workshop and PPHs, and we appreciate the party and public comments and participation that informed this Decision.

1.2. Summary of Key Findings

This proceeding investigated two key categories of topics, Call Completion issues and Call Access of Initiation issues including 9-1-1 and dial tone access. This Decision makes findings, recommendations, directs staff action, and orders certain measures to take action to appropriately address those issues.

The first set of issues concerns Call Completion. The OII identified several types of call completion problems for calls that were initiated by a caller, but not carried and completed to the intended recipient of the call. These are: 1) rural call completion problems (RCCP); 2) short code call problems, where a customer dials a short such as 2-1-1 to connect to social services or 8-1-1 such as call before you dig, or other

⁵ Amended Scoping Memo, Ordering paragraph 2; *Id.*, p. 2 (citing Cal. Pub. Util. Code 451 (mandating that every public utility provide “adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public”) and Cal. Pub. Util. Code 2883(2)(b) (requiring all local telephone corporations with the exception of certain mobile telephony and mobile satellite services to provide “every subscriber of tariffed residential basic exchange service with access to ‘911’ emergency service.”)).

established short codes, and is unable to reach that service, a problem we found associated with multi-line telephone systems (MLTS), also known as PBX systems, where the caller dials 9 or another number to get an outside line, and; 3) other issues where calls are not completed such as false disconnected messages.

The second set of issues concerns lack of dial tone or 9-1-1 access. Such failures result in the inability to initiate a call including an emergency call. In such circumstances, the caller may dial the digits used to make a call, but due to lack of dial tone or 9-1-1 routing or other failures, the call is not initiated. For call initiation failures, the call does not move to and through the carrier's routing system when no dial tone is present or if aspects of the 9-1-1 calling system fails. For call initiation failures, such calls are never completed to the called party because the system does not recognize that a call was made.

This proceeding received comment on several significant outages, each leaving hundreds, thousands, and in some cases more than ten thousand people, without dial tone or 9-1-1 access for hours, days, or even weeks. The outages that were the focus on this OII were: 1) the April 9, 2014 outage started by Intrado's systems in Colorado that led to the loss of 9-1-1 access in several states including in eight Northern California counties where Verizon Business supplied 9-1-1 access services to AT&T Mobility and Verizon, Wireless customers; 2) the outages resulting from fiber cuts in Mendocino and Humboldt counties including the August 3, 2014 outage, the September 3, 2015 outage, and the December 9, 2015 outage, each of which resulted in the loss of dial tone and in several cases 9-1-1 access for thousands, if not tens of thousands in one or more counties; 3) the dial tone and 9-1-1 access outages than more than 1,200 customers experienced following the Verizon-Frontier transition in April-May 2016.

We identified several key factors associated with those outages. Key outage drivers include: 1) Software-driven outages; 2) facilities-driven outages ranging from maintenance issues to fiber cuts; 3) service issues that exacerbate outages such as when

customer repair ticket requests are not properly entered or when customers have difficulty reporting outages or have to go to great lengths to report outages and wait days for repair; 4) network design issues such as route diversity of the lack thereof, particularly for outages of transport facilities that carry data and calls for thousands of customers; 5) emergencies or disasters such as wildfires that result in large scale outages resulting from burning of lines, poles, and facilities, or smoke blocking call transport facilities such as microwave dishes; 6) data gaps about the extent of outages in California not captured by the repair ticket trigger if trouble tickets are not initiated by the customer or the carrier, or if the outage falls below the Major Service Interruption threshold used in GO 133-D, pegged at the FCC Network Outage Reporting System (NORS) threshold, currently 900,000 user minutes for 30 minutes.

In analyzing these issues we also learned about 9-1-1 access issues including public safety access to the 9-1-1 database, addressing issues for some Native American tribes where all tribal members living on a reservation show on the 9-1-1 system as having the same address , and the lack of a ready contact person at a communications provider for public safety officials such as city or county Office of Emergency Services (OES) officials to communicate emergency requests such as about a downed pole blocking traffic or the status of outages creating or exacerbating an emergency. This OII orders steps to address each of those public safety issues to ensure safe and reliable service and 9-1-1 access.

This OII gathered comments and data from California residents, businesses, public safety officials, governments, and carriers about call failures, outages, their causes, and potential solutions to improve service and fulfill obligations to provide safe, reliable service at just and reasonable rates under Cal. Pub. Util. Code section 451. In this OII we heard public and party comments about the consequences to public safety, the economy, health, and education and other sectors arising from the failure to complete calls, as well as from dial-tone outages that led to the loss of the ability to call

9-1-1 or initiate other calls. We received comments about severely degraded service characterized by recurring outages or very poor quality. We received reports of long delays of three to five days or more that thousands experienced in getting voice and 9-1-1 service restored, and call quality problems addressed.

Although most Rural Local Exchange Carriers (RLECs) in California reported Call Completion failures and issues at the time we opened this OII, we are pleased to report that rural call completion problems have abated, but we are concerned that such problems have not stopped. Some California rural carriers still report occasional intrastate, as well as interstate, call completion problems as discussed below. As detailed below, carriers that experience call completion problems going forward shall provide information about the issue in a detailed letter to Communications Division. The Commission's Alternative Dispute Resolution mechanism is available to mediate inter-carrier issues that may affect call completion. Carriers may also file a formal complaint about call completion problems.

To enable access to services available through short codes, we direct carriers to educate their MLTS customers about steps to enable short code access. We direct carriers who program MLTS systems to enable short code access, with an opt-out for MLS operators for some short codes as discussed herein. We direct meetings with the 2-1-1 coalition and, the 8-1-1 coalition, as described below to effectively enable this short code access. We refer to the proceeding that will implement SB 1212 to bring 2-1-1 statewide to determine whether additional steps are prudent and necessary to ensure 2-1-1 access, including from MLTS users.

We refer to the Network Study analysis of AT&T, California and Frontier we ordered in D.15-08-041, in R.11-12-001 analysis of several issues identified and examined in this proceeding: 1) allegations of false disconnected messages, fast busy messages for what should be working lines, and extremely poor call quality comments; 2) network and call path diversity (the number of ways a call can travel to be

completed), redundancy, and resiliency issues highlighted by large-scale outages; 3) the physical condition of the AT&T, California and Frontier networks to be studied, including network maintenance and service practices that may contribute to outages and influence their breadth, length, and occurrence; 4) trouble ticket response time and outages reported through GO 133-D, and reports of outages of 300,000 user minutes or more, lasting at least 30 minutes. At the time of this writing, the Network Study Request for Proposal (RFP) is going through the Commission's contracting process and once that is completed an RFP will be issued for the study.

We take official notice under Evidence Code § 452(h) that Colorado requires diverse routing for 9-1-1 facilities.⁶ In light of the public safety issues raised by lack of route diversity or resiliency for PSAPs and County OES offices, and all California customers, we encourage carriers to offer diversity, resiliency, and redundancy options to Emergency Services Offices and public safety access managers.

We direct the Commission's Consumer Affairs Branch (CAB) to reach out to the consumers who spoke at the PPHs about these issues and offer CAB's informal complaint resolution services. Those consumers may also file a formal complaint with the Commission.

Our review of outages and 9-1-1 access failures included customer and public safety official discussion of the status of communications facilities and networks as a contributor to outages. This included comments and photographs submitted in PPHs and in TURN's response to the ACR about communications lines attached to trees, dead or alive, hanging or improperly repaired lines, leaning and overloaded poles, "buddy poles" with communications lines on a pole standing by a metal peg, and other maintenance and physical network status issues.

⁶ 4 Code Of Colorado Regulations (CCR) 723-2 Part 2 "Facilities for 9-1-1 service shall be diversely routed, using different circuit routes wherever feasible."

Many of the comments received in this OII addressed physical facilities associated with poor service or outages focused on poles, and wires, and practices that seem inconsistent with GO 95. GO 95 requires telephone corporations and those using poles and wires to engage in vegetation management including for dead, rotten or diseased trees and vegetation. With the Governor's Declaration of the Tree Mortality State of Emergency, prompt compliance with vegetation management duties is imperative. This Commission on November 10, 2016 adopted a Resolution to approve a citation program for violations of GO 95 and GO 128 to encourage compliance and monitoring of this Commission's rules regarding pole and underground line and facility safety.

We refer to SED to determine whether practices such as affixing telephone lines to trees are inconsistent with GO 95. SED may issue citations, as appropriate for violations of GO 95. We direct SED to issue guidance clarifying the duty to affix lines to proper support structures and addressing the issue of lines attached to trees, dead, diseased, or alive. We refer to SED to determine what additional steps are warranted to ensure compliance with vegetation management duties, including through the citation program, issuance of guidance about vegetation management duties in light of the tree mortality epidemic, and, if warranted, an adjudicatory OII.

We refer to the Commission's CPED to analyze whether an adjudicatory OII should be brought for any violations of state law or this Commission's rules, orders, and Decisions arising from: 1) the April 9, 2014 outage started by Intrado's systems in Colorado that led to the loss of 9-1-1 access in several states including in eight Northern California counties where Verizon Business supplied 9-1-1 access services to AT&T Mobility and Verizon, Wireless customers; 2) the outages resulting from fiber cuts in Mendocino and Humboldt counties including the August 3, 2014 outage, the September 3, 2015 outage, and the December 9, 2015 outage, each of which resulted in the loss of

dial tone and in several cases 9-1-1 access for thousands in one or several counties;
3) the outages following the Verizon-Frontier transition in April-May 2016.

We direct the Commission's CPED to initiate investigations of the two major CPs, Verizon Business and Level 3 (who settled with the FCC and paid fines regarding Call Completion issues, and were ordered to take corrective actions on their handling of CCP), to obtain more information about the above mentioned gaps in their intrastate long distance traffic data for calls originating from or intended to a destination in California, and recommend appropriate action. CPED shall request under this Commission's authority under Cal. Pub. Util. Code section 313 and California law, the data it needs from Verizon Business and Level 3 to analyze compliance with the duty of a carrier operating in California to carry and complete calls, under Cal. Pub. Util. Code section 558, to provide safe, reliable service under Cal. Pub. Util. Code section 451, and other Commission rules, orders, Decisions, and the California Public Utilities Code.

This OII received information from many Californians that service calls were often schedule by carriers five days later, even for Out-of-Service (OOS) calls. In analyzing the referrals from this Decision, we direct CPED to consider the GO 133-D standard, as well as the obligation to provide safe, reliable service with adequate facilities, 9-1-1 access, and the duty to ensure that different localities do not "maintain any unreasonable difference as to rates, charges, service, facilities, ...between localities or as between classes of service" under Cal. Pub. Util. Code sections 451, 709, 2883(2)(b), and 453, respectively, and other obligations under California law and the Commission's rules, Decisions, and orders.

We direct Communications and Legal Division to prepare a memo to propose submitting comments to the FCC to request review of whether service failuers were adequately reported under NORs and FCC rules, orders, and Decisions, and federal law for the August 3, 2014, September 3, 2015, and December 9, 2015 outages in Mendocino, Humboldt, and Del Norte Counties. The comments shall request review of whether

voice outages that resulted from OC3 or transport outages were adequately reported, including the loss of end-to-end 9-1-1 service for hundreds or thousands of customers affected by the OC3 or transport outage.

To address 9-1-1 access issues raised in the course of this proceeding, we direct carriers to meet and confer with California's federally-recognized tribes and County OES offices to determine if action is needed to make residential addresses visible to the 9-1-1 database, including assigning a unique address by mutual agreement in areas where all households currently have the same address.

We direct respondents to provide to city, county, and federally recognized tribal OES officials an emergency contact name and number available 24 hours a day, 7 days a week, and not just a general 800 or 8xx number. We direct a meet and confer with OES officials, Communications Division, and Safety and Enforcement Division (SED) to discuss communications during and after emergencies such as fires and means to shorten the time for accessible communications.

This OII finds a data gap for information about outages not captured by the repair ticket trigger of GO 133-D, or if the outage falls below the Major Service Interruption threshold used in GO 133-D, pegged at the FCC Network Outage Reporting System (NORS) threshold, currently 9000,00 user minutes for 30 minutes. Under this Commission's authority to require carrier records under Cal. Pub. Util. Code section 313, to ensure compliance with responsibility to provide safe and reliable service (Cal. Pub. Util. Code section 451), provide high-quality service throughout California (Cal. Pub. Util. Code sections 709, 275.6, and 2896), 9-1-1 access (Cal. Pub. Util. Code section 2883(2)(b) and Cal. Pub. Util. Code section 451), carrier duties to maintain and operate facilities to protect public and worker safety (Cal. Pub. Util. Code section 453), and carrier duties to complete calls (Cal. Pub. Util. Code section 558), and the statutory authority for the Commission to do all things necessary in the exercise of our jurisdiction (Cal. Pub. Util. Code section 701), we order Carriers of Last Resort (COLRs)

to provide data to the Commission about more outages than are currently reported under the GO-133 (D) Major Service Interruption standard, or through FCC NORS reporting.

In light of the public safety implications of communications outages that affect hundreds or thousands of Californians and our authority under Cal. Pub. Util. Code section 313 which allows the Commission access to utility records, immediately following the adoption of this Decision, Respondent COLRs shall report to the Commission within 120 minutes of an outage of 300,000 user minutes that last 30 minutes or more, the extent of the outages, the number of users affected, the estimated repair time and cause. For any outage of OC3 minutes or transport outage, COLRs shall report to the Commission the number of user minutes affected by the OC3 outage. Three hundred thousand (300,000) user minutes reflects the number of users that may trigger county-level public safety obligations under California's Standardized Emergency Management System (SEMS), detailed in California Code of Regulations (CCR) Title 19, § 2401. Receiving timely information about such outages is critical to enabling this Commission to ensure that carriers provide service in compliance with California law, and this Commission's Decisions, rules, and Orders.

We direct Communications Division to prepare and make available to carriers within 90 days of the adoption of this Decision a format for reporting outages 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage. This order does not limit the Commission's authority to require other data and records under Cal. Pub. Util. Code section 313, and inspection rights under Cal. Pub. Util. Code section 314.

We encourage all respondents on a voluntary basis to report outages of 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts. We encourage such reports to be made as soon

as possible after the outage has begun, and such reports should be communicated no later than 60 minutes after their discovery of such outages.

This Decision directs that Phase II of this Proceeding will explore whether the Commission should require COLRs or other respondents to report outages to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts. Phase II shall consider whether outage reporting should be made to those OES official contacts, what level of outages should be reported, and which types of carriers, if any, should be required to provide outage such reporting. A Working Group shall be convened in Phase II including Communications Division, Safety and Enforcement Division, the parties, and inviting Cal OES, City, County, and federally recognized tribal OES officials to discuss and recommend outage reporting thresholds, requirements, and protocols that reflect California's public safety needs and this Commission's responsibilities. The Commission shall consider those recommendations in Phase II of this proceeding.

In D.16-01-008 in R.14-12-014 we directed electric utilities under the Commission's jurisdiction to make outage information available to individual customers, and to post data on their website about how to access that information. We take official notice under Evidence Code § 452(h) that the State of Ohio requires carriers to notify "the commission's outage coordinator and when appropriate, the news media in the affected area," affecting at least 900,000 user-minutes that lasts 30 minutes or more.⁷ Phase II of this Proceeding will consider outage reporting requirements, including whether public reporting or reporting to the media should be required as this Commission requires for electric corporations.

⁷ Ohio Administrative Code, 4901:1-6-31, Emergency and outage operations, <http://codes.ohio.gov/oac/4901:1-6-31v1>.

We direct Communications Division to monitor reports of outages submitted to the Commission of 300,000 user minutes lasting 30 minutes or more, OC3 outages and their effect on user minutes, and other outages that fall below the Major Service Interruption threshold of GO 133-D, Section 4. Communications Division retains the authority under Cal. Pub. Util. Code section 313 to request data about other outages. Communications Division is directed to prepare and submit analysis of outage information for consideration in Phase II of this Decision.

To provide more accountability to the public, information about compliance with Commission rules, and to promote public safety and service reliability, we direct the Commission's News and Public Information Office continue and enhance the Call Completion survey and reporting tool now available on the Commission's web site developed during this OII. Some customers today occasionally post information about outages on social media, but that information is sporadic and not linked to compliance with the Commission's rules, order, and Decisions, and California law. Enabling customer sharing about outage information, as well as about violations of Commission rules relevant to outages or call completion failures, is a prudent and reasonable step to enable this Commission's oversight responsibility.

2. Legal Standards Governing the Commission's Oversight of Call Completion, Dial tone, and 9-1-1 access and Telecommunications Service

Listed below is an outline of some of the legal statutes that guide this proceeding. The legal background is also framed by this Commission's rules, orders, and Decisions.

2.1. Highlights of Duties of Carriers:

Adequate facilities to promote public safety and convenience at just and reasonable rates:

As noted in the OII that opened this investigation, under Pub. Util. Code § 451, the Commission is responsible for ensuring safe and reliable service at just and reasonable rates:

All charges demanded or received by any public utility...shall be just and reasonable. Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities...as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public.

Call Completion: California has enshrined in statute the duty of telephone corporations to carry and complete calls. California Pub. Util. Code § 558 states:

Every telephone corporation and telegraph corporation operating in this State shall receive, transmit, and deliver, without discrimination or delay, the conversations and messages of every other such corporation with whose line a physical connection has been made.

All carriers, whether wholesale, intermediate, or retail traffic haulers, must terminate traffic for one another and from an end user to another end user in every instance.⁸ The Commission found in 1997 that “[t]he obligation to complete calls applies not just to Incumbent Local Exchange Carriers (ILECs), but equally to all carriers involved in the origination, routing, and completion of calls.”⁹

Universal Service: Cal. Pub. Util. Code § 709(a). “affordability and widespread availability of high-quality telecommunications services to all Californians.”

Cal. Pub. Util. Code section 453 prohibits a public utility from maintaining any unreasonable difference as to rates, charges, service, facilities, ...between localities or as between classes of service.”

Cal. Pub. Util. Code § 275.6 provides for rate support through “rate-of-return regulation in furtherance of the state's universal service commitment to the continued affordability

⁸ OII, I.14-05-012, p. 3.

⁹ *Id.*, citing Order Instituting Rulemaking on the Commission's Own Motion Into Competition for Local Exchange Service; Order Instituting Investigation on the Commission's Own Motion Into Competition for Local Exchange Service [D.97-11-024] (1997), 76 Cal.Pub. Util.C.ode section 458, at 460.

and widespread availability of safe, reliable, high-quality communications services in rural areas of the state.” It requires the Commission to “maintain the California High-Cost Fund-A Program to provide universal service rate support to small independent telephone corporations in amounts sufficient to meet the revenue requirements established by the commission through “rate-of-return regulation” in lieu of market-based pricing.

Service quality standards: California Public Utilities Code section 2896(c) requires utilities to provide reasonable statewide service quality standards, including customer service, installation and repair. The Commission adopted Go-133-D in 2016, replacing the former GO 133-C, to establish service quality rules and a schedule of fines for violations.

9-1-1 Access and Emergency Information:

Cal. Pub. Util. Code section 2883(2)(b) All local telephone corporations, excluding providers of mobile telephony service and mobile satellite telephone service, as defined in Section 224.4, to the extent permitted by existing technology or facilities, shall provide every subscriber of tariffed residential basic exchange service with access to "911" emergency service.

Cal. Pub. Util. Code section 2889.6. The commission shall, by rule or order, require all local exchange carriers to do both of the following:

(a) Include in their telephone directory information concerning emergency situations which may affect the telephone network. The information shall include the procedures which the corporation will follow during emergencies, how telephone subscribers can best use the telephone network in an emergency situation, and the emergency services available by dialing "911."

b) Annually provide to all subscribers in the form of a billing insert, which need not be a separate document, information concerning emergency

situations which may affect the telephone network. The information shall include the procedures which the corporation will follow during emergencies, how telephone subscribers can best use the telephone network in an emergency situation, and the emergency services available by dialing "911." The billing insert shall additionally direct the subscriber to consult the telephone directory for similar information concerning the use of the telephone in emergency situations.

Duties regarding poles, conduits, and rights-of-way whether aerial or underground:

General Order 95 (*Rules for Overhead Electric Line Construction*), General Order 128 (*Rules for Construction of Underground Electric Supply and Communication Systems*) regulate access to poles, conduits, and rights-of-way by overhead or underground facilities and conduits. Among other requirements, GO 95 requires carriers to manage vegetation near wires and poles, and to sets standards for the strength and integrity of poles to support wires and attachments.

Duty to Comply with Commission Orders, Decisions, and Rules:

As mandated in § 702: Every public utility shall obey and comply with every order, decision, direction, or rule made or prescribed by the commission in the matters specified in this part, or any other matter in any way relating to affecting its business as a public utility, and shall do everything necessary or proper to secure compliance therewith by all of its officers, agents, and employees.

2.2. Highlights of Powers of the Commission:

Cal. Pub. Util. Code § 701 provides that:

The Commission may supervise and regulate every public utility in the State and may do all things, whether specifically designated in this part or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction.

Cal. Pub. Util. Code § 313 provides:

The commission may require, by order served on any public utility, the production within this State at such time and place as it designates, of any books, accounts, papers, or records kept by the public utility in any office or place without this State, or, at its option, verified copies in lieu thereof, so that an examination thereof may be made by the commission or under its direction.

Cal. Pub. Util. Code § 314 provides:

(a) The commission, each commissioner, and each officer and person employed by the commission may, at any time, inspect the accounts, books, papers, and documents of any public utility.

Cal. Pub. Util. Code § 315 provides:

The commission shall investigate the cause of all accidents occurring within this State upon the property of any public utility or directly or indirectly arising from or connected with its maintenance or operation, resulting in loss of life or injury to person or property and requiring, in the judgment of the commission, investigation by it, and may make such order or recommendation with respect thereto as in its judgment seems just and reasonable.

Pursuant to § 2101, the Commission is directed to:... [S]ee that the provisions of the constitution and the statutes of this State affecting public utilities, the enforcement of which is not specifically vested in some other officer or tribunal, are enforced and obeyed and that violations thereof are promptly prosecuted and penalties due the state therefor recovered and collected..."

Cal. Pub. Util. Code Section 2107 et. al. authorizes fines and penalties.

Cal. Pub. Util. Code Section 768 provides that the Commission “may, after a hearing, require every public utility to construct, maintain, and operate its line, plant, system, equipment, apparatus, tracks, and premises in a manner so as to promote and safeguard the health and safety of its employees, passengers, customers, and the public. . . The commission may establish uniform or other standards of construction or equipment, and require the performance of any other act which the health or safety of its employees, passengers, customers, or the public may demand.” GO 95 and GO 128 were adopted pursuant to CA PU Code 768.

Cal. Pub. Util. Code § 710(c)(7) preserves the Commission’s authority relative to the construction and maintenance of support structures and other communications facilities pursuant to General Orders 95 and 128. It also preserves the Commission’s authority relative to The Warren 911 Emergency Communications Act, California Government Code 53100(b) which declares that “it is in the public interest to shorten the time required for a citizen to request and receive emergency aid.”

3. Rural Call Completion Failures and Issues

3.1. Background of Rural Call Completion Investigation

We initiated this OII on May 15, 2014 in light of reports of call completion failures, particularly to rural areas of California. Before initiating the OII, the Commission’s Communications Division (CD) surveyed 20 rural and major urban telephone carriers during November 2012 through February 2013. CD asked the carriers to report their intrastate call completion failures. At that time, 14 carriers were rural “Rate of Return” carriers eligible to receive California High Cost Fund-A (CHCF-A) subsidies, four were major urban area carriers, and two were rural but non-Rate of Return carriers who are not eligible for CHCF-A subsidies. As stated in the OII CD learned that:

None of the responding urban major carriers reported call completion failure.

None of the rural non-Rate of Return carriers reported call completion failure.

Eleven of the fourteen rural CHCF-A-eligible carriers reported call completion failure.¹⁰

Based on this data, the OII asked “Why rural customers in territories of non-CHCF-A eligible rural carriers do not seem to experience call completion failure, while CHCF-A eligible rural carriers do?”¹¹

The OII noted the impact of call completion failures on public safety, business, economic opportunity, and security:

These problems negatively affect the lives of rural telephone customers, in particular, as they may result in the loss of potential business opportunities, adversely impact customers’ lives (e.g. missed employment opportunities, appointments, notices), and possibly interfere with security and personal health and/or safety contact efforts (e.g. 911). Given the potentially adverse impact that call completion failure can have on rural Californians, we believe the Commission needs to undertake a more detailed and formal investigation of intrastate call completion failure to better understand the root causes, and to find remedies or solutions to minimize call completion failure frequency.¹²

The OII order listed the issues and questions to be considered in this proceeding in the Preliminary Scoping Memo herein, “and include whether there is a specific need to take remedial action regarding call completion failures in light of market and technological developments.” The OII created a forum for this proceeding to yield proposals for remedial action to address call completion failures and the topics defined in the Amended Scoping Memo adopted in 2015.

¹⁰ OII, I.14-05-012, p. 5.

¹¹ OII, I.14-05-012, p. 6.

¹² OII, I.14-05-012, p. 4.

At the time the Commission opened this OII in May 2014, the FCC had on October 28, 2014 adopted a Report and Order and Further Notice of Proposed Rulemaking (“FCC Rural Call Completion Order”) prohibiting some of the practices that contributed to rural call completion failures, and affirmed the duty of carriers to complete calls.¹³ The FCC and Congress have recognized that the problem of rural call completion is frequently associated with carrier use of intermediate carriers, such as Least Cost Routers (“LCRs”), who transport calls using methods to minimize costs, but some of whom fail to transport telephone traffic so it never reaches a small or rural LECs’ networks.¹⁴ The FCC largely reaffirmed that Order in its November 2014 Order on Reconsideration, modifying the recordkeeping, retention, and reporting requirements adopted in the *Order* do not apply to a limited subset of calls, particularly certain intraLATA (with a Local Area Telephone Network) calls.¹⁵

We opened this OII to determine whether there was evidence of violations of California law, such as violations of the state-law duty to carry and complete calls under Cal. Pub. Util. Code section 558. We also examined whether there was a need to take remedial action to address these issues in California and ensure that Californians receive safe, reliable service at just and reasonable rates (Cal. Pub. Util. Code section 451), and high quality telephone service throughout California. (Cal. Pub. Util. Code section 709). The OII stated “If actual intrastate data shows a consistent call completion

¹³ Rural Call Completion, WC Docket No. 13-39, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 16154 (2013) [hereinafter “*FCC Rural Call Completion Order*”).

¹⁴ *Id.*, ¶¶16-17.

¹⁵ Rural Call Completion, WC Docket No. 13-39, Order on Reconsideration, 28 FCC Rcd 16154 (2013) [hereinafter “*FCC Rural Call Completion Order on Reconsideration*”) (excluding from reporting requirements “intraLATA toll calls that are carried entirely over the covered provider’s network, and intraLATA toll calls that are handed off by the covered provider directly to the terminating local exchange carrier (LEC) or to the tandem that the terminating LEC’s end office subtends.”) We note that many of the intraLATA calls are likely to be intrastate calls.

issue, then the Commission can take action to control and eliminate call completion failures as it pertains to intrastate carrier traffic.”¹⁶

3.2. Findings of Rural Call Completion Investigation

3.2.1. Summary and Recommendations

Throughout this proceeding we continued to monitor rural call completion failures in California, their causes, prevention, and resolution of these issues. The OII sought comments to better understand causes of rural call completion failures, evaluate how intrastate call completion failures can be addressed at the state level, how carriers can be encouraged to address call completion failures, what existing rules could be revised or amended, and what new rules might be adopted.

We explored areas where there should be a coordinated effort among the Commission, its counterparts in neighboring states, and the Federal Communications Commission (FCC), so that all Californians can send and receive phone calls without discrimination or delay.

We are pleased that CHCF-A-fund eligible rural carriers reported that call completion failures have subsided since the opening of this OII and the FCC’s 2013 and 2014 decisions, though they still sporadically appear. Speakers testified at the PPHs and Workshops in Happy Camp, San Andreas, and San Francisco, California about the occurrence and effects of rural call completion problems, and the difficulty of learning when they occur and tracing the causes of such failures.¹⁷

At the July 2016 PPH in Happy Camp, California, CHCF-A Fund Cal-Ore President stated that call completion failures still occasionally reoccur, particularly for

¹⁶ OII, I.14-05-012, p. 7.

¹⁷ San Francisco Workshop, Tr., p 94; Happy Camp PPH, Tr., pp. 568ff.; San Andreas PPH, Tr., pp. 335-359; RLEC Comments on the ACR.

calls from Oregon, and for some intrastate calls, though they are not constant.¹⁸ Cal-Ore and the CHCF-A-fund carriers urge this Commission to remain vigilant about call completion issues, and to be available to mediate inter-carrier disputes about intrastate call completion failures, and to work with the FCC on federal efforts to address intrastate call completion.¹⁹ We discuss in more detail below our findings on this topic and the steps we take to initiate those recommendations.

Pursuant to the FCC's Rural Call Completion Order and Order on Reconsideration, the FCC requires certain long distance providers to submit data on their long distance traffic as a means for further inquiries into the rural call completion problems (RCCP). Through this OII, the Commission's Communications Division requested the FCC to share with the CPUC the data related to long distance traffic calls made to California Rural Local Exchange Carriers (RLECs).

The FCC supplied data is not designed to identify call failures. Communications Division discovered that the FCC data shows gaps between calls attempted and calls completed for some carriers. The FCC data revealed that in California, Verizon Business and Level 3 account for three-fourths of long distance call delivery to Rural Local Exchange Carriers. The FCC data showed that both Verizon Business and Level 3 had the largest gaps between attempted calls and completed calls.

3.2.2. CAB Data and Public Comment on Rural Call Completion Failures

We reached out to the CPUC- Consumer Affair Branch (CAB) and asked them to identify consumer reported rural call problems. CAB did not identify any consumer reported CCP. It is often difficult for a consumer to detect whether a failure of a call to go through, or the apparent failure of the person called to answer the phone, is the

¹⁸ Happy Camp PPH, Tr., p. 577.

¹⁹ San Francisco Workshop, Tr., pp. 123; Happy Camp PPH, Tr., p. 569.

result of a RCCP, as opposed to the receiving party being not near their phone or an issue with the rural phone company that would terminate the call if it was sent to its exchange.

At the PPH in San Andreas Rose Cullen from Calaveras Telephone (CalTel), a CHCF-A Fund carrier, explained that Calaveras Telephone received complaints starting in late 2011 and peaking in August 2012 from “residential customers [who] call complaining that they weren’t receiving calls from family members or friends. We also had a local business call and complained numerous times thinking that we were the problem, that we were causing it, that it was our network that was not completing the calls for them.”²⁰ Rosvall echoed those comments at the San Andreas PPH on behalf of the California CHCF-A Fund carriers. He reported that for many small Rural Local Exchange Companies (Small RLECs), particularly in 2011-2012, “one of our local customers would call us and say so, one of my family members, whoever it may be, was trying to call me and they were unable to complete the call, ‘So what is wrong with your network?...So then we would do a little more investigation, and typically the originating carrier would try to sort out the problem.’”²¹

We find that relying on customer reports of rural call completion failures would yield a very incomplete picture of the dimensions and causes of this issue. Accordingly, our analysis focused on the FCC supplied data, comments from the carriers in response to this OII, and the record as indicated in the PPH transcripts and this proceeding.

3.2.3. Analysis of the FCC Data on Long Distance Covered Providers to California Rural Areas

The FCC collects data from covered originating long distance providers (hereinafter “Covered Provider or (CP)”) to collect and report aggregate data four times

²⁰ San Andreas PPH, Tr., p. 348.

²¹ San Andreas PPH, Tr., pp. 338-339.

a year on calls made to individual Rural Local Exchange Carriers (RLECs) and to nonrural Local Exchange Carriers. The FCC intends to use these data to identify possible areas for further inquiry.

On October 10, 2015, the Commission requested the FCC to share the relevant data on such calls made to California RLECs identified by their Operating Company Number (OCN)²² (see Appendix A for the list of these carriers). The FCC provided the Commission the first data set that covers three months of data for April, May, and June 2015.²³

In what follows, we will discuss what kind of data is provided, its limitations, and what can be deciphered for the benefit of our current OII. Finally, although this is the analysis of reporting for the second quarter of 2015, the fundamental arguments related to the limitations of the data and general observations remain valid for the latter quarters. Our discussion is consistent with the FCC's requirements for maintaining the confidentiality of the data as we provide a high-level analysis of the data, and identify a basis for further inquiry that is not limited to the FCC data set.

3.2.3.1. California Reporting Calling Parties

The first set data we received from the FCC provided data from 47 CPs (See Appendix B for the list of these CPs) that provide long-distance voice service making the initial long-distance call path choice to RLECs in California. The list of CPs serving California is likely to change over time as new players may be added or some may be dropped from the list of CPs. For a number of reasons, the FCC may not require some carriers now or in the future to file CP data with the FCC. Thus, this FCC-

²² 47 C.F.R. § 64.2109(b) allows states to obtain call completion data "if the states are able to maintain the confidentiality of this information."

²³ We received the second quarter of 2015 as the first set data followed by third and the latest fourth quarter received on 12-24-2016.

gathered data could cover an exhaustive list of all providers of long distance telephone services to rural carriers.

3.2.3.2. Frequency of Rural Call Completion Data Filing

The FCC collects data from CP four times a year.²⁴ This information concerns the delivery of calls to Rural Local Exchange Carriers (RLECs)²⁵ and is used to identifying possible areas for further inquiry.

3.2.3.3. Required Format and Information

The FCC provides an Excel based template for quarterly reporting purposes.²⁶ The Excel workbook consists of the following worksheets: Three monthly worksheets, one for each month in the quarterly reporting period, on which a CP must report the mandatory detail information on call attempts by terminating OCN. Three monthly worksheets, one for each month in the quarterly reporting period, on which a CP may voluntarily break-out the subset of information for call attempts originating on autodialer facilities. One worksheet for providing explanations of the techniques concerning the data filed.

For each rural Operating Company Number (OCN), a cell is provided in which to report each of the following: the number of *interstate calls attempted*; the number of *Interstate* call attempts that were *answered*; the number of *Interstate* call attempts that were not answered, reported separately for call attempts signaled as *busy, ring no answer, or unassigned number*; the number of *Intrastate calls attempted*; the number of *Intrastate* call attempts that were *answered*; and the number of *Intrastate* call attempts that were not answered, reported separately for call attempts signaled as *busy, ring no*

²⁴ Filing Deadlines are First Quarter: May 1 (effective 2016), Second Quarter: August 1, Third Quarter: November 1, Fourth Quarter: February 1. The electronic filing system becomes available for a new filing round approximately one month before the deadline for that filing.

²⁵ Of approximately 1,350 rural OCNs, 16 are California RLECs.

²⁶ FCC Form 480.

*answer, or unassigned number.*²⁷ The CP's workbook must precisely match the FCC's template but the FCC rules do not specify the technique by which a covered provider must identify how to classify a call made to a particular rural ILEC.

3.2.3.4. Call Completion Problems Settlements

To this date the FCC investigated several carriers and entered into settlement agreements and consent decrees on their handling their CCPs. They include a FCC settlement or consent decree with: Level 3 on March 2013;²⁸ Windstream in February 2014;²⁹ Matrix Telecom in June 2014;³⁰ and Verizon Business in January 2015.³¹ The following section summarizes the Verizon Business consent decree as Verizon Business has a major presence in California's telecommunication market. We note that Verizon Business was a separate from Verizon, California, and was not a party to the transfer of Verizon, California to Frontier, California.

The Verizon Business rural call completion consent decree is notable in that the company was an incumbent carrier that the FCC deemed deficient in its handling of calls in its role as a retail provider. Previous rural call completion consent decrees primarily involved competitive carriers such as Matrix Telecom and Level 3, often in their role as intermediate carriers hired by a retail provider to complete calls.

3.2.3.5. Verizon Business Consent Decree Summary

The Verizon Business-FCC RCCP 2015 consent decree is the latest of consent decrees with the FCC related to rural call completion problems. Verizon Business

²⁷ Nonrural LEC OCN data is only reported to the FCC in the aggregate as the nonrural total, i.e. nonrural call attempts are not broken down by individual OCNs. CPUC did not request nonrural data.

²⁸ The FCC, DA 13-371A1.

²⁹ The FCC, DA 14-152.

³⁰ The FCC, DA 14-679.

³¹ The FCC, DA 15-74.

agreed to pay two million dollars and to implement a compliance plan to which it has committed an additional three million dollars.³²

The FCC determined that Verizon Business failed to investigate evidence of low call answer rates to 26 different rural areas, although the FCC did not specify in which states these rural areas were located.³³ The FCC determined that Verizon Business should have investigated the reasons for the lower call completion rate to rural areas, and taken action to determine whether an intermediate carrier or any Verizon Business practices might be at fault or contributing to the lower call completion rate.

Verizon Business's consent decree with the FCC included provisions similar to those involved with previous RCCP consent decrees, and added several new provisions. The FCC required Verizon Business to:

- ... Appoint a rural call completion ombudsman with the company to centralize analysis of rural call completion problems
- ... Develop a system to automatically identify customer complaints that may be related to rural call completion issues
- ... Limit the use of intermediate providers
- ... Monitor call answer rates to individual rural areas and conduct an investigation when rates to an area fall below an established threshold
- ... Host industry workshops and sponsor an academic study on methods to detect and resolve rural call completion problems
- ... Provide quarterly summaries of its investigations to the FCC and meet periodically with commission staff to identify lessons learned
- ... Prepare a report to be publicly filed with the commission at the end of the three-year compliance period

3.2.3.6. Discussion and Findings

For the purpose of finding useful data related to call completion issues in rural California, Communications Division analyzed only the intrastate portion of data

³² The FCC, DA 15-74.

³³ *Id.*

submitted to the FCC, and attempted to extrapolate from the provided data. We observed data limitations and adopt remedies to be able to extract useful findings.

3.2.4. Limited Validity of Data

The validity of the findings as a measurement of CCP is limited for the reasons listed below, as are the steps attempted to overcome this limitations:

- A. In spite of the FCC attempt to obtain standardized set of data from CPs requiring them to format data precisely match the Form 480, in many instances, CPs deviated from the template by changing format or leaving cells blank. Doing so made it impossible to determine if the data was not available to the CP, or the CP knew the data and did not report, or data equaled zero occurrences.

Remedy- Communications Division attempted to reformat affected data if possible. In those instances that blank data was reported, Communications Division put it aside from its findings.

- B. The FCC left it to the CP to determine how they would categorize calls attempted, calls answered, busy calls, and ring no answer. Thus, data consistency was compromised, limiting the ability to extrapolate data.

Remedy- Communications Division attempted to match CP's techniques as much as possible to draw a reasonable finding.

- C. The FCC left it to the CPs to report their autodialer data separately if so they choose. The data do not inform the reader whether the CP did not have a separate autodialer data, whether the data aggregated their autodialer and non autodialer data, or whether the CP did not have autodialing facilities.

Remedy- Communications Division combined separate autodialer data with non-autodialer data wherever reported as separate subsets. Communications Division assumed those CPs who did not report separate autodialer data in fact reported combined data that includes their autodialing data.

3.2.5. Call Categorization and Ratios

The FCC required CPs to break down call data into calls attempted, answered, busy, ring no answer, and unassigned number. The FCC left to the CPs to determine how a call fits into those categories but asked CPs to explain their categorization. For

example some CPs explain their decision in general as “cause codes’ driven, others refer to any of standards such as SIP, SS7, etc.³⁴ We then used ratios of answered calls and completed calls and identified some carrier with less than perfect completed call ratio.

The referenced ratios are calculated as:

Ratio of answered calls = Attempted / (Answered – Unassigned number)

Completed calls are calculated as : (Attempted call – Answered – Busy – Ring no Answer – Unassigned ≥ Zero)

Ratio of completed calls = (Answered + Busy + Ring-no-answer) / (Answered – Unassigned number)

3.2.6. Findings

The FCC required CP data is intended to be used to identify possible areas for further inquiry and not specifically to identify call failures. Data reported by CPs does not identify failed calls and does not address root causes of such failures either. By the same token, other issues associated with call completion problems e.g. poor quality of calls or network congestion delays are not accounted for in these reports. With these caveats in mind, as we summarized reported data in the Appendix D, we found these findings noteworthy:

- A. Twelve CPs, or more than quarter of the total CPs, either did not have attempted calls to rural areas or they did not report them because they either reported zero calls or left categories of calls blank with no explanation.
- B. Of those that reported more than zero calls, seven had 1,000 or less attempted calls from Armstrong with six attempted calls to Momentum with 950 attempted calls.

³⁴ Carriers use a variety of standards to identify calls specifics such as how attempted, duration, connected, interrupted, terminated and more. There are number of standards that serve one or more voice delivery technology. For example, Session Initiation Protocol (SIP), Signaling System 7 (SS7) is an international telecommunications standard that defines how network elements in a public switched telephone network (PSTN) exchange information over a digital signaling network. For a sample list of cause codes see Appendix C.

- C. One-half of those who reported more than zero attempted calls had less than 50,000 calls.
- D. Verizon Business with over 11 million attempted calls had the highest number calls attempted followed by Level 3 at around 1.5 million calls. Together, they represent $\frac{3}{4}$ of all attempted calls.
- E. Verizon Business and Level 3 settled with the FCC after the FCC investigated their handling of CCP.
- F. Verizon Business and Level 3 had a 75% and 88% completed call ratio, respectively.
- G. Twenty three of CPs had a call completion ratio of more than 90% with attempted call range from 6 to less than half a million.
- H. With the exception of seven CPs at 100% completion and twelve blank/zero reporting CPs, the remainder of CPs have discrepancies between their attempted calls and their completed calls to varying degrees. Neither Form 480 nor the CPs provided sufficient information to identify the differences in attempted to completed calls, or reveal their causes.
- I. The Commission's CAB data search revealed no consumer initiated call completion concern or complaint, although in the Call Completion OII PPHs several RLECs reported complaints they received from customers.

3.2.7. Conclusion, Recommendations, and Orders

Interstate call completion monitoring requires cooperation among states and the FCC at the national level, though the states have an important role to play, as recognized by the FCC in identifying and monitoring the problem. States like California, must address state-level issues under state law, where appropriate, both for interstate and intrastate calls. Telephone corporations have a duty to carry and complete calls under Cal. Pub. Util. Code 558, and that code does not limit that duty to intrastate calls. We are also concerned about Cal-Ore's complaints that call completion problems, both interstate between California and Oregon, and intrastate, between

certain carriers and Cal-Ore, have occasionally reoccurred over the pendency of this OII.³⁵

The OII that opened this proceeding stated “(C)ontingent upon findings in this OII, we will then consider opening an Order Instituting Rulemaking (OIR) proceeding to propose remedies to address problems identified in this Investigation.³⁶ We have considered this option and in lieu of an OIR to consider remedies, we make the following directives:

- A. We direct the Commission’s CPED to initiate investigations of the two major CPs, Verizon Business and Level 3 (who settled with the FCC and paid fines regarding Call Completion issues, and were ordered to take corrective actions on their handling of CCP), to obtain more information about the above mentioned gaps in their intrastate long distance traffic data for calls originating from or intended to a destination in California, and recommend appropriate action. We note that the FCC data do not break down the CP data by state. CPED shall request under this Commission’s authority and California law the data it needs from Verizon Business and Level 3 to analyze compliance with the duty of a carrier operating in California to carry and complete calls, under Cal. Pub. Util. Code section 558, to provide safe, reliable service under Cal. Pub. Util. Code section 451, and other Commission rules, orders, Decisions, and the California Public Utilities Code.
- B. Carriers that experience call completion problems going forward shall provide information about the issue in a detailed letter to Communications Division. We direct Commission Division to analyze such letters, request data, and recommend appropriate action as needed. We delegate to Communications Division to develop reporting templates or guidelines for reporting call completion problems for California intrastate or interstate calls.
- C. We remind carriers that the Commission’s Alternative Dispute Resolution mechanism is available to mediate inter-carrier issues that

³⁵ Happy Camp PPH, Tr. p. 577 (Cal-Ore stated the company found call completion failure for calls from Oregon and for some intrastate calls from Charter to Cal-Ore).

³⁶ OII, I.14-05-012, p. 2.

- may affect call completion. Carriers may also file a formal complaint about call completion problems.
- D. The FCC continues to receive data from CPs with goal of identifying areas for further inquiries. Although we can observe gaps between calls attempted and calls completed for several CPs, there is no explained reason why the discrepancies exist, so it should be an area deserving further investigation at the national level, in addition to CPED's investigation under California law and this Commission's jurisdiction.
 - E. We direct Communications Division and our Legal Division to draft comments for our consideration to file at the FCC about the data gaps and inconsistency in their RCCP database, and seek improvements in the reporting, data gathering, and monitoring process.
 - F. We adopt the CHCF-A Fund Carriers suggestion that we direct the Commission's News and Public Information Office and Consumer Affairs Branch to develop and post on the web and through brochures consumer information about rural call completion failure issues and steps to take to help the Commission identify and resolve them. Customers should be encouraged to track the time and date of the failed calls, the telephone numbers of the called and calling parties, the carriers for the called and calling parties including the calling parties' interexchange (long-distance) carrier. CAB shall request this information if it receives a call completion complaint from the public.

We direct the Commission's News and Public Information Office to continue and enhance the Call Completion survey and reporting tool now available on the Commission's web site developed during this OII.

4. Other Types of Call Completion Failure Issues: 9-1-1 Call Completion Failures, Short Code Call Completion Failures, 9-1-1 Addressing issues, 9-1-1 Database Access, Public Safety Contact information for Carrier Access

4.1. Definition of 9-1-1 Call Completion Issues and Summary

The Amended Scoping Memo issued in May 2015 expanded the scope of this proceeding to include "review of 911 call completion and access issues, including, but not limited to, those due to loss of dial-tone for reasons other than service

cancellation.”³⁷ The inclusion of this issue in the OII scope was made urgent by reports of failures of 9-1-1 calls to reach the PSAP, including those made during the multi-state outage of April 9, 2014 affecting nine California counties and 13 PSAPs.³⁸ The FCC noted that these nine California counties “cover a geographic area of over 24,000 square miles and have a population of more than 748,000. It was a classic “sunny day” outage—one that did not result from an extraordinary disaster or other unforeseeable catastrophe.”³⁹

We are concerned about the Californians who tried to call 9-1-1 on April 9, 2014, and on other occasions as reported in this OII, and on those occasions about which we are not informed. The County of Sonoma did not participate as a party in this OII. We held a PPH in Guerneville in August 2016. We received no additional information about the 9-1-1 outage in the Napa area after the August 24, 2014 earthquake, though we received extensive comments about the physical condition of the network including attachment of telephone lines to dead trees and poor maintenance, alleged to deteriorate call quality and calling access. Neither did this OII receive information about reports of extended 911 outages associated with loss of dial-tone after rainstorms in December 2014 and in 2015, though we did receive reports of telephone service going out after rain storms, and that poor line maintenance permitted water intrusion into lines that allegedly interferes with call quality and can contribute to lack of dial tone and 9-1-1 access.

Californians should be able to reach 9-1-1 when they make the most important call of their life.

³⁷ Amended Scoping Memo, Ordering paragraph 2(a).

³⁸ FCC, Public Safety and Homeland Security Bureau, April 2014 Multistate Outage, Causes and Impact, Report and Recommendations, Docket No. 14-72, PSHSB Case File Nos. 14-CCR-0001-0007, p. 4 [hereinafter, *FCC, April 2014 Multistate Outage Report*].

³⁹ *Id.*

The 9-1-1 emergency system is designed to quickly route calls to emergency services operators. The short code digits 9-1-1 activate routing directions to a specific trunk group with information that another function (the selective router, S/R) uses to route the call over specific trunks to the PSAP. The architecture of the 9-1-1 system has evolved over time and Internet Protocol (IP) is increasingly used and its use may differ alter the routing path described above. Maintaining reliable and resilient access to 9-1-1 is both imperative and a duty of carriers under California law.

A carrier's obligations to carry and complete calls under Cal. Pub. Util. Code section 558 applies to all calls. The Warren 911 Emergency Communications Act, California Government Code 53100(b) declares that "it is in the public interest to shorten the time required for a citizen to request and receive emergency aid." Cal. Pub. Util. Code § 2883 states that telecommunications utilities shall "continue[s] to provide a public safety net in a competitive telecommunications market. It also requires that, "(b) All local telephone corporations, excluding providers of mobile telephony service and mobile satellite telephone service, as defined in Section 224.4, to the extent permitted by existing technology or facilities, shall provide every subscriber of tariffed residential basic exchange service with access to '911' emergency service."

This OII analyzed examples of both 9-1-1 calls that Californians initiated but that did not reach 9-1-1 dispatch, defined herein as "9-1-1 Call Completion failures." It also identified and analyzed reports of customer problems reaching 9-1-1 due to lack of dial-tone, outages, or quality so poor that although the service is paid for and should be working, Californians facing those circumstances are unable to initiate a 9-1-1 call, defined herein as "9-1-1 access failures." We focus in this section on the 9-1-1 Call Completion outage of April 9, 2014. There may be other examples of 9-1-1 Call Completion issues not fully brought to light in this OII. The policies we discuss herein affirm the importance of 9-1-1 and dial tone access.

4.2. 9-1-1 Call Completion Failures of April 9, 2014

4.2.1. FCC Multistate 9-1-1 Outage Report and Recommendations and Resultant FCC Orders and Settlements

On April 9, 2014, Colorado-based Intrado, Inc.'s⁴⁰ 9-1-1 call-routing facility stopped directing emergency calls to eighty-one 9-1-1 call centers (Public Safety Answering Points (PSAPs) in seven states California, Florida, Minnesota, North Carolina, Pennsylvania, South Carolina, and Washington. Washington State was most affected where all the state's PSAPs experience it to some degree and the affected population was 6,971,406. In California, 30,000 people in nine counties were potentially affected by the failures that left AT&T Mobility and Verizon, Wireless customers unable to reach the thirteen PSAPs in those Northern California counties.

In its consent decree with Verizon Business, the FCC determined that nine California counties lost access to 9-1-1 for wireless callers from Verizon, Wireless and AT&T Mobility as a result of what the FCC concluded was "a software coding error" in Intrado, Inc.'s Colorado facility (a subcontractor to Verizon, Business which contracted with the California Office of Emergency Services (Cal OES) to provide a 9-1-1 trial for Internet Protocol (IP)-based 911.⁴¹ The FCC found that the Intrado outage in Colorado "resulted in a loss of 911 service for more than 11 million people nationally for up to six hours," and affected 13 Public Service Answering Point (PSAPs) in California.⁴²

⁴⁰ Intrado: The Company is a provider of 9-1-1 related services in many states. In some states such as South Carolina, it is the direct provider of 9-1-1 service and in some others, it is a third party contactor. Such are the cases in with CenturyLink in Washington and with Verizon Business in California. See FCC, April 2014 Multistate Outage Report, p. 1.

⁴¹ FCC, Public Safety and Homeland Security Bureau, April 2014 Multistate Outage, Causes and Impact, Report and Recommendations, Docket No. 14-72, PSHSB Case File Nos. 14-CCR-0001-0007, p. 1 [hereinafter, *FCC, April 2014 Multistate Outage Report*].

⁴² *Id.*; FCC, In the Matter of Verizon, File Number EB-SED-14-00017189, EB-SED-14-00017676, EB-SED-14-00017373, March 18, 2015, Order and Consent Decree, p. 2 [hereinafter "*FCC Verizon Business Order and Consent Decree, 9-1-1 Multistate Failure.*"]

The FCC's investigated the causes and impacts of a multistate 9-1-1 service outage that occurred on April 9, 2014 and reported its findings and recommendations in October 2014. The FCC concluded that the 2014 multistate caused by a software coding error resulting in a six-hour loss of 9-1-1 services to more than 11 million people. The report found that the multistate outage was preventable.

The FCC observed that the April 9, 2014 multi-state 9-1-1 outage was not an anomaly, but a flash point that indicates a pattern of software-driven outages. The FCC concluded "What is most troubling is that this is not an isolated incident or an act of nature. So-called "sunny day" outages are on the rise. That's because, as 911 has evolved into a system that is more technologically advanced, the interaction of new and old systems is introducing fragility into the communications system that is more important in times of dire need."⁴³ The FCC cautioned about the need for close monitoring of network performance and issue in light of the ongoing transition to Internet-Protocol (IP)-based networks:

"The causes of this outage highlight vulnerabilities of networks as they transition from the long-familiar methods of reaching 911 to IP-supported technologies. In particular, the technical and operational failures that caused and prolonged the outage suggest the need for a close examination of the transition to IP-supported 911 services."⁴⁴

We concur with the FCC, and similarly are concerned about the risks related to software-driven outages. As we discuss below, Frontier cited software-driven issues as a key reason why more than 1,500 customers, as estimated by complaints to the FCC and the CPUC, who had functioning lines when they were Verizon, California customers, lost dial-tone service including 9-1-1 access shortly after the Verizon, California-Frontier transition in April 2016.

⁴³ FCC, *April 2014 Multistate Outage Report*, p. 1.

⁴⁴ *Id.*

Service issues compounded both of those incidents. For the April 9, 2014 outage, Verizon Business reported to the FCC that “Intrado allegedly did not inform Verizon of the outage until after it was resolved. After Verizon Business was informed about the impact of the outage on the trial, it notified the State of California Office of Emergency Communications, the entity with which Verizon contracted to provide service under the trial.”⁴⁵ The FCC consent decree is based in part of Verizon Business’s failure to timely notify the 13 California PSAPs affected by the outage. “Pursuant to the [Federal Communications] Commission’s rules, Verizon was required to timely notify all affected Public Safety Answering Points (PSAPs) of the April 2014 outage, but Verizon failed to do so.”⁴⁶

PSAPs throughout the areas affected by the April 2014 outage such as California were left to share information as it filtered into through other public safety sources or those who still had working lines. The PSAPs and public safety officials faced an information vacuum about the outages. Lacking that information, public safety officials were not able to request carriers to seek methods to reroute calls, or to inform the public to use a landline to call 9-1-1, not a cell phone using the networks of the affected carriers. The FCC reported that PSAP officials first became aware of the impact on the public in their area when the FCCs staff contacted them in the course of this investigation.⁴⁷

This information gap and failure to comply with legal requirements to notify PSAPs left Californians vulnerable to 9-1-1 calls not going through. This is an especially troubling prospect in the rural northern California counties where this occurred, as they are literally bears out there, and these are places where help may be far away. The

⁴⁵ FCC, In the Matter of Verizon, File Number EB-SED-14-00017189, EB-SED-14-00017676, EB-SED-14-00017373, March 18, 2015, Order and Consent Decree, p. 2 [hereinafter “FCC Verizon Business Order and Consent Decree, 9-1-1 Multistate Failure.”]

⁴⁶ FCC Verizon Business Consent Decree, 9-1-1 Multistate Failure, p. 2.

⁴⁷ The FCC April 2014 Multistate Outage Report, p. 6.

conduct of Verizon Business with regard to the April 9, 2014 failures of 9-1-1 service reflects not only a failure to observe federal law, but raises questions about whether they provided service is consistent with their duties under California law.

4.2.2. 9-1-1 Service Providers in the Affected California Counties

As the FCC noted in its Verizon Business Consent Decree, Verizon Business provides 911 service “(P)ursuant to a contract with the State of California Office of Emergency Communications.”⁴⁸ The FCC explained:

Verizon [Business] is the 911 service provider as part of a trial in an area of Northern California. The trial, which began in 2012, is designed to test a new way of routing wireless 911 calls to the appropriate PSAP using the latitude/longitude location of the caller. The call routing being tested in the trial would eliminate as many call transfers among PSAPs as possible in an effort to minimize the time it takes for a wireless 911 caller to reach the appropriate PSAP for her or his location. The trial is limited to 911 calls originating from AT&T Mobility and Verizon, Wireless in the specified area. Verizon subcontracts performance of certain functions of the trial to Intrado, a provider of 911 and emergency communications infrastructure, systems and services to telecommunications service providers and public safety agencies throughout the United States.⁴⁹

The limited geographic nature of the 9-1-1 trial involving Verizon Business is the only reason the April 9, 2014 multi-state 9-1-1 outage affected nine northern California counties and not even larger portions of California. “All of Washington State’s 39 counties were affected by the multistate outage.”⁵⁰

⁴⁸ FCC, In the Matter of Verizon, File Number EB-SED-14-00017189, EB-SED-14-00017676, EB-SED-14-00017373, March 18, 2015, Order ¶1.

⁴⁹ FCC, In the Matter of Verizon, File Number EB-SED-14-00017189, EB-SED-14-00017676, EB-SED-14-00017373, March 18, 2015, Order ¶1.

⁵⁰ FCC, *April 2014 Multistate Outage Report*, p. 17, fn. 48 (“The State of Washington, through its Military Department, has a contract with CenturyLink for the latter to be “the sole wireline 911 service provider for the State of Washington and has partnered with Intrado to provide this service. The contract was executed between Qwest and the State of Washington in 2008 and

(footnote continued on next page)

For the 9-1-1 contract between Verizon Business and the Cal OES, Verizon Business subcontracted to Intrado for certain functions, including IP selective routing of 9-1-1 calls from these providers. Calls to 9-1-1 from AT&T Mobility and Verizon, Wireless subscribers were affected by the April 2014 outage.

Verizon Business also provides an IP trial 9-1-1 network to these same PSAPs for calls originating with other providers. Calls to 9-1-1 in the trial areas of California from providers other than AT&T Mobility and Verizon, Wireless use a different 9-1-1 network that was unaffected by the event in Intrado's network. All wireline users, all VoIP users, and customers of wireless providers other than AT&T Mobility and Verizon, Wireless were not impacted by the 9-1-1 call completion failure and outage that began with software issues at Intrado on April 9, 2014.

While greater percentages of other states were affected by the 9-1-1 Call Completion failures in April 2014, thirteen California PSAPs lost their ability to receive 9-1-1 calls from AT&T Mobility and Verizon, Wireless customers. This incident affected a large geographical area characterized by long distances to reach help.⁵¹ (see Appendix D). California's affected population was 30,000. Approximately one-thousand calls failed in California, Florida, and South Carolina, but the FCC report did not give a state by state breakdown of 9-1-1 Call Completion failures during this incident.⁵²

effective in 2009. Service was turned up in 2009 and a transition began at that time from legacy 911 to Emergency Services IP Network ("ESINet")." See CenturyLink Comments at 3-4.)

⁵¹ FCC, *April 2014 Multistate Outage Report*, p. 17 (identifying the affected California counties as: Butte, Colusa, Lassen, Plumas, Shasta, Siskiyou, Sutter, and Yuba). The *FCC Verizon Business Order and Consent Decree, 9-1-1 Multistate Failure*, p. 1 states that the 9-1-1 failures on April 2014 affected nine California counties but does not list the nine counties.

⁵² *Id.*, p. 4.

4.2.3. FCC Recommendations for Maintaining a Reliable End-to-End 9-1-1 System

The FCC's Multistate 9-1-1 outage report recommended that the FCC, state governments, and 9-1-1 industry participants take steps to preserve the reliability and integrity of the 9-1-1 system now and throughout transition to NG9-1-1 (next generation 9-1-1) and beyond. The FCC explained that "NG911 networks, which rely on IP-supported architecture rather than traditional circuit-switched time division multiplexing (TDM) architecture, introduce promising new capabilities, such as more flexible call routing and the ability to provide PSAPs with a greater range of information (such as video). At the same time, however, they can also introduce new vulnerabilities and challenges."⁵³

The FCC contrasted traditional, local-based 9-1-1 systems, and IP-based 9-1-1 network which may be deployed out-of-state and cross many state and jurisdictional boundaries. "For example, call control in legacy 911 networks was primarily performed in a central office switch that was close to the customers it served, whereas IP-supported networks increasingly rely on geographically-remote servers and software-based components to support key 911 functions, such as 911 call routing, across multiple states and jurisdictions."⁵⁴ This shift to centralized IP networks has introduced new vulnerabilities. The FCC concluded, "a 911 outage in an IP-supported network has the potential to affect a much greater number of PSAPs and people, across multiple states, as demonstrated by the multistate effects of the April outage."⁵⁵

The FCC also emphasized that the April 2014 9-1-1 outage "highlights the ongoing trend among communications providers and PSAPs to "contract out" 911

⁵³ *Id.*

⁵⁴ FCC, *April 2014 Multistate Outage Report*, p. 2.

⁵⁵ *Id.*, pp. 1-2.

service functions to third-party vendors.”⁵⁶ The FCC noted that contracting and consolidation “has concentrated critical functions in fewer locations that are more distant from the PSAP and the end user, and created a corresponding need to ensure such contractual arrangements do not compromise situational awareness and accountability for the end-to-end 911 call-to-completion process.”⁵⁷ The FCC underscored, “Redundancy and responsibility are both endangered” by these trends.⁵⁸ The FCC and emphasized the need for monitoring to maintain an “end-to-end” 9-1-1 network, and the critical role of the states in this important work.⁵⁹

The FCC recommended that the “[Federal Communications] Commission, state governments and 911 industry participants take the following steps to preserve the reliability and integrity of the 911 system throughout this transition and beyond.” Specifically:

- ... Develop and Implement NG9-1-1 Transition Best Practices: The FCC should charge The Communications Security, Reliability and Interoperability Council with developing and refining a comprehensive set of best practices in this area.
- ... FCC Proceedings on 9-1-1 Reliability: The FCC should conduct further proceedings as necessary to ensure that reliability of 9-1-1 service in the United States continues to promote the safety of life and property by maintaining pace with evolving technologies and challenges, and that both incumbent 9-1-1 service providers and new entrants remain fully accountable to the public they serve.
- ... Intergovernmental and Stakeholder Information Sharing: The transition to NG9-1-1 creates a need for closer coordination of evolving practices and expectations regarding 9-1-1 among all governmental and commercial entities, as well as a broad-based understanding

⁵⁶ *Id.*, pp. 2.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*, pp. 24-25.

- among all stakeholders regarding the status of deployment of NG9-1-1 from all stakeholders involved.
- ... Situational Awareness: Parties involved in 9-1-1 end-to-end call completion, as well as safety authorities, need to take steps to improve situational awareness during an outage.
 - ... Exercise of Enforcement Powers: The FCC should use enforcement action as necessary to safeguard reliable end-to-end 9-1-1 service. 9-1-1 service providers must remain vigilant and ensure compliance with the FCC's 9-1-1 requirements, including outage reporting requirements, particularly as they transition to NG9-1-1 networks.
 - ... Contractual Relationship Monitoring: Primary 9-1-1 service providers should monitor their contractual relationships to establish clear operational roles and responsibilities for situational awareness and information sharing, and exercise operational oversight with respect to their subcontractors and implement the appropriate mechanisms to retain meaningful controls.⁶⁰

4.2.4. FCC and Washington State Settlements

The FCC also investigated on an ad-hoc basis, carriers and providers of the telecommunications services related to April 2014 9-1-1 outages and call completion problems.

4.2.4.1. April 2014 9-1-1 Outage Consent Decrees and Settlements

The FCC has investigated several 9-1-1 service providers involved in the April 9, 2014 Multistate 9-1-1 outage, and entered into settlement agreements with several providers. The consent decrees include the July 2015, T-Mobile settlement that represents the largest fine of \$17.5 million that the FCC has assessed against a carrier in connection with a 9-1-1 outage, and the fourth major enforcement action involving 9-1-1 outages that the FCC has taken in 2015. In April 2015, the FCC entered a settlement with CenturyLink and a settlement with Intrado Communications in connection with the April 2014 multi-state 9-1-1 outage that lasted for over six hours. In March 2015, the

⁶⁰ *Id.*, pp. 25-26.

FCC settled with Verizon Business in connection with this outage in California. The State of Washington reached a separate settlement with Century Link in February 2016.

In the following section, we summarize the FCC's settlement agreement with Verizon Business, the 9-1-1 service provider in parts of California, who contracted with Intrado for certain 9-1-1 services. The FCC and the State of Washington also investigated CenturyLink's role in the April 9, 2014 outages of 9-1-1 service.

4.2.4.2. CenturyLink

The Enforcement Bureau of the FCC and CenturyLink, Inc. (CenturyLink) entered into a Consent Decree to resolve the Bureau's investigation into the April 2014 9-1-1 service outage. Pursuant to the FCC's rules, CenturyLink was required to timely notify all affected PSAPs of the April 2014 outage, but CenturyLink failed to do so. To settle this matter, CenturyLink will implement a far-reaching compliance plan to develop and implement proactive risk management principles designed to reduce the likelihood and impact of 9-1-1 failures, ensure reliable 9-1-1 call completion, and plan for and provide expeditious notification to PSAPs affected by 9-1-1 outages. The compliance plan recognizes the challenges to 9-1-1 service as networks transition from traditional architectures to next generation IP-supported networks and is a significant step towards ensuring the reliability of the nation's 9-1-1 systems. In addition, CenturyLink will pay a fine of \$16 million.⁶¹

In February 2016, in separate settlement the state of Washington and the CenturyLink reached a settlement agreement to resolve issues related to the April 2014 9-1-1 service outage. CenturyLink was fined \$2,854,750 and agreed to develop and implement system changes to minimize the potential for future outages.⁶²

⁶¹ https://apps.fcc.gov/edocs_public/attachmatch/DA-15-406A1.pdf.

⁶² Washington Utilities and Transportation Commission, Complainant v. QWEST Corporation dba CenturyLink, QC, Respondent, Docket UT-140597, Order 03.

4.2.4.3. Intrado Communications

The Enforcement Bureau of the FCC and Intrado Communications Inc. (Intrado Communications) entered into a Consent Decree to resolve the Bureau's investigation into the April 2014 outage. Pursuant to the FCC's rules, Intrado Communications was required to timely notify all affected Public Safety Answering Points (PSAPs) of the April 2014 outage, but Intrado Communications failed to do so. To settle this matter, Intrado Communications will implement a far-reaching compliance plan to develop and implement proactive risk management principles designed to reduce the likelihood and impact of 9-1-1 failures, ensure reliable 9-1-1 call completion, and plan for and provide expeditious notification to PSAPs affected by 9-1-1 outages. The compliance plan recognizes the challenges to 9-1-1 service as networks transition from traditional architectures to next generation IP-supported networks and is a significant step towards ensuring the reliability of the nation's 9-1-1 systems. In addition, Intrado Communications will pay a fine of \$1.4 million.⁶³

4.2.4.4. Verizon Business

The FCC Enforcement Bureau and MCI Communications Services, Inc. d/b/a Verizon Business Services (Verizon) entered into a Consent Decree to resolve the Bureau's investigation into the April 2014 outage. During this outage, consumers in nine California counties⁶⁴ were unable to make calls to 9-1-1. Pursuant to the Commission's rules, Verizon Business was required to timely notify all affected PSAPs of the outage, but Verizon failed to do so.

To settle this matter with the FCC, Verizon Business will implement a far-reaching compliance plan to develop and implement proactive risk management principles designed to reduce the likelihood and impact of 9-1-1 failures, ensure reliable

⁶³ https://apps.fcc.gov/edocs_public/attachmatch/DA-15-421A1.pdf.

⁶⁴ The FCC report identifies nine counties.

9-1-1 call completion, and plan for and provide expeditious notification to PSAPs affected by 9-1-1 outages. The compliance plan recognizes the challenges to 9-1-1 service as networks transition from traditional architectures to next generation IP-supported networks and is a significant step towards ensuring the reliability of the nation's 9-1-1 systems. In addition, Verizon Business will pay to the federal treasury a fine of \$3.4 million.⁶⁵ Verizon Business is the 9-1-1 service provider in the Northern California counties where the April 2014 9-1-1 outages occurred.

As discussed below, we direct the Commission's CPED to initiate an investigation into whether steps are merited to bring an adjudicatory proceeding against Verizon Business and Intrado, Inc. for the actions associated with the April 9, 2014 failures of 9-1-1 service in California, to determine whether California law or this Commission's rules, orders, or Decisions were violated, and if appropriate, to recommend sanctions be imposed, or corrective action required.

4.2.5. Conclusion and Recommendations

We determine that this Commission should initiate an investigation of Verizon Business as the 9-1-1 provider involved in the affected outage areas, and also to investigate the actions of Intrado that led to 9-1-1 Call Completion failures in California on April 9, 2014. We note that the Washington Utilities and Transportation Commission also investigated the issues involving the outage and imposed sanctions for violations of state law.

We direct CPED to commence an investigation of Verizon Business and Intrado for possible violations of Commission rules, order, and Decisions, and of California law, for their handling of and actions regarding 9-1-1 calls during this outage in affected California counties. CPED shall recommend whether to initiate an adjudicatory OII for

⁶⁵ https://apps.fcc.gov/edocs_public/attachmatch/DA-15-308A1.pdf.

violations of California law associated with that outage, and analyze options such as an agreement to a compliance or monitoring plan, continued Commission monitoring, and work with the FCC on this and similar incidents, as well as any appropriate penalties or remedies under state law. CPED's investigation may use all of the materials gathered through this OII including, but not limited to, all data requests and all materials gathered in this record as pertinent to their analysis.

4.3. Short-code call completion issues

4.3.1. Background for Short-Code Call Completion Issues including 2-1-1 Access

In September 2016 Governor Brown signed SB 1212 sponsored by Senator Hueso to support expansion of 2-1-1 statewide. As SB 1212 which amends CA PU Code 280 explains, "2-1-1 service is a free, accessible, three-digit telephone number that gives everyone in covered areas access to needed community services. First established in 2005, 2-1-1 service now covers 38 California counties. It is available 24 hours a day, seven days a week, allowing residents to access information about health and human services, emergency care, crisis intervention, and disaster preparedness, response, and recovery when they need it most."

SB 1212 explains the critical role of 2-1-1 during and after disasters and widespread emergencies, and the relief 2-1-1 can provide by taking calls 9-1-1 operators would otherwise receive. "2-1-1 service is a natural hub for disaster-related information and plays a critical role during emergencies and disasters, such as fires, floods, earthquakes, terrorist attacks, and epidemics, reducing nonemergency call volume on 9-1-1 lines, which frees up emergency responders to deal with true life-or-death situations, thus leveraging local public safety resources." SB 1212 Section (1)(a)(3). "2-1-1 service also increases the reach of government, nonprofit, and community programs by offering callers information on and access to a variety of health and human services, rent and utility assistance, physical and mental health resources,

employment opportunities, support for older Americans and persons with disabilities, and support for families with special needs.” SB 1212 Section (1)(a)(4).

Pursuant to SB 1212 the Commission will conduct a proceeding to determine whether it is appropriate to use up to \$1.5 million from the California Teleconnect Fund to expand access to 2-1-1 to California counties that current lack 2-1-1 service. Under SB 1212, CA PU Code 280 (g) (1) requires:

Consistent with Decision 11-09-016 (September 8, 2011) Decision Granting Authority to Provide Emergency Access to 211 Services in Counties and Localities Without Existing 211 Centers and to Appoint a 211 Lead Entity, if it determines that doing so is an appropriate use of funds collected from ratepayers, the commission may expend up to one million five hundred thousand dollars (\$1,500,000) from the California Teleconnect Fund Administrative Committee Fund for one-time costs to help close 2-1-1 service gaps in counties lacking access to disaster preparedness, response, and recovery information and referral services, where technically feasible, through available 2-1-1 service. As the lead agency appointed by the commission in Decision 11-09-016, 2-1-1 California may apply to the commission for use of the funds in the counties that lack 2-1-1 service. If the commission determines that doing so is an appropriate use of funds collected from ratepayers, these costs may include local implementation of a coordinated database that is owned by a city or county to provide referrals to help with nonemergency aspects of disaster planning, recovery, and response.

In light of SB 12 12 and this Commission’s Decision 11-09-016 granting access to 2-1-1 for California counties and localities, it is important that we take action to ensure that Californians who wish to reach 2-1-1 are able to do so, whether they are calling from an MLTS or PBX phone (which often requires dialing 9 to get dial-tone), or phone with direct access to dial-tone to reach the 2-1-1 short code or other short codes in addition to 9-1-1.

4.3.2. Comments about 2-1-1 and Short Code Call Completion Issues Raised in this OII

At the September 20, 2016 Call Completion PPH in Eureka, Jeanette Hurst, Director of 2-1-1 Humboldt County, reported that the County was informed that a call to 2-1-1 from the Hoopa Tribe's Temporary Assistance from Needy Families (TANF) Office in Humboldt County and the Fortuna River Lodge were unable to reach the 2-1-1 service. Instead they received a "you can't be reached signal," usually an intercept message indicating that this number has been disconnected or is not in service.⁶⁶ Ms. Hurst offered another example of a local call to 2-1-1 that resulted in a false disconnected message: "[Humboldt County] HR (Human Resources) can't call us... They get the "I'm sorry. The number you have dialed is disconnected" message, though they are in the same office building as 2-1-1 Humboldt.⁶⁷ As described below, we reasonably surmise that these call failures may be due to lack of software programming for MLTS or PBS systems to recognize the 2-1-1 short code.

Other speakers reported receiving false disconnected number messages when calling from direct dial phones, not MLTS systems, and trying to reach residents or businesses. At the Eureka PPH two community members from Kneeland in the mountains near Eureka and Arcata, Earl Bootier and Cheryl Furman, reported that they received disconnected number messages when trying to reach "businesses that I continue to do business with."⁶⁸ Neither of these speakers said they were trying to reach businesses from MLTS business phone, raising the question of whether other callers are inappropriately receiving disconnected messages.

⁶⁶ Eureka PPH, Tr., p. 699.

⁶⁷ Eureka PPH, Tr., p. 700.

⁶⁸ Eureka PPH, Tr., pp. 655-657 (remarks of Earl Bootier); Eureka PPH, Tr., pp. 659 (remarks of Cheryl Furman).

The Assigned Commissioner issued a Ruling directing respondents AT&T, California, Comcast, Frontier, and Sudden Link, all of which serve in Humboldt County, to hold a meet and confer to determine whether and why some 2-1-1 calls were not able to be completed, and to identify whether other numbers were receiving false disconnected messages. Those respondents were directed to report at the September 20, 2016 PPH in Santa Cruz on the results of their meet and confer and analysis.

Communications Division issued a data request to carriers to ask them to investigate routing and other technical issues that may be associated with misidentifying the location of a call.

At the Santa Cruz PPH AT&T, California's representative alleged that the 2-1-1 call from the Hoopa Tribe's TANF office did not go through because she asserted that those calls came from Trinity County which does not currently have 2-1-1." Tressa Bader, Vice-President for Frontier, in Northern California clarified that the Hoopa Tribe and their TANF Office are Frontier customers located in Humboldt County.

In response to the ACR asking for comments on the Workshop Reports and the themes raised in the Workshops and PPHs, Frontier informed the Commission that it met with the Hoopa Tribe's TANF Office and determined that their MLTS service was not programmed to recognize the 2-1-1 short code, so calls to 2-1-1 did not go through. Frontier worked with the Hoopa Tribe to reprogram the phone so 2-1-1 calls are now enabled.

Similarly, on a visit to the Yurok reservation office near Weitchpec, California, following the Commission's Low Income Oversight Board meeting in September 2015, attempted call to 2-1-1 from the tribe's MLTS yielded no tone, no "fast busy," and no message when dialing 2-1-1, or 9-2-1-1, or 9-1-2-1-1. The Yurok Tribe's Information Services Director Paul Romero stated that he believed this resulted from the MLTS lines not being programmed to recognize 2-1-1. The Yurok Tribe can remedy this issue by reprogramming their MLTS system as they control the system's programming. For

other MLTS users, the carrier programs the system for users and can enable, or fail to enable short code access such as to 2-1-1, 8-1-1, 7-1-1 for TDD and relay service for the deaf, and other short codes in addition to 9-1-1.

In response to the ACR requiring a meet and confer between certain respondents about the 2-1-1 access and call completion issue, 2-1-1 Humboldt developed a list of five known 2-1-1 call failures. Two of the failed calls were made from homes in Humboldt County, the others from MLTS systems.⁶⁹ Thus while the 2-1-1 access issue appears to be more prevalent when calling from MLTS or PBX systems not programmed to recognize that short code, it appears that some residents have difficulty accessing 2-1-1, even when it is offered in their County.

In response to the meet and confer and Ms. Hurst's statement that calls from the Fortuna River Lodge to 2-1-1 were failing, AT&T reported that the lodge and conference center, owned by the City of Fortuna, uses a PBX system and "that the City of Fortuna has a block on their entire account preventing calls to 611, 411, 211, etc."⁷⁰ Customer education is appropriate to educate customers about these short codes, and to verify that customers do not block the 7-1-1 short code for deaf and disabled phone service. We are concerned that no one calling from the City of Fortuna PBX system could reach 8-1-1, call before you dig. Access to social services provided by 2-1-1 may be critical for the job of the City of Fortuna, and for workers, and visitors to its facilities.

The ACR of September 8, 2016 asked parties "What steps should the Commission take to ensure that business network operators are informed about the steps they can take to enable callers to reach 2-1-1 or other short codes such as 8-1-1 (call before you dig), as well as 9-1-1, and that carriers take steps to enable such calls?" Carrier

⁶⁹ TURN ACR Comments, Sept. 2016, pp. 33-34.

⁷⁰ *Id.*, p. 33.

respondents commented that the meet and confer was a positive step. TURN recommended customer education about 2-1-1 access.

While we did not receive any direct comments or information in this OII that customers were having similar issues reaching 8-1-1, 7-1-1, or other non-9-1-1 short codes from MLTS or PBX lines, we anticipate that if the MLTS system is not properly enabled, callers would not be able to reach 8-1-1 to call before they dig and have lines marked, or other short codes. 8-1-1 is an important service for all Californians including businesses and residents who may wish to landscape or dig. In light of our responsibilities for 8-1-1 as a means to protect public safety, worker safety, and utility infrastructure for natural gas, electric, and water utilities, we extend the education requirements ordered herein to 8-1-1 and other short codes.

We note the importance of other short codes, such as 3-1-1 to reach municipal government non-emergency services. 4-1-1 is used for directory assistance, while 5-1-1 provides traffic information. 6-1-1 is used to reach telephone company customer service or repair. 7-1-1 is used for TDD and Relay Services for the Deaf and Hard of Hearing. In addition to 9-1-1, 2-1-1, and 8-1-1 discussed more extensively herein, and upon which we received comments in this OII, each of these short codes is important and should be included in MLTS or PBX customer education, and carrier code enabling.

4.3.3. Actions to Address 2-1-1 and Short Code Call Completion Issues Raised in this OII

First we determine that addressing Short Code Call Completion issues is within this proceeding's scope as a form of Call Completion failure where the short code call cannot be completed; the attempted call does not reach its intended destination, and may not even leave a MLTS or PBX system if not properly programmed by the carrier or the system operator. Comcast argued in response to the September 2016 ACR that 2-1-1 is not within the scoping memo for this proceeding. TURN points out that the Commission is the lead agency charged with granting authority to operate as a 211, and

argues that it should act to require education to MLTS customers and to investigate other examples of 2-1-1 call failures as call completion issues.⁷¹

If an MLTS or PBX system is not programmed to allow short codes other than 9-1-1 such as 2-1-1, 8-1-1, 3-1-1, 7-1-1, and the like, the call will not even reach the carrier's switch or facilities. It can't be completed because the MLTS system doesn't recognize the short code. The caller experiences this as a call completion failure and wonders if something is wrong with 2-1-1 or the service they are trying to reach. Thus, we determine this issue is within the scope of this proceeding. It is important to enable these calls for which California has invested millions to provide ready access to these services through a short code.

To address and prevent short code Call Completion issues this Decision orders carriers to provide education to their MLTS and PBX customers in the form of bill inserts and educational materials available on the carrier website about the importance of and process by which customers may program MLTS systems to allow callers to reach short code numbers such as 2-1-1, 8-1-1, 7-1-1 and other short codes.

We order carriers who do such programming on behalf of their customer or provide MTLTS systems (whether premise, cloud, or centrex-based) to enable short codes, with an opt-out for customers for short codes except for 9-1-1, 8-1-1, 2-1-1, and 7-1-1 in light of the public safety and health services available upon reaching these short codes. Carriers shall maintain the proper underlying call directions to complete the call to the proper agency or short code destination.

We direct respondent carriers who serve MLTS or PBX customers to hold a meet and confer with 2-1-1 California to coordinate education and informational material on 2-1-1 programming issues and awareness. We direct respondent carriers who serve

⁷¹ TURN ACR Comments, Sept. 2016, pp. 33-34.

MLTS or PBX customers to hold a meet and confer with the California Utilities Emergency Association (CUEA) regarding 8-1-1 education and informational material relevant to MLTS and PBX programming and enabling of that short code.

We direct the Commission's News and Public Information Office to reach out to organizations working with other short codes to determine if they would like to request a meet and confer with carriers about that short code and the need for MLTS or other education regarding that short code, and to coordinate with Communications Division to provide to carriers requests for such meet and confer discussions about short code access. We also direct the Commission's News and Public Information Office to develop educational materials for MLTS customers and users about programming their phone system for short code access including 9-1-1, 2-1-1, 8-1-1, and other short codes. This educational material should leverage other educational materials and efforts about 8-1-1 awareness.

We refer to the proceeding to carry out SB 1212 and implement 2-1-1 access statewide whether any additional actions are warranted to ensure that 2-1-1 remains accessible to Californians attempting to reach 211 from MLTS or PBX systems or from direct dial telephones. That proceeding may access the record developed in this proceeding on 2-1-1 and short code access issues.

4.3.4. False disconnected messages and Fast Busy Messages for Working Numbers

4.3.4.1. Summary

The Eureka PPH we received reports of some callers receiving false messages that the called number they had called had been disconnected or was not in service. Mr. Bootier and Ms. Furman also recounted a harrowing experience of receiving a disconnected number message when trying to call the wife of a man they encountered in early 2016 "(c)overed in blood, brain bleed, face fall, side of the road, comatose," who

had a stroke and needed to go to the emergency room.⁷² They knew the man who had fallen, and when they tried to call his wife to inform her they were taking him to the emergency room “numerous times we were just told the phone had been disconnected,” and when the man’s wife picked up on the sixth call she said she had been making calls.⁷³ “I should have got a busy signal,” Ms. Furman added.⁷⁴

At the Santa Cruz PPH, one public speaker, James Lewis of Santa Cruz, described receiving “numerous “all circuits are busy” recorded messages and fast busy signals (indications that either the number he is trying to reach is invalid or that all facilities are busy) when trying to place local calls” from his wireline service.⁷⁵ CforAT in its Comments on the ACR noted that at the PPH in Eureka, CA, Sean McLaughlin of Access Humboldt provided examples of similar problems in Humboldt County, where residents do not have access to reliable service and sometimes get calls that don’t ring through or disconnected messages for numbers that should be working. CforAT highlighted Mr. McLaughlin’s experience:

He specifically described the situation of an elderly widow living alone, who wasn’t receiving calls that she regularly expected from her son. The widow asked Mr. McLaughlin to call her phone to make sure it was working, and found that calls were not going through. The AT&T lineman who came out to address the problem described the very old facilities that were still in use for their service, leading Mr. McLaughlin to conclude that service in the area is unreliable because there has been no incentive for the service provider to maintain and upgrade it.⁷⁶

The September 8, 2016 ACR asked respondent carriers in Humboldt County to investigate this and similar comments about false disconnected messages, and report at

⁷² Eureka PPH, Tr., pp. 656-658.

⁷³ *Id.*, p. 658.

⁷⁴ *Id.*

⁷⁵ Santa Cruz PPH Tr., p. 926-927.

⁷⁶ Eureka PPH Tr., pp. 647-648.

the PPH in Santa Cruz on September 20, 2016. In response to the September 8, 2016 ACR AT&T, California stated that it found no reported false disconnected messages to businesses in Humboldt County.⁷⁷

These reports of sporadic receipt of false disconnected or fast busy messages for numbers that should be working are worrisome, particularly when there is not an emergency such as a large volume of call attempts following an earthquake. They may be symptomatic of facilities or maintenance issues, or network design issues that would leave to a fast busy message signaling overloaded circuits. We direct analysis of this issue both with regard to specific customers reporting these problems, and as part of this Commission's Network Study ordered in D.15-08-041.

4.4. Actions and Orders on False Disconnected Messages and Fast Busy Messages for Working Numbers

Carriers have a duty under California Law to carry and complete calls under CA Cal. Pub. Util. Code section 558, duties to provide safe, reliable service under Cal. Pub. Util. Code section 451, and high-quality telecommunications service throughout California under Cal. Pub. Util. Code section 709. Customers receiving false disconnected messages or a fast busy on a Sunny Day raise reasonable questions about whether they are getting the service for which they paid, and whether their carriers complied with California law, and this Commission's rules, orders and Decisions.

We direct CAB to track information about customer concerns about incidents of false disconnected messages, fast busy signals for what should be working lines, poor or jittery call quality, or other types of call failures for working lines.

We direct the Commission's News and Public Information Office to include in the web site survey and tool for reporting Call Completion issues the ability to report

⁷⁷ Santa Cruz PPH, pp. 947; AT&T, statement submitted in response to ACR.

concerns about false disconnected messages, fast busy signals, or other types of call failures for working lines.

We refer to the Commission's Network Study ordered in D.15-08-041 to analyze information about the incidents, frequency, and occurrence of false disconnected messages, fast busy signals, or other types of call failures for working lines as part of their examination of AT&T, California's and Frontier, California's Networks.

5. 9-1-1 Access Issues, including Call Initiation Outages, 9-1-1 Addressing Issues, and 9-1-1 Directory Issues for Public Safety

5.1. 911 Access and Call Initiation Issues Associated with Service Outages; Hard Down

5.1.1. Background for Review of 9-1-1 Call Completion and Access Issues, including Loss of Dial Tone

The Amended Scoping Memo for this proceeding included a "review of 911 call completion and access issues, including, but not limited to, those due to loss of dial-tone for reasons other than service cancellation."⁷⁸ Accordingly, this OII examined 9-1-1 call completion and access issues that affect a customer's ability to initiate a 9-1-1 call such as lack of dial-tone.

This section of the OII focuses on "Hard down" outages as the FCC calls them "outages that result in loss of service, as opposed to performance degradations."⁷⁹ We received many comments about poor or degraded service, and such service often reflects maintenance, network or other issues that often leads to loss of dial-tone and inability to call 911. This OII's examination of dial tone and 9-1-1 access issues elicited comments that also focused on "Hard Down" outages that affected large groups of

⁷⁸ Amended Scoping Memo p. 4. This document is titled "Amended Scoping Memo," as it amends the preliminary scoping memo in the OII.

⁷⁹ FCC, Report and Order and Further Notice of Proposed Rulemaking on Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications, ¶ 1(PS Docket No. 15-80; ET Docket No. 04-35; PS Docket No. 11-82), May 26, 2016 [hereinafter *FCC, NORS R&O and FNPRM*].

customers, often thousands or tens of thousands. Customers impacted by outages that last hours or days include residents, businesses, public safety officials, health care providers, government offices including jails and courts, and non-profit institutions.

For purposes of FCC rules, Pt. 4.5 (1) of the Code of Federal Register provides that “(a) Outage is defined as a significant degradation 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.” The California Public Utilities Code does not contain a definition of outage. Neither does the federal definition preclude California’s ability to define and assess outages and develop outage reporting requirements for carriers under this Commission’s jurisdiction, tailored to California’s needs.

Our analysis revealed several major drivers of 9-1-1 access and loss of dial tone outages. These include: 1) Software driven outages, as illustrated by the Frontier outages in April 2016 following the Verizon, California-Frontier, California transition, and software issues at Intrado’s facility in Colorado that resulted in 9-1-1 access issues in seven states and in eight northern California counties for AT&T Mobility and Verizon, Wireless customers who received 9-1-1 services through Verizon Business; 2) Facilities-driven outages, stemming from maintenance issues, falling trees, faulty plant, third-party cuts, etc.; 3) Service-driven issues that may extend time to initiate or respond to Out-Of-Service repair requests, and extend repair time, and; 4) disaster-driven outages such as those caused by fire, floods, severe rain, earthquake, etc. These outage types will be explored below, along with actions we adopt to address such outages and ensure that carriers provide safe, reliable service, and high-quality telephone service consistent with California law and this Commission’s rules, orders, and Decisions. Cal. Pub. Util. Code sections 451, 709.

As a consequence of communications outages, other utilities regulated by this Commission including electric, gas, and water utilities, and telecommunications carriers

who depend in part on the facilities of other carriers, may lose the ability to communicate with remote facilities, customers, of the public. Such outages can reduce or eliminate information a Supervisory Control and Data Acquisition System (SCADA) will show about a plant or facility. An electric substation can effectively disappear from a SCADA system due to loss of communications, setting off alarms and causing the utility to decide to deploy personnel to verify, in person, the status of the plant.

These failures may occur on a “Sunny Day,” not brought on by bad weather or a disaster, but by other factors including software-driven outages, facilities-driven outages including maintenance issues, or lack of diversity so that a single cut results in hundreds or thousands losing service. Such outages are too often exacerbated and elongated by service issues as described below.

California has also been plagued by “worst day” outages due to the ravages of fires during the drought of the past four years. Fires in many parts of the state led to many people “running for their lives and coming out of the fire areas.”⁸⁰ Fires burned homes, businesses, and many resources, as well as phone lines, poles, and some cell services so that residents and businesses could not make 9-1-1 calls or receive a call from 9-1-1 to evacuate. During and after these “worst day” disasters, which often stretched into weeks or months, many Californians remained without telephone service in the disaster area, as carriers worked for one to two weeks to provide emergency service to first responders through a Cell on Wheels (COW) or Cell on Light Truck (COLT) to provide fire and other public safety personnel with connectivity to improve their situational awareness and ability to fight fires.⁸¹

⁸⁰ Calaveras County Supervisor Cliff Edson, San Andreas PPH, Tr., p. 370.

⁸¹ See, e.g. San Andreas PPH, Tr., p. 303 (During the Rim fire “I went to incident command every morning in time for briefing with the people and there was virtually zero coverage there. It wasn’t enough bandwidth to send a text message. I was trying to communicate...and couldn’t do it until I drove most of the hour back towards Sonora...On day about nine and a half AT&T

(footnote continued on next page)

This Commission is charged with the responsibility to ensure that carriers provide safe and reliable service under Cal. Pub. Util. Code section 451. Cal. Pub. Util. Code section 2883(2)(b) requires that all local telephone corporations...to the extent permitted by existing technology or facilities, shall provide every subscriber of tariffed residential basic exchange service with access to "911" emergency service. Cal. Pub. Util. Code section 453 prohibits a public utility from maintaining any unreasonable difference as to rates, charges, service, facilities...between localities or as between classes of service." Cal. Pub. Util. Code section 709 requires high-quality service throughout California. Examining large-scale, hard down outages, their causes and consequences, to determine what actions the Commission should take about these outages is important to the carriage of our responsibilities and to public safety.

5.1.2. California's Public Safety Emergency Management System and the Critical Role of Communications Services to Public Safety

A widespread communications outage *is* an emergency. Lack of communications services makes the job of emergency responders more difficult as their responsibility includes communication and coordination. Communications facilities and services are key the ability of field, local, county, regional and state personnel to execute their emergency and Incident Command (ICT) duties assigned by California state law under the State Emergency Management System (SEMS) duties.

Public safety officials, operators of critical infrastructure, jails, schools, courts, hospitals, business, and the public must make decisions about what to do in the absence of voice and data communications services. Public Safety officials must make decisions during outages. Officials have to decide whether to deploy officers to intersections or

showed up with a COW and things improved." Remarks of Tuolumne County Supervisor Randy Hanvelt.)

areas to help the public access emergency services, and whether to send officers to check on jails or other facilities operating without the ability to communicate from one wing to another. Knowledge about an outage incident, its extent, expected duration, cause, options for resiliency, and other factors, is critical to incident response, planning, and preparation.

During a communications outage, incident command must decide whether to send Sheriff Deputies or police officers to local jails where phones are down and guards cannot call from one wing to another, or to courthouses where prisoners are being transferred for a hearing, or to local intersections or fire stations to position officers to help people with emergencies who have lost their ability to call 9-1-1. During a fire, loss of communications facilities and/or services requires the incident commander to determine whether to deploy public safety personnel to drive through neighborhoods and use their loudspeakers or bullhorns to announce evacuations. Officials must decide during an outage whether to activate sirens or the local Ham radio community, and “go old-school” when phones and the Internet don’t work.

Public safety personnel must make those decisions to execute their duty to protect the public and their responsibilities for incident command under SEMS. The State of California allocates emergency communication, coordination, and incident command responsibility through SEMS and (ICT). Under the California Code of Regulations (CCR) Title 19, § 2401, SEMS divides by governmental level responsibility for incident command. “There are five designated levels in the SEMS organization: field response, local government, operational area, regional, and state. Each level is activated as needed.”⁸²

⁸² CCR Title 19, § 2403 (b).

“Field response level” commands emergency response personnel and resources to carry out tactical decisions and activities in direct response to an incident or threat. (2) “Local government level” manages and coordinates the overall emergency response and recovery activities within their jurisdiction. (3) “Operational area level” manages and/or coordinates information, resources, and priorities among local governments within the operational area and serves as the coordination and communication link between the local government level and the regional level. (4) “Regional level” manages and coordinates information and resources among operational areas within the mutual aid region designated pursuant to Government Code 8600 and between the operational areas and the state level. The Regional level, along with the state level, coordinates overall state agency support for emergency response activities. (5) “State level” manages state resources in response to the emergency needs of the other levels, manages and coordinates mutual aid among the mutual aid regions and between the regional level and state level, and serves as the coordination and communication link with the federal disaster response system.⁸³

The operational area level is managed by counties through County Offices of Emergency Services, in coordination with or under command of the County Sheriff. The operational area level “serves as the coordination and communication link between the local government level and the regional level.” Communications facilities and services are vital to performing that function to coordinate and communicate about field and local response, and regional assistance as needed.

Under CCR Title 19, § 2407 (b) “When a local government EOC is activated, communications and coordination shall be established between the Incident Commander(s) and the department operations center(s) to the EOC or between the

⁸³ CCR Title 19, § 2403 (b).

Incident Commander(s) and the EOC.” At the local government level, “Integrated communications are managed through the use of a common communications plan and an incident-based communications center established for the use of tactical and support resources assigned to the incident.”⁸⁴ Communications is critical to response to an incident, whether at the local, county, regional, state, or federal level.

CCR Title 19, § 2409(d) provides that “The county government shall serve as the lead agency of the operational area unless another member agency of the operational area assumes that responsibility by written agreement with county government.” State law charges counties with coordination of emergency response beyond the local level. Communications between the county operational level for incident command and local political subdivisions, as well as to the state emergency operations centers are foundational responsibilities or the operational areas level, and communications facilities and services are key to executing these duties.

County Offices of Emergency Services operate an Emergency Operations Center (EOC), often located in the Sheriff’s Office. The County OES serves as the operational area level manager and activates the EOC. A County EOC may be launch when a local government has activated its EOC and requests county-level operational EOC support, when two or more cities in the county have declared a local emergency, when the county or one or more cities have declared a local emergency, when a city and/or county have requested the Governor’s proclamation of a state of emergency, when the governor has proclaimed a state of emergency for the county or two or more cities in the county, the county operational area is requesting or has received emergency resources from outside of its boundaries, aside from normal mutual aid.⁸⁵

⁸⁴ CCR Title 19, § 2405(a)(3)(h).

⁸⁵ CCR Title 19, § 2409 (f).

In California most PSAPs that receive 9-1-1 calls and do emergency dispatch for those incidents are run by cities.⁸⁶ While PSAPs handle individual calls, SEMS is activated to coordinate “emergency response to incidents that exceed daily local police and fire responsibility.”⁸⁷ Communications are vital to each of these public safety functions.

5.1.3. Frontier post-Verizon April 2016 Transition; Software and Service-driven 9-1-1 Access issues and Loss of Dial Tone

5.1.3.1. Commission Approval of the Transfer of Verizon, California to Frontier, December 2015

The Commission approved the transfer of Verizon, California to Frontier in December, 2015 through D.15-12-005. The Decision was adopted after eight PPHs including tours of many areas served by Verizon, California to hear from the public and observe network conditions that Frontier would inherit through the transfer. The status of Verizon California's network was a major issue explored in the Verizon/Frontier proceeding and the subject of a Commission hearing, data requests and sworn testimony.

The Commission's D.15-12-005, approved several settlements and imposed conditions on the parties to approve the Verizon, California-Frontier transfer, including an order that Frontier and Verizon, California coordinate the transition of the Verizon California 911 functionality or database systems. Frontier committed to reporting information for three years to the Commission and the parties about traditional voice (plain old telephone service), and residential VoIP performance measured by Commission General Order 133-C that requires 90% of Out-Of-Service repairs to be

⁸⁶ FCC, 911 Master PSAP registry, (last updated August 23, 2016), <https://www.fcc.gov/general/9-1-1-master-psap-registry>.

⁸⁷ CCR Title 19, § 2401.

completed within 24 hours. (D.15-12-005, Ordering Paragraph 9).⁸⁸ The Commission ordered Frontier to provide the Commission and the parties with any Federal Communications Commission (FCC) Network Outage Reporting System (NORS) reports filed for Verizon, California or Frontier California incidents reaching the NORS threshold of 900,000 user minutes of outage, within three days of filing the report.

5.1.3.2. Verizon, California and Frontier Transition Preparation and Post-Transition Dial-tone and 9-1-1 Access Outages

At the PPHs in Long Beach and San Francisco, Frontier explained the preparation it engaged in with Verizon, California and its affiliates to ensure smooth transfer of data necessary to ensure customers could make calls. Verizon, California and Frontier had each planned the transition in anticipation of Commission approval of the transaction. They began coordination to transfer data, assets, processes, personnel, and customers from Verizon, California to Frontier on the “flash cut-over” date they choose of April 1, 2016, almost four months after the Commission’s approval of the Verizon-Frontier transfer.

Verizon, California and Frontier developed a joint cutover plan in February 2015 to transfer processes and programs between the companies with a schedule of deliverables including access to data prior to closing. They conducted four pre-cutover “mock data exchanges” to test processes, validate and confirm successful transfer of data. Frontier developed a lab in Ft. Wayne, Indiana to test Verizon equipment with the Frontier network. Michael Golob, Frontier Vice-President testified that Frontier was not able to obtain all Verizon customer equipment, including certain Optical Network Terminals (ONT) that some customers who experienced outages in the post-transition

⁸⁸ The Commission’s Service Quality General Order was revised in September 2016 through D.16-10-019 which adopted the revised service quality General Order as GO 133-D. The prior service quality General Order was adopted in GO 133-C.

period in April 2016 had on their premises.⁸⁹ Frontier's Root Cause Analysis explained "(W)ith respect to the incorrect or missing data, Frontier conducted testing prior to the cutover, but this testing did not (and could not) identify that Frontier's systems could not process a small percentage of the data within the Verizon network extract after it was transferred to Frontier's network."⁹⁰

Frontier's Root Cause Analysis stated that "Verizon provided to Frontier all relevant data that was in Verizon's systems; indeed, hundreds of millions of data items were transferred from Verizon to Frontier. However, Verizon and Frontier have different systems with different processes to resolve data issues. Frontier's systems were not able to communicate properly with the equipment in the network in some cases."⁹¹ Frontier added that "(o)nce Frontier discovered the issue, it immediately responded by teaming with Verizon and outside vendor experts to understand the issue and to recreate the missing data in order to resolve the issue."⁹²

Melinda White, Western Region President of Frontier, stated that on the first day after the Verizon, California-Frontier transition, Frontier planned to start training over 4,000 Verizon, California employees who came over to Frontier. This included field technicians who Frontier planned to train during the first two weeks following the transition. Instead "FIOS [a form of Verizon VoIP] techs went out into the field on day two...they never left the field. And they have been out there working like you wouldn't believe to resolve."⁹³

⁸⁹ Long Beach PPH, Tr., pp. 26-28.

⁹⁰ Frontier, Response to Sept. 8, 2016 ACR, Root Cause Analysis, Sept. 20, 2016, Attachment A, p. 1.

⁹¹ *Id.*

⁹² *Id.*

⁹³ Long Beach PPH, Tr., p. 41.

To prepare for anticipated service questions post- transition Frontier retained the offshore customer call center in the Philippines that Verizon, California used.⁹⁴ Ms. White said Frontier anticipated the questions would be about “who are you, who is Frontier, I have my bill, I don’t understand it, I have trouble on my line, all of the many reasons that people call.”⁹⁵ Ms. White added “The offshore call center has been very disappointing...out of service trouble that we received could have been more manageable had the call center experience been much improved.”⁹⁶

5.1.3.3. April 2016 Post-Transition Dial-tone and 9-1-1 Access Outages for Many Frontier Customers

5.1.3.3.1. Frontier Customers Affected by Post-Transition Outages

After the transition from Verizon, California to Frontier following this Commission’s approval of the transaction in D.15-12-005, complaints spiked from many customers of Frontier in Southern California who apparently lost dial tone, as well as Internet and video access. Many customers suffered outages lasting one to three weeks.⁹⁷ Outages were concentrated among former Verizon, California FiOS customers, particularly in Long Beach, Santa Monica, Malibu, Redondo, Hermosa, Manhattan Beach, and Camarillo.⁹⁸

The Commission’s Consumer Affairs Branch (CAB) received 218 complaints about Frontier phone service in April 2016, and 265 such complaints in May 2016, compared to 18-51 such complaints for each of the following months of June through September.⁹⁹ For

⁹⁴ *Id.*, p. 42-43.

⁹⁵ *Id.*, p. 42.

⁹⁶ *Id.*

⁹⁷ San Francisco, Workshop Tr., p. 179.

⁹⁸ Long Beach PPH, Tr., p. 54-55.

⁹⁹ Mike Amato, Acting Director, California Public Utilities Commission Communications Division, Update on the Frontier Communications Corporation’s Acquisition of Verizon, California, October 13, 2016, p. 2, [hereinafter, “*Amato, Frontier Update.*”]

bundled phone, Internet, and/or Video service, CAB received 171 complaints about Frontier phone service in April 2016, and 151 such complaints in May 2016, compared to 17-39 such complaints for each of the following months of June through September.¹⁰⁰ Additionally, the Commission received 114 complaints in April 2016 from Internet and Video customers of Frontier, and 208 such complaints in May 2016, compared to 18 to 60 such complaints between June through September, 2016.

CAB received complaints that more than 1,200 Frontier customers apparently lost dial tone on their voice service, and some lost Internet or video service as well.¹⁰¹ Many customers do not know if their fiber service provides VoIP or traditional telephone service. Frontier was cooperative with CAB in customer inquiries about loss of dial tone, regardless of service.

Beginning in April 2016, Communications Division issued several data requests to Frontier, California about the post-transition outage issues. Communications Division ordered Frontier to conduct and submit a root cause analysis of the reasons for the outages. We held two Workshops focusing on the Verizon/Frontier outages, as well as other outage issues and causes. We note that Frontier was cooperative with this OII and quickly answered our questions at the Workshops in San Francisco and Long Beach, and in response to data requests, and the request for a root cause analysis.

The Commission's Communications Division presented at the Commission's Long Beach meeting on October 13, 2016 an analysis comparing out-of-service data under GO 133-C for Verizon, California as compared to Frontier, California for the first half of 2016 for the Southern California Central Offices (COs) served, post-transition, by Frontier. The Out-of-Service to service restoration standard measures the average time,

¹⁰⁰ *Id.*, p. 4.

¹⁰¹ San Francisco Workshop, Tr., p. 178 (CAB received 1,212 complaints about loss of Frontier's voice, video, and/or Internet service as of June 11, 2016).

for a carrier to restore service to residential and small business customers, starting from the initiation of a repair ticket. The minimum standard is to repair 90% of all outages within 24 hours, average over the month for the entire carrier's territory. This measure excludes Sundays and federal holidays, as well as events beyond a carrier's control, and catastrophic widespread outages, reflected in "adjusted numbers," although carriers also provide the Commission with "unadjusted" data.¹⁰²

GO 133-C (now GO 133-D) requires the reporting of the OSS restoration average time statewide per reporting carrier. For the Southern California COs served by Verizon, California from January-March 2016 and, post-transition in April 2016 by Frontier, Communications Division compared Verizon, California to Frontier compliance with the GO 133 24 hour restoration standard for out of service repair tickets. Verizon, California operated its landline telephone service as a COLR until the flash cutover on April 1, 2016. Verizon, California did not meet the Out-Of-Service standard in January 2016, but met the standard in February and March 2016 as ordered in the Verizon, California-Frontier transfer decision. Verizon, California reported that its percentage of Out-Of-Service repair tickets restored to service within 24 hours for the total company was; 69% in in January 2016, 92% in February 2016, and 93% in March 2016. Frontier, California, total company reported that its percentage of Out-Of-Service repair tickets restored to service within 24 hours; 43% in April 2016, 21% in May 2016, and 28% in June 2016.¹⁰³

Likewise, for the FiOS services provided by Verizon, California from January-March 2016 and, post-transition in April 2016 by Frontier, Communications Division compared Verizon, California to Frontier compliance with the GO 133 24 hour restoration standard for out of service repair tickets. Verizon, California reported that

¹⁰² *Amato, Frontier Update*, at 7.

¹⁰³ *Id.*, at 7.

its percentage of FiOS Out-Of-Service repair tickets restored to service within 24 hours was; 76% in January 2016, 95% in February 2016, and 96% in March 2016. Frontier reported that its percentage of FiOS Out-Of-Service repair tickets restored to service within 24 hours; 38% in April 2016, 14% in May 2016, and 20% in June 2016.¹⁰⁴

Frontier reported that during the pendency of this OII the following areas of concern have been addressed: 1) Installed system fixes to resolve data corruption/integrity; 2) Recreated customer records to correct inaccuracies; 3) Discontinued services of the offshore call center and call centers are now based in the U.S., and; 4) Frontier is now operating in a business as usual mode.¹⁰⁵ The OII identified immediate actions CAB could take to facilitate customer service, and Frontier was very responsive to customer requests for repair or service sent by CAB. As the peak of the outages subsided, the OII likewise shifted to analyzing the causes of the outages and Frontier's actions in the wake of the outages, as well as to analyzing what the Commission could do to prevent or address such outages.

5.1.3.3.2. Software-Driven Cause of Outages

At the June 1 and June 27 Workshops in this proceeding, the parties discussed what Frontier reported were software driven outages after the transition from Verizon, California to Frontier. Representatives of Frontier reported that dial tone and 9-1-1 outages in April and May 2016 affected FiOS customers who had subscribed to Verizon, California. Frontier attributed the root cause of the outages to corrupt data transferred from Verizon and software problems.¹⁰⁶ As a result of the corrupt or missing data,

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*, at 8.

¹⁰⁶ Long Beach PPH, Tr., p. 26 ("There were codes related to some specific types of equipment that were more problematic...And our system was dropping out two or three of those codes. And that's why you would see a situation where you had a customer that lost their voice service but their TV service and their internet service was working perfectly find.") (statement of Michael Golob, Senior Vice-President, Frontier).

issues that resolved themselves in the Verizon, California database, were not resolved in the Frontier database.¹⁰⁷

In response to this Commission's request for a root cause analysis of the outages following the Verizon, California-Frontier transition, Frontier explained, "(a)fter the transition, a portion of customers experienced VoIP voice and Internet service interruptions. The principal cause is that the data extracts provided by Verizon were missing or had incorrect items that were needed to be correctly processed by Frontier's systems."¹⁰⁸ As a consequence, codes that produced a certain result in the Verizon, California system did not produce the same result in the Frontier system and in some cases led to the loss of service.¹⁰⁹

Those issues were exacerbated by Verizon, California's mislabeling of equipment so it didn't match computer database records, extending repair times.¹¹⁰ Customer service issues also delayed repairs and left some customers without dial-tone for one to three weeks.

Frontier stated that copper-based, non-VoIP customers did not lose telephone service as the problems started as software-driven issues that affected the Internet Protocol (IP) system with data extracts that weren't accurate.¹¹¹ In some cases Frontier offered the customer plain old telephone service (POTS) to establish dial tone while they had technicians and software coders work on the signaling from Frontier's fiber network to the customer premises equipment. POTS over copper lines was more reliable than some FiOS voice services in the Verizon, California-Frontier transition.

¹⁰⁷ San Francisco Workshop, Tr., p. 210.

¹⁰⁸ Frontier, Root Cause Analysis, ACR Response.

¹⁰⁹ San Francisco Workshop, Tr., p. 225; Long Beach PPH, Tr., pp. 23, 26.

¹¹⁰ San Francisco Workshop, Tr., p. 211.

¹¹¹ San Francisco Workshop, Tr., pp. 179, 208; Long Beach PPH, Tr., p. 178.

Michael Golob observed that the FiOS network was not “self-healing,” and it took tremendous work, seven days a week, with an all hands on deck effort to restore service to “business as usual.”

5.1.3.3.3. Service Issues Exacerbated the Outages

At the June 1 and June 27 Workshops Frontier reported that actions by its call center based outside the United States contributed to the delay in resolving customer out of service and other complaints. Frontier testified at the PPH in San Francisco and Long Beach that the Call Center failed to use the correct code for complaints, and in some cases did not enter service call appointments in the Frontier systems.¹¹²

Frontier’s Vice-President for Regulatory Affairs Kathleen Abernathy stated that in some cases the offshore call center Frontier used post-transition failed to book customer appointments, explaining “there might be a conversation with a customer and they would be told that a technician would be out, and we would have no record.”¹¹³ Michael Golob stated they found instances where frustrated customers complained that they booked appointments with Frontier and no technician showed up. He attributed this to the call center explaining “(s)o they would make a commitment, but then maybe not even annotate that they’d made that commitment.”¹¹⁴ Many customers reported that they spent an hour or more on the phone to try to get another appointment, and in some cases that appointment was not kept, perhaps because it was not made by

¹¹² Long Beach PPH, Tr., p. 44 (customers with problems experienced from the customer service center “Long hold times...Unfortunately, disconnected once they found someone to talk with them. No help...Passed around.” (statement of Melinda White); (“If it [the customer repair request] doesn’t get coded correctly...those trouble tickets start moving around until they get to the right center...So that’s what also led a little bit to the problem.” (statement of Michael Golob).

¹¹³ San Francisco Workshop, Tr., p. 228.

¹¹⁴ *Id.*, p. 229.

Frontier's customer call center.¹¹⁵ Ms. White explained "(w)hen we receive a customer escalation, and you received many, you could hardly get to what was really wrong because customers were so angry and frustrated by the fact that the call center experience had just been incredibly disappointing."¹¹⁶

Failure to book customer repair tickets and appointments obscured Frontier management's situational awareness about the breadth and extent of the outage problems. Ms. White explained "in fact, we have had many conversations internally [at Frontier] where at some level the volume of trouble, out of service trouble that we received could have been more manageable had the call center experience been much improved."¹¹⁷ Frontier's customer service created a data gap so that Frontier did not understand how many customers were out of service based on customer calls and requests for Out-Of-Service repair.

Frontier testified that it learned about the issue from some emails and calls that reached Frontier management in the United States, and opened alternative channels to communicate with Frontier such as letMelindaknow@ftr.com. She added, "we've actually taken in thousands of complaints, out of service, the whole range of reasons why customers were trying to get in touch with us."¹¹⁸

The San Francisco Workshop discussed why network system alarms failed to inform Frontier about the extent and length of the outage issues. Modern telecommunications networks have centralized alarms that indicate when service is lost to large groups of customers or a key piece of equipment has critical problems or is performing out of acceptable range. Michael Golob explained about Frontier "(m)any

¹¹⁵ Long Beach PPH, Tr., p. 44.

¹¹⁶ *Id.*, p. 42.

¹¹⁷ *Id.*

¹¹⁸ Long Beach PPH, Tr., p. 46.

parts of our network are proactively monitored. We get thousands and thousands of alarms in our network operation center...it could be an awareness problem or to a service that is down hard and has to be addressed right away.”¹¹⁹ He added that end-to-end network monitoring is not foolproof or available for every service or every line: “We can tell when that switch goes out, but we can’t tell that individual customers’ off or that switch until they call us, typically.”¹²⁰

After learning about the outages from emails and calls to Frontier in the U.S., Frontier then shifted its focus to service restoration. Frontier established command centers to dispatch technician/personnel. It set up separate 800 numbers for residential and business customers. Frontier enabled a ‘live chat’ channel on Frontier’s Contact Us website. Frontier representatives attended meetings with Local Agencies, legislators, and the public. Frontier participated in CPUC Workshops and PPHs in this proceeding in San Francisco and Long Beach. Frontier Western Region President Melinda White testified before an Assembly Hearing on the post-transition issues.

5.1.3.3.4. Mislabeling of Customer Premises Equipment by Verizon, California so it Did not Match Computer Records Delayed Service Restoration

Another factor that exacerbated the outages and extended the difficulty of fixing them was errors in Verizon, California’s records that made it more difficult to execute software repair commands. Michael Golob also explained that inaccurate Customer Premise Equipment (CPE) records for certain VoIP equipment Verizon, California used compounded the outage problems. “That was a mismatch between the ONT [Optical Network Terminal] serial numbers and what was in the record.”¹²¹ Ms. White stated that in Long Beach where many outages were concentrated, “the Motorola network

¹¹⁹ San Francisco Workshop, Tr., p. 269.

¹²⁰ *Id.*, p. 270.

¹²¹ Long Beach PPH, Tr., p. 29.

terminal serial number piece” contributed to outages. Mr. Golob added that various issues “dovetailed together” and that “one compounded on the other, and then, you know, you’re going to ask about the training issue. And the training issue compounded on that.”¹²²

Mr. Golob expressed his opinion that such records mismatches sometimes occur because “(s)omeone will fix that customer, but they don’t necessarily update the record. So the customer is working find.” Later, the customer has an outage and when you try to put them back in service “the record don’t match.”¹²³

The data labeling issues were compounded by the challenges Frontier faced in managing the new system and making codes respond to generate repairs. Frontier explained that it realized in February 2016 that it needed to buy from Verizon, California affiliates some Verizon corporate intellectual property (IP) that had been excluded from the Verizon, California-Frontier transaction, as efforts to replicate that IP were not generating proper network performance.¹²⁴ Frontier “had to figure out, from that intellectual property, how do we apply it to our back-office systems? Because it was totally different. We couldn’t just take that property and king of plug it in.”¹²⁵ Frontier realized that some “bug fixes” weren’t initially working until they realize “Oh, Motorola ONTs want to see the data in this format or off of this port. So we go into the night and make the changes going forward,” and “the next day it worked fine.”¹²⁶

This confluence of issues, Verizon, California’s labeling practices, intellectual property not included in the transaction that Frontier realized after close was critical to

¹²² *Id.*, p. 29.

¹²³ *Id.*, p. 30-31.

¹²⁴ San Francisco Workshop, Tr., p. 218.

¹²⁵ *Id.*, p. 224.

¹²⁶ *Id.*, p. 225.

network functioning, integration of that software, training, and customer service, all contributed to outages. These are factors the Commission should consider as it updates guidelines for merger and transfer conditions as discussed below. In addition, CPED should examine these and other issues described herein to determine whether an adjudicatory OII should be brought in light of the outages, their causes, and Frontier's actions in response to the outages.

5.1.3.3.5. Comments about Commission Action to Address Frontier Post-Transition Dial-tone and 911 Outages

The September 9 ACR asked what additional steps should the Commission take regarding the Frontier outages of April-May 2016. The ACR asked whether the Frontier outages violate Commission rules and if so which ones, and what should the Commission do in response. The ACR asked: Did the Frontier outages following the Verizon, California transition reflect any non-compliance by either Frontier or Verizon, California with the Commission's order approving the transaction, including the settlements? What reporting, coordination, or other steps should be required to identify and address software-driven outages affecting dial tone and access to PSAPs by residential, business and public safety during emergencies? What lessons from the transition issues might the Commission apply to the consideration of other transfer or merger applications?

The May 9 ACR also asked "What actions should the Commission take to address the actions regarding Frontier's call center and the role it played in delaying restoration of customer service or knowledge of customer problems? What lessons from the call center difficulties with Frontier might the Commission apply to other companies?"

In response, TURN commented that "the Commission should look to the resulting Commission Final Decision and settlement agreements adopted in that proceeding, as well as existing California statutes, rules and orders to determine if the

widespread and significant outages that occurred during the transition constitute a violation that must be addressed. TURN express concern about Frontier's service that exacerbated the outage and extended the time for service restoration: "When the consumer attempted to contact the Frontier call center for support, consumers were met with additional frustration and delays: long wait times, disconnected calls with representatives, no help received, had to speak to multiple representatives, and waited for appointment but the technicians did not show."¹²⁷ Frontier repair personnel could not repair problems if they were not properly informed there was a service problem. The lack of quality customer service resulted in miscommunications and further delays."¹²⁸

TURN "urge[d] the Commission to conduct further investigation into both the cause of the outages and the adequacy of Frontier's response. This investigation should not only be used to determine if there were rule violations by either of the merging companies, but also to inform an effort to create a merger review transition plan."¹²⁹

Frontier stressed that it has cooperated with the Commission's OII. Frontier emphasized that it worked to restore customers who were out of service, and to return to Business as Usual (BAU) service status with normal levels of anticipated repair requests.

6. Referral to Consumer Protection and Enforcement Division

In light of the issues and party comments discussed above, and in consideration of the responses to the data requests and responses to ACRs we issued in this proceeding, we direct CPED to investigate the post-transition outage issues raised by the dial-tone outages and 9-1-1 access issues following the transfer of Verizon, California to Frontier. CPED shall analyze the parties' training, coordination, and data

¹²⁷ TURN, ACR Comments, p. 22.

¹²⁸ TURN, ACR Comments, p. 17.

¹²⁹ TURN ACR Comments, pp. 21, 21-28.

transfer, and the issues that led to missing/corrupt/or incompatible data including the Verizon IP Frontier licensed in February 2016.

CPED shall analyze the steps Verizon, California and Frontier took to enable the cutover of service from Verizon, California to Frontier. CPED shall analyze the compliance of Frontier, California and Verizon, California with the terms of this Commission's Decision approving the transfer as those terms are relevant to the post-transition outage issues.

CPED shall also examine Frontier's service issues including those that led to appointments not being booked for service technicians, during the period following the Verizon, California -Frontier transition in April 2016. CPED shall examine Frontier management's lack of situational awareness about the extent of the service outages, and steps that could have been taken to increase awareness. CPED will examine whether centralized alarms in Frontier's networks should have alerted them to the breadth of the outages, and if alarms did not sound analyze why alarm systems were ineffective, or not available at the customer-outage level. CPED shall examine what notice Frontier gave to the Commission, public safety, customers, and the public about the outages and customer options for reaching 9-1-1 during their outages. CPED may use the materials found in this OII including CD's data requests, as well as conduct its own investigation to determine whether to bring a adjudicatory OII against Frontier.

Individual customers may submit informal complaints about individual outages and issues in service restoration to the Commission's Consumer Affairs Branch, in addition to contacting their carrier. Consumers may also bring a formal complaint to be adjudicated through the Commission's process.

7. Merger and Transfer Recommendations for Maintaining Safe, Reliable Service and Preventing Dial-tone and 9-1-1 Outages

7.1. Comments on Merger and Transfer Analysis Policy Recommendations

TURN recommended that “for future transfers, the Commission should set customer service requirements and require a customer service training plan which is implemented prior to the transfer. These requirements and training plans will benefit the consumer and go a long way to ensuring that they receive quality service as is required by California law and CPUC general orders, and will benefit the buying carrier to receive complete, accurate, and timely information about where service problem exist.” Moreover, TURN urges the Commission to use the post-transition data and record developed through these workshops, data request responses, and reports, to develop a policy and monitoring program that focuses on the operational issues of the transition period as part of its merger review proceedings.”¹³⁰

TURN added “Moreover, this experience demonstrates that the Commission should have direct and clear lines of communication with service providers and emergency services personnel so that all stakeholders can receive real-time notices of outages and significant service degradation. This is especially important during critical operations such as a merger transition or other types of “flash-cut” operations where outages and services problems may go beyond “business as usual” impacts.” As discussed below, TURN recommends that as part of the merger review and approval process, the Commission instigate a specific operations protocol to require reporting of service impacts during a window of time that includes the transition date.”

TURN emphasized that the changing technological nature of communications networks should widen the Commission’s focus when analyzing proposed mergers and

¹³⁰ TURN ACR Comments.

transfers and their effect on service to Californians. TURN observed: “Historically, the Commission’s merger analysis looked at the technical and operational aspects of a merger transaction through the physical network, plant, equipment and employees. The increased reliance on IP enabled and VOIP technology suggests that the Commission should add an element to the merger review process that focuses on the software and digital technology used to offer critical voice and internet related services to millions of residential consumers. TURN urges the Commission to recognize that for impacted customers these outages are essentially “technology neutral.” The fact that there is no dial tone and potentially no access to critical services from their phone line is much more important than whether that phone line is copper or fiber and the jurisdictional and legal issues that have been debated before this Commission. It is critical that this Commission proactively seeks out and enforces its authority to monitor, investigate and maintain the service quality and business practices of communications service providers.”

TURN recommended that “the Commission should set customer service requirements and require a customer service training plan which is implemented prior to the transfer.”¹³¹ “TURN recommends that as part of the merger review and approval process, the Commission instigate a specific operations protocol to require reporting of service impacts during a window of time that includes the transition date.”¹³²

7.2. Directive to Communications Division to Develop Merger and Transfer Analysis Policy Recommendations to Protect Safe and Reliable Service

We direct Communications Division to develop merger/transfer guidance for Commission consideration in future transactions through Phase II of this proceeding.

¹³¹ TURN ACR Comments, p. 17.

¹³² *Id.*, p. 18.

We highlight the necessity in future merger or transfer proceedings for the commission to consider the role of customer service and if necessary, to require carriers to submit plans for customer service, training, and service process as a part of the record. These considerations might be at the forefront of future mergers, or other criteria might emerge which also proves helpful to the evaluation of 851/854 criteria. Communications Division shall convene a Working Group to discuss merger/transfer guidance to ensure safe, reliable service, and prevent service interruptions. The Commission shall consider these guidelines in a resolution or Phase II of the OIL.

At the Commission's June 1 and June 27 San Francisco workshops, Commissioner Sandoval noted that state commissions may have legal authority under the state action antitrust doctrine to supervise a transition to ensure that the parties are well positioned to provide safe and reliable service. TURN supports the Commission's exercise of this authority pursuant to the "state action" doctrine under a Supreme Court decision of *Federal Trade Commission v. Phoebe Putney Health System*. Exercise of state action must be based on a state statute that displaces competition in favor of regulation, and state supervision of the coordinated activities. TURN argues that by relying on the state action doctrine, the Commission could have required that Verizon, California and Frontier provide additional information.

Frontier executives had limited opportunities to train Verizon, California workers prior to the transition from one company to the other, and planned to start most of their training on the first day following the transition. This plan was greatly accelerated by the outages which caused an all-hands-on-deck deployment. We direct Communications Division to develop guidelines which evaluate options for worker training and party coordination prior to a transfer of customers.

Communications Division shall coordinate with the Division to analyze whether supervision of carrier coordination following Commission approval of a transaction and prior to closing is permissible under the state action doctrine. Communications

Division shall develop and recommend guidelines to ensure that transfers or mergers do not comprise reliability. These guidelines may also include exploration of the role of the seller's intellectual property or other assets in running the network to be transferred or merged as IP is critical in software-driven networks.

7.3. Facility-driven outages, Compounded by Service Issues

7.3.1. Maintenance/Repair issues

7.3.1.1. Maintenance and Facility Issues Raised in this OII that Affect Call Completion, Dial tone and 9-1-1 Outages

While gathering information about call completion failures, dial tone, and 9-1-1 outages, we received comments about facilities-driven outages and poor maintenance of poles, wires, and facilities associated with service deterioration or outages.¹³³

Tuolumne County Deputy Sheriff said:

“As I drive around the county I see phone lines tied to trees that are running to houses. This causes me concern, because with drought going on and the amount of trees, those trees – in fact, my neighbor had a tree fall over two days ago and took out the power line. So if trees continue to fall, we see phone lines going down, and people that live beyond that aren't able to contact us.”¹³⁴

We received reports of practices inconsistent with General Order 95 such as attaching telephone lines to trees including a dead trees, using metal fasteners to drill into trees and hang lines, in Sonoma, Tuolumne, and Santa Cruz County, and in one case in Santa Cruz County, tying a line to a tree with rope.¹³⁵ We received comments

¹³³ Santa Cruz PPH, Tr.,; Guerneville PPH, Tr. pp. 778, 787, 795; San Andreas PPH, Tr., p. 326; Ukiah PPH, Tr. pp. 448-449; Eureka PPH, pp. 646-649 (statement of Sean McLaughlin about repair to his neighbor's line after he called and “she just got a little “bip” on her phone, and then it was dead,” and then “our phone wasn't working,” and concluding “we clearly need to have basic maintenance and basic infrastructure maintained, basic functionality across the [technology] transition.”; Middletown PPH Tr., pp. 893, 896 (phone line “sounds like cracking all the time,” “on the [Middletown] Rancheria there are a few [phone lines] posted on trees”).

¹³⁴ San Andreas PPH, Tr., p. 326.

¹³⁵ Santa Cruz PPH, Tr. p. 922, p. 982; Guerneville PPH, Tr. pp. 742, 770-771, 774, 796; Middletown PPH, Tr., p. 896; San Andreas PPH, Tr., p. 326; Ukiah PPH, Tr. pp. 536-538; TURN

(footnote continued on next page)

about lack of vegetation management required by GO 95, and the danger of such neglect in light of the tree mortality epidemic associated with the drought, the bark beetle invasion, sudden oak death, and other threats.¹³⁶

TURN noted that “(s)peakers at several PPHs reported situations where outside plant was improperly maintained including broken or leaning poles, wires either down or very low and in vegetation, lines being attached to trees, and other examples.”¹³⁷ These examples of improper maintenance were often associated with service that was poor, intermittent, or out.

TURN discussed photographs submitted into the record of this OII of “Eureka, California, Intersection of Glen and Harris St. Broken Pole with the bottom half missing, strapped to a 4x4 post and also strapped to an adjacent pole. Photo by Shelly Konopa, taken July 18, 2016. The pole has a yellow tag indicating that it should have been replaced in January, 2015.”¹³⁸

Several examples were submitted in this OII of poles that had been tagged “do not climb,” but were not repaired, or that had been marked for removal but still stood. The photo Ms. Konopa took as described by Ms. Costa is of a pole that is effectively a “peg,” a portion of a pole held in place by straps to another pole and a thin brace, a practice known as a “buddy pole.” It is not clear why such “buddy poles” are created. Did the electric company want to move its facilities to a new pole as its facilities were on a joint use pole with telecommunications and cable providers? Did the communications providers cooperate in moving facilities to the new pole? If they did

ACR Comments, p. 9, Attachment 3 (Picture taken by Michael Nicholls, August 23, 2016, 12:11 p.m. Phone line attached to diseased tree. (AT&T plant).”

¹³⁶ San Andreas, Tr., pg. 326;

¹³⁷ TURN ACR Comments, p. 9.

¹³⁸ Guernville, TR. 677-678, Attachment 1 - Konopa Pictures.

not cooperate, did the electric utility create the PEG by moving its facilities and leaving the telecommunications facilities on a stub of the old pole, the PEG?

At the Guernville PPH a Communications Workers of America (CWA) member “described a location (Occidental Road between Occidental and Sebastopol) where telephone plant was not grounded and was not properly installed. A tree took down cable and instead of replacing the damaged cable, the old cable was simply reattached to new poles, "and over the course of four to six months, as technicians were called out to customer after customer after customer having problems in that neighborhood, it was determined that these sections of cable that had the damage occur to them were defective.”¹³⁹

TURN noted that at the Eureka PPH, “CWA provided information that a portion of AT&T telephone line was down in a location known as Lower Bull Creek Flat, located on the Mattole Road in Humboldt County. This is in Humboldt Redwoods State Park.”¹⁴⁰ As TURN explains:

On July 23, 2016, TURN telecom policy director Regina Costa drove to the site and, using a tape measure, verified that the line was down for several hundred feet, on the ground and in trees. She also verified that the telephone lines serve Albee Creek Camp Ground, which has both a pay phone and a phone at the office. She spoke with the Camp Ground Supervisor Thomas Valterria who stated that the line had been out for two weeks and service had been intermittent for the past two months. On September 21, Ms. Costa drove to the area and again spoke with camp staff. They stated that the lines were still out of service and the service to a nearby home was also not working. This is an area where wildland fires can occur, as evidenced by the fact that CalFire crews were deployed on the Mattole Rd. on September 21 as a precaution. There is no cell phone

¹³⁹ Guernville, TR., p. 786-78.

¹⁴⁰ TURN ACR Comments, p. 8-9.

service in this area. Having telephones out of service poses a significant public safety risk to campers and state park personnel.¹⁴¹

Down and damaged line can produce intermittent or no phone service, high risks for any customer, and a higher risk in likely wildfire zone. TURN commented, “(t)hese situations are violations of GO 95 and affect the quality of calls, result in service outages, or at the very least service that is not reliable. These circumstances pose a threat to public safety.”¹⁴²

TURN cited “examples of inadequate plant maintenance that contribute to 911 call completion failure and notification and reporting of outages.”¹⁴³ TURN emphasized that “the inability to make essential telephone calls -including calls to 911 and reverse 911 calls - and utilize telephone corporation networks for public safety data transmission poses a significant threat to public safety and the well-being of Californians.”¹⁴⁴

TURN added “that for at least some of the problems reported at these PPHs carriers have been working with customers to repair lines. The Commission should confirm that the repairs have taken place and immediately require carriers to repair facilities that are still in disrepair.”¹⁴⁵ TURN submitted several photos of poles and facilities that appear to be out of compliance with GO 95, and TURN expressed its view that many of these conditions not only violate GO 95, but put safe and reliable service at risk.

¹⁴¹ *Id.*

¹⁴² *Id.*, p. 10.

¹⁴³ *Id.*, pp. 4-5.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

7.3.1.2. Service Issues Exacerbate Outages Repair Time

We heard in this OII many frustrated customers complain about the difficulties in getting service ranging from the need to make repeated calls for service. Some customers reported that their carrier insisted that the customer had to have a working telephone to report that their landline telephone is out, leading one elderly woman in Sonoma County to climb on her roof to get a poor cell signal to report her landline outage.¹⁴⁶ Others complained that when they asked for repairs the carrier told them they were not repairing landline service or would make technological transitions in the future, while leaving the customer with poor service to intermittent or persistent service outages.¹⁴⁷

Cheril Hoag who lives a few miles from Angels Camp in Calaveras County reported at the San Andres PPH, “(m)y phone goes out many times in the winter, and that “to report my phone [outage] I have to drive down the road. It takes about 40 minutes.”¹⁴⁸ Ms. Hoag stated that before reporting an outage from a location where she can get cell service, “but I have to coordinate with somebody first because they have the number to call, and they [the carrier whose service is out] want your cell phone. I have to find a sister, friend, in law, somebody who will take the call from AT&T when my phone is out. Hanging around, waiting for my call to say my phone is out.”¹⁴⁹ It’s hard to report your phone is out when your phone is out. This challenge is greater for customers in areas with little or poor cell service, or customers who lack an alternative means of communication.

¹⁴⁶ Eureka PPH, Tr. 652.

¹⁴⁷ TURN, Supplemental ACR comments re: Big Sur.

¹⁴⁸ San Andreas, PPH Tr., p. 382.

¹⁴⁹ *Id.*

Communications Division reached out to AT&T, California and Frontier, and both clarified that they do not require a working phone number to initiate a service call or a repair ticket. They suggest the caller have such a number so the customer can be called to schedule an appointment or for follow-up. Yet, in this record we heard several customers in different parts of the state state they understood that their carrier required them to have a working phone number to report an outage.

Other customers reported great difficulty in getting their repair needs met, even when they were out of service. TURN reported on comments received in a meeting they attended in Big Sur where the Soberanes fire raged for more than 2 months in 2016. One customer stated, "I have contacted AT&T more times since I can count since the [Soberanes] fire because our line is still not functional- no dial tone. Still no action."¹⁵⁰

7.3.1.3. Party Comments

The September 27 ACR asked for comment on themes raised in the Workshops and PPHs, and for recommendations about actions the Commission should take to address pole safety and facility maintenance issues and their effect on call completion, 9-1-1 and dial tone access. AT&T, California observed that "Currently, in OIR 15-05-006, the Commission is developing a wildfire risk map and considering additional design, construction and maintenance rules to enhance safety and reliability of utility poles and facilities, including consideration of the effects of tree mortality due to bark beetle and other pest infestations, on the basis of Governor Brown's declared State of Emergency."¹⁵¹ AT&T added, "In addition, GO 95 Rule 80.1(A)(2) requires utilities to conduct patrol or detailed inspections for all of its communication lines throughout the State. AT&T, California's inspections of its poles and facilities includes

¹⁵⁰ *Id.*, Attachment 1, AT&T Big Sur Customer Service Quality Issues.

¹⁵¹ AT&T, California, ACR Comments, p. 3.

facilities attached to or near trees that may be infested with bark beetles or other pests.”¹⁵²

Comcast commented that its centralized monitoring helps it detect and respond to problems associated with plant or facilities. “For example, Comcast has a Networks Operations Center (“NOC”) which monitors its network 24 hours a day, 7 days a week. In cases where a downed pole results in an outage, an alarm regarding that outage is automatically received by the NOC which then communicates to those in the company responsible for investigation and repair.”¹⁵³

TURN highlighted the legal basis for finding violations regarding pole safety and its relationship to consumer service and outages. “Further, as is the case with the problems following the Verizon-Frontier transaction, these major deficiencies in outside plant maintenance are potential violations of Cal. Pub. Util. Code sections 451, 453, 558, 2895 et al., and Civil Code Section 1722. Cal. Pub. Util. Code section 451 imposes broad requirements to ensure that “every public utility shall furnish and maintain such adequate, efficient, just and reasonable service...equipment and facilities, including telephone facilities.” Further Section 453 prohibits a public utility from maintaining any unreasonable difference as to rates, charges, service, facilities, ...between localities or as between classes of service.” Section 558 requires every telephone corporation to “receive, transmit, and deliver, without discrimination or delay, the conversations and messages of every other such corporation” where there is a “physical connection.” Finally, Cal. Pub. Util. Code section 2896(c) requires utilities to provide reasonable statewide service quality standards, including customer service, installation and repair.”¹⁵⁴

¹⁵² *Id.*, p. 4.

¹⁵³ *Id.*

¹⁵⁴ TURN ACR Comments, pp. 13-14.

TURN added “The Commission should instruct either its Communications Division and Safety and Enforcement Division Staff further investigate, identify additional violations and those should be corrected. Staff should be directed to consider whether fines and penalties are warranted, pursuant to Cal. Pub. Util. Code section 2107 et. al. in situations where it is clear that violations are systemic, persistent and ongoing.”¹⁵⁵

Mendocino County recommended that the Commission Action “take immediate action to follow up on the verifiable problems identified by all speakers, and require that such facilities are repaired.”¹⁵⁶ CforAT added that the solution is not just fix one line, but that we need system upgrades. “Multiple customers highlighted ongoing problems due to deteriorating facilities, explaining that ongoing efforts to obtain fixes were not successful. It appears that multiple consumers experience problems that cannot be effectively fixed on a “micro” basis by addressing that single customer’s line, and that real fixes would require more extensive facilities upgrades. Such customers also reported information demonstrating the carriers’ reluctance to invest in such upgrades, and technicians described having to use patchwork efforts to address individual customer concerns rather than providing improvements to facilities.”¹⁵⁷ Mendocino County argued that “(I)t is the responsibility of the Commission to ensure that the obligation of a telephone company (and any other utility) to provide “safe, reliable service with adequate facilities at just and reasonable rates throughout the territories that they serve” is being fulfilled. Although it is well known that use of landline services is decreasing nationwide, rural counties still depend greatly on the copper infrastructure as the private investment in IP services has not been adequate to

¹⁵⁵ *Id.*

¹⁵⁶ Mendocino County ACR Comments, p. 5.

¹⁵⁷ CforAT, ACR Comments, p. 18.

create universally-available alternatives. For this reason, it is essential that the copper network be maintained in good working order to provide those services to residents until comparable, universally available reliable services are available.”¹⁵⁸

7.3.1.4. Who does 9-1-1 or a Public Safety Official Call When they Need to Call For Emergency Assistance about a Down Pole or other Telecommunications Safety Hazard?

At the Middletown PPH Margaret Silvers, City Manager for the City of Lakeport, spoke about her concern that local emergency services representatives including rural town managers lacked direct access to a telecommunications carrier to report a downed pole in the street creating an emergency issue.¹⁵⁹ She described a downed telephone pole incident in Middletown and the town emergency manager’s frustrating efforts to reach AT&T as he only had the general 800 number used by the public.¹⁶⁰ He navigated the maze to reach someone to ask for a pole repair, only to find out the next day that a repair ticket was needed to trigger a crew dispatch.¹⁶¹

This example raised an important question. Who does 9-1-1 or an emergency service manager call when they need to call 9-1-1 or a carrier about a downed pole or telecommunications issue? The September 9 ACR asked steps should the Commission take to ensure that Public Safety Officials, including counties, federally recognized California tribes, first responders, city, county and state emergency services operators, have direct access to Communications companies to report emergency issues such as a down wire or pole or other emergency issue.

Comcast responded, “With all due respect to local jurisdictions, the pole owners and attachers are in the best position to monitor for downed poles. Moreover, to the

¹⁵⁸ Mendocino County ACR Comments, p. 4.

¹⁵⁹ Middletown, Tr., p. 844.

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

extent that the cities want to notify someone, Comcast Phone respectfully suggest that they notify the pole owners—usually the electric company and/or the ILEC—especially since, in the case of a downed pole, it may be difficult for a city to identify other attachers. Finally, by notifying the pole owner of a downed pole, public safety and worker safety is best protected. To the extent that the pole carries an energized power line, no work on service restoration may safely begin until the power line is de-energized. The pole owner is in the best position to ensure that power lines are safely managed during restoration, especially given the high likelihood that the pole owner is the power company.”¹⁶²

Not all poles are electric or joint use poles, and the pole that went down in Lakeport near Middletown was a telephone pole. While PG&E moved the telephone pole out of the road at the town’s request, the repair had to await AT&T’s dispatch upon efforts to open a repair ticket the morning after the call to the 800 number by the town’s emergency anager.

Comcast added that it sends “a letter to PSAPs on an annual basis to remind them how to contact Comcast regarding any issues they might have. This would include issues relating to downed poles or other outages....Comcast has a website designed specifically to provide support to PSAPs, including the contact telephone numbers, email address and fax number to reach the appropriate groups dedicated to addressing public safety issues.”¹⁶³

We applaud Comcast on their outreach to PSAPs. Non-PSAP public safety agency may also need that information and should be made aware of how to contact a carrier during an emergency.

¹⁶² *Id.*

¹⁶³ *Id.*

The Commission has no clear requirements that local, country, or tribal safety officials in California have a direct number, not an 800 or 8xx-type number, where they can reach a carrier representative about a down telephone pole or emergency. Some carriers provide such numbers to local contacts while others do not. We remedy that situation below by requiring that carriers provide their direct contact information to local, county, and tribal emergency services managers.

7.3.1.5. Decision

The focus of this proceeding is on call completion issues including call initiation issues caused by dial tone and 9-1-1 outages. Facility and maintenance issues may contribute to these problems, and must be repaired and kept in good condition to comply with Commission rules. Mendocino County suggested that the “Commission should take immediate action to follow up on the verifiable problems identified by all speakers, and require that such facilities are repaired.”¹⁶⁴

At our November 10 meeting, the Commission adopted a resolution to establish a Telecommunications Citation program to monitor compliance with GO 95 and GO 133. We anticipate that this citation program will speed compliance with Commission pole and undergrounding safety orders.

We refer to the Network Study this Commission ordered in D.15-08-041 analysis of the facilities and maintenance issues raised in the record of this proceeding including the transcripts and photographs of poles and lines.

The Commission in R.16-05-004 is considering a referral to an OIR about pole safety issues and competitive access to poles. We that OIR or an appropriate rulemaking to clarify the appropriate timeline for repairs or pole replacement when, for example, a pole is marked “do not climb” or designated for replacement.

¹⁶⁴ Mendocino County ACR comments, p. 5.

We direct SED to clarify the duty to cooperate with other pole users including other utilities regarding pole and underground facility safety issues. SED shall clarify the Commission's policy on pegs or "buddy poles" and provide guidance to carriers about the process for moving facilities in compliance with GO 95. We refer to SED to clarify that trees are not proper supports for telecommunications wire attachment, whether by metal ring, rope, or any other means. The tree mortality epidemic makes it all the more urgent that we address this issue. We also refer to SED to clarify tree-trimming and vegetation management duties in light of the bark beetle invasion, sudden oak death, and other threats including tree mortality.

Carriers shall not require a working phone number to initiate a trouble ticket. While carriers may suggest that a call back number is helpful, carriers may not make it a condition of initiating a repair ticket, scheduling a repair appointment, or executing repairs. Carriers shall inform customers of the optional nature of any call-back number suggestion for repair ticket requests and appointments.

Respondent carriers shall provide a direct emergency contact number or method to local, county, and tribal emergency services managers, and that number shall not be the general 800 or 8xx number used by the public. Respondent carriers shall report within 90 days their compliance with this order to Communications Division.

7.3.2. Dial-Tone Outages and 9-1-1 Access Issues Arising from Third Party Actions, and Response to Such Incidents

7.3.2.1. Fiber Cut on August 3, 2014, Mendocino County

On August 3, 2014, a hit and run accident in rural Comptche, California near Mendocino County's west coast took out 400 feet of aerial AT&T fiber optic cable strung on telephone poles in. Mendocino County reported that fiber cut "led to the loss of almost every type of communication - telephone, Internet, cellular, and 911 services for an estimated eight communities situated along the Mendocino County coastline and loss of some cellular service for three of the County's inland areas for forty-five (45)

hours.”¹⁶⁵ The Broadband Alliance of Mendocino County, a California Advanced Services Fund (CASF) grantee, reports that the “exact number of residents that were affected by the resulting communications breakdown is unknown, but is estimated to be many thousands of people.”¹⁶⁶

AT&T, California did not publicly report the number of landlines affected by the outage. “Mendocino County Sheriff Tom Allman estimated that 20% of residents lost their 911 services which in a county with a population of approximately 87,000 residents would be 17,400 people.”¹⁶⁷

The Mendocino County Sheriff reported that he was unaware of the widespread communications outage for six hours, and learned about it when a fire chief was finally able to reach him on a landline.¹⁶⁸ The Mendocino County Emergency Services Office was unaware of the extent of the outage and unable to communicate with western Mendocino.¹⁶⁹ During the telephone outage, Mendocino County relied heavily on the local Ham Radio Community for emergency dispatch.¹⁷⁰

The outage made telephones lose dial tone and access to 9-1-1. Credit card machines did not function. Mendocino County Sheriff Allman recounted that during the communications outages Sheriff deputies could not put gas in their car at rural gas stations with no attendant that operate only by credit card.¹⁷¹ The Director of IT services at Mendocino Coast Hospital described safety risks when rural communities do not

¹⁶⁵ Mendocino County comments on ACR, Appendix A., p. 1.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*, p. 9.

¹⁶⁹ *Id.*

¹⁷⁰ Ukiah, Tr. p. 446; Mendocino County comments on ACR.

¹⁷¹ Ukiah, Tr. p. 447.

have reliable telecommunications service, including situations where emergency on-call personnel could not be contacted.¹⁷²

The Broadband Alliance of Mendocino County conducted a survey following the outage to learn more about the effect of the loss of dial tone, internet, landline, and wireless service on residents, businesses, government, and non-profits. They reported that “Out of 741 responses to the initial survey as of October 8, 2014, there were 285 residents who reported losing their regular ability to place a 9-1-1 call, including: 4 actual life-threatening medical emergencies, 39 disabled or elderly residents, 42 self-reports where respondents affirmed they felt that an internet and phone service outage such as the one experienced on August 3-5, 2014 was a threat to their safety.”¹⁷³ During the communications outage, approximately 25 miles northeast from the site of the fiber cut, the Lodge Fire Complex which started on July 31, 2016 was growing, and surrounding were on alert for potential evacuation orders.¹⁷⁴ The fiber break “impacted much of the cellular services in this area, and many residents would not have been able to receive their “reverse 911” calls had such an evacuation warning/order been given.”¹⁷⁵ Mendocino also explained that firefighting efforts were complicated as a result of the fiber break as “alternative satellite communications system had to be supplied.”¹⁷⁶

Division analyzed the GO 133-C data for August 2014 and found that there was not a surge in Out-Of-Service tickets and repairs in early August 2014 in Mendocino County. Communications Division reasonably surmises that many customers did not

¹⁷³ Mendocino County comments on ACR, Appendix A., p. 2.

¹⁷⁴ *Id.*, p. 1.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.*

report the outage, because major parts of both cellular and landline networks were not in service. Some customers may have learned that the outage was widespread, and may have inferred that the carrier was aware of the problem.

The Commission's Service Quality General Order 133-D (formerly GO 133-C), reports statewide average response by a carrier to request for a repair ticket. Repair tickets trigger the 24-hour clock for service restoration reporting under GO 133-D. In a widespread outage where landline, cell, and many internet services are out, customers may not generate repair tickets with their carrier, because they cannot.

Carriers may generate repair tickets in response to various alarms, but it is not clear that they do so consistently. It appears that AT&T, California did not initiate thousands of repair tickets when its alarms showed the outage of the transport facilities in Comptche, California that carried landline, mobile, and Internet traffic.

AT&T's comments on the 2015 scoping memo, Comcast's comments in response to the September 9 ACR, and Frontier's comments about the technology available to monitor its network highlight the central alarm and monitoring functions carriers use to detect and act on network conditions. The apparent lack of repair tickets for the thousands of customers who lost service during the August 3, 2014 Mendocino outage indicates that neither customer, nor carrier generated repair tickets reflect the network's technical status, nor the number of customers who affected by an outage.

Perhaps AT&T viewed this incident as one transport outage generating the need for one repair, so the carrier did not file repair tickets or separately report to the Commission the thousands of customers who lost voice and data service as a result of this transport outage. This practice effectively circumvents the repair ticket trigger of Go 133-D, masking the number of Californians affected by such outages.

If the landline customer outage is less than 900,000 user minutes for 30 minutes, it would not be captured as a "Major Incident" under GO 133(D)(4). Neither would a carrier's NORs reporting to the FCC of a "transport" outage of a data circuit that also

support Internet and wireless customers necessarily capture landline customers. These issues highlight the data gap discussed below.

7.3.2.2. Fiber Cut on September 3, 2015 in Mendocino County that resulted in Loss of Dial tone, Internet, and Wireless Service in Mendocino, Humboldt, and Del Norte Counties

On September 3, 2015 a fiber cut by vandals in Mendocino County resulted in a “widespread telecommunications network failure across the 3-county region of Mendocino, Humboldt and Del Norte counties.”¹⁷⁷ The September 3, 2015 outage was reported by the North Bay Broadband Consortium and the Broadband Consortium of Mendocino County as the fourth outage in the county in the past 13 months. “In August 2014 a 45-hour outage severely impacted 8 communities along the Mendocino Coast. There were two smaller outages in Covelo and Laytonville earlier this year. And most recently, on December 9th Humboldt County experienced an outage that caused loss of service to an estimated 90,000 residents.”¹⁷⁸

The Sept. 3, 2015 outage “impacted services including Internet, mobile telephone, landline telephone, business processes such as fax and credit card processing and most critically, loss of 9-1-1 services from seven Public Safety Answering Points (PSAPs).”¹⁷⁹ “Mendocino County Emergency Operations Center (EOC) was activated at level two at 10:45 a.m., re-routing all incoming 9-1-1 emergency calls to a secondary PSAP. Although re-routing of the 9-1-1 system occurred quickly, many people still could not call 9-1-1 or receive reverse 9-1-1 calls because the service remained out on their end.”¹⁸⁰

¹⁷⁷ Mendocino County comments on ACR, Appendix B., (Report of The North Bay Broadband Consortium and the Broadband Consortium of Mendocino County, September 2015 Telecommunications Outage and the Impacts on Residents of Mendocino County), p. 1 [hereinafter “Mendocino County comments on ACR, Appendix B.”].

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

The County Emergency Operations Center (EOC) center, "OASIS Communication, a portable radio communication system, and satellite phone and internet were all activated; the Mendocino Ham Radio Team was activated and deployed to the EOC and hospitals. An Incident Command for California Highway Patrol and Cal Trans was established at Howard Forest. At 9 a.m. the following day, service was restored and the EOC deactivated."¹⁸¹

Hospitals communicated with "walkie-talkies as an emergency protocol. The National Weather Service sent out an Emergency Alert Message, and all coastal radio stations were able to get the message out."¹⁸² During the September 2015 communications outage that affected Mendocino, Humboldt, and parts of Del Norte County, the County of Mendocino asked the National Weather Service to post information on how people could access 9-1-1 during the outage, and the National Weather Service did so on Facebook:

At the current time, Mendocino County is experiencing trouble with their 911 Emergency phone lines. The County has asked the National Weather Service to relay this message: If you have a 911 emergency and you have a land line phone that works please call 707-459-5336. If you have a cell phone please TEXT to 707-489-2749. If neither method works please go to your local police or fire department for help.

We applaud Mendocino County for their creative outreach to the National Weather Service to relay this information about connecting 9-1-1 during the outage. National Weather Service Facebook posts to the public about how to access 9-1-1, do not substitute for carrier information to public safety officials or to the Commission.

¹⁸¹ *Id.*

¹⁸² *Id.*

The North Coast and Mendocino Broadband Consortia report on the September 2015 outage stated that Sheriff Allman’s Office “deployed an officer to find AT&T personnel to determine the cause of the outage and get an update/estimate for a time of reconnection of phone and internet services. AT&T crews were found in about an hour, but did not know a time of re-connection, but gave an estimate of 24 hours.”¹⁸³ We are concerned that the Sheriff had to deploy an officer to find AT&T, California personnel to get information about the outage, rather than receiving information from AT&T, California. Senator Mark McGuire and Assembly Member Jim Woods who represent this district tweeted about the outage based on their phone calls with AT&T repair crews were on site.¹⁸⁴

Public safety officials at the Sheriff’s Office, County OES, and police departments, as well as the Commission, should not have to depend on AT&T phone calls with an elected officials for 140 character tweets about the status of repairs. Haphazard information tidbits do not provide the level of detail necessary for public safety and Commission monitoring of carrier compliance with state law and Commission rules, orders, and Decisions.

Some carriers provide some voluntary media reporting about outages such as AT&T, California did to a Eureka-based website several hours after the September 2015 outage began, but such reports are not consistent. *The Lost Coast Outpost* reported a statement from Matthew Cross, AT&T spokesperson about the December 9, 2015 outage

¹⁸³ *Id.*

¹⁸⁴ *Id.* (Sen. McGuire tweets on the September 2015 outage); Redwood Blackbelt, Internet and Phone Outage Slams Humboldt and Mendocino, (Sen. McGuire (“Just talked with AT&T again. No update on restoration timeline. Crews are on scene of the fiber cut, additional crews rolling in.”); Assembly Member Woods (“Just off phone with AT&T. Repairs underway some customers are back online full service restored by early tomorrow morning. Questions remain”); County of Humboldt, Fortuna Police Department, and the National Weather Service tweets on the September 2015 outage), <http://kymkemp.com/2015/09/03/internet-and-phone-outage-slams-humboldt-and-mendocino-estimated-12-hours-to-repair/>.

of Internet and phone services in Humboldt County: “Due to fiber damage by another company at mile marker 56.6 on Highway 101, some Eureka area customers are experiencing issues with their landline and wireless services. Our local crews are working to repair the equipment and restore service as soon as possible. We apologize for this inconvenience.”¹⁸⁵

The North Coast and Mendocino Broadband Consortia reported on the service restoration efforts during the September 3, 2015 outage. “AT&T crew worked throughout the night to repair the fiber break, and the Hopland switch was operational by 9:55 p.m. September 3rd and the Eureka switch by 8:45 a.m. September 4th. Services were out for an average of 18 hours.”¹⁸⁶ We applaud AT&T, California and its crews for their hard work to restore service, though questions remain about why so many customers lost service, and about AT&T’s overall response.

Carriers may be reluctant to disseminate even basic data about outages, customers are increasingly sharing and posting data about outages. Meanwhile, customers increasingly post outage information on carrier web sites, social media sites such as Facebook and Twitter, sites that focus on outages such as Downtdetector.com, and local-focused sites such as Mymotherlode.com, Redwood Blackbelt, or the Lost Coast Outpost.¹⁸⁷

The Commission has a Facebook page and a Twitter feed, and is running a survey on call completion and call access issues. The Commission should make it easier

¹⁸⁵ Lost Coast Outpost, (Update) Communications Breakdown: AT&T Internet/Phone Service Outages Reported in Humboldt, Dec. 9, 2015, <https://lostcoastoutpost.com/2015/dec/9/communication-breakdown-t-internetphone-service-ou/>.

¹⁸⁶ Mendocino County comments on ACR, Appendix B, p. 3.

¹⁸⁷ Hank Sims, The Internet is Down!!! Massive AT&T Outage Takes Humboldt County Phones, Internet, etc. Offline, Sept. 3, 2015, <https://lostcoastoutpost.com/2015/sep/3/internet-down-massive-t-outage-takes-humboldt-coun/>.

for consumers to tell the Commission about problems and trends, rather than relying on third-party platforms to tweet or post carrier problems. Such a Commission site and app will help us monitor trends, identify compliance issues, and allow customers to share information about carrier service or outages.

In this OII, The County of Mendocino requested public reporting of communications outages so people could respond and make appropriate arrangements.¹⁸⁸ We take official notice under Evidence Code § 452(h) that the State of Ohio requires carriers to notify “the commission's outage coordinator and when appropriate, the news media in the affected area,” affecting at least 900,000 user-minutes that lasts 30 minutes or more.¹⁸⁹

AT&T, California reported that “AT&T’s restoration efforts started when alarms at AT&T’s operation center identified heavy impact related to a fiber optic cable cut at 9:40 AM on Thursday, September 3, 2015.” We encourage such efforts to leverage carrier and customer investments in network monitoring systems that generate alarms about system conditions such as outages that affect a large number of customers. Such systems should be available both deep in the network and across a variety of services and customers to reap maximum benefits for outage detection.

Use of centralized alarms to detect and repair trouble creates another reason to tell the public about outages and repair times. If the carrier knows about many outages, does the public need to make an effort to call it in? Calling about an outage is a difficult task when the phones are out, particularly when multiple types of communication, landline, wireless, and cell are out. Neither does calling guarantee speedy service as we

¹⁸⁸ Mendocino County ACR comments.

¹⁸⁹ Ohio Administrative Code, 4901:1-6-31, Emergency and outage operations, <http://codes.ohio.gov/oac/4901:1-6-31v1>.

received many complaints of five days waits or more for service calls other than dial tone service restoration.

Public information is not available about the number of residents, businesses, non-profits, government organizations, and others affected by the September 2015 outage. The North Coast and Mendocino Broadband Consortia noted that “Mendocino and Humboldt counties alone have a combined population of 221,000, which means that tens of thousands of people were impacted at some level. AT&T, California has not released any hard numbers of customers affected; an AT&T spokesman has said that doing so “would encourage more vandalism.”¹⁹⁰ “Lt. Wayne Hanson at the Humboldt County Sheriff’s Office was quoted in the *Times-Standard* “... that the problem spans areas all over the County” and their county OES opened up an on-line survey in the days following the outage.”¹⁹¹

Other outages affected public safety in Humboldt County. A December 9, 2015 outage rendered inoperable all the internal phones at the Humboldt County jail used to connect each unit to the other, posing major safety risks.”¹⁹² Notice to public safety that phone service is out so they may determine whether a jail needs reinforcements would be a prudent step to protect public, peace and corrections officer, and inmate safety.

The Humboldt County Emergency Manager for the Sheriff’s OES, Dorie Lanni, described at the Eureka PPH the multiple wireline reliability failures faced in the rural communities, and the steps local residents were forced to take on their own to protect public safety. “For many rural residents and telecom customers in Humboldt County

¹⁹⁰ *Id.*, p. 4.

¹⁹¹ *Id.*

¹⁹² Ukiah Tr., p. 408.

loss of services is a routine event,” and continued that local emergency providers “have come to accept that they are on their own.”¹⁹³

At the San Francisco Workshop and PPH, Trish Steel representing Mendocino County discussed the impact of the two major wireline outages in 2014 and 2015, noting that Mendocino County has a “high percentage of elderly and disabled residents. We live in remote areas, and their phone is often their only means of communication with family and doctors.”¹⁹⁴

AT&T, California did not comment directly addressing the fiber cuts of 2014 and 2015 in response to the ACR or following the Ukiah or Eureka PPHs.

7.3.2.3. Party Comments and Recommendations for Actions in Response

In response to this proceeding’s discussion of the outages that began in the Mendocino and Humboldt County areas in 2014 and 2015, TURN recommended that this Commission require carriers operating in California to notify public safety officials about outages. TURN observed:

First, it is clear that there is inadequate notification provided by telephone corporations to local emergency officials and first responders. The experience of public safety officials in Mendocino, Del Norte and Sonoma Counties demonstrates the problem. The Commission should require that in the event of an outage affecting either a Public Safety Answering Point (“PSAP”) or disrupting communications services so that telephones do not work and members of the public cannot contact 911, telephone corporations are required to promptly alert a county office of emergency services, the county sheriff, and local PSAP operators.¹⁹⁵

¹⁹³ CforAT, p. 6 (citing Eureka, Tr. p. 680-683).

¹⁹⁴ CforAT, p. 6 (citing San Francisco, Tr. p. 134).

¹⁹⁵ TURN, Comments on ACR, pp. 3-4.

Mendocino County Sheriff Allman also stressed his county's request that carriers notify public safety officials about communications outages.¹⁹⁶

For public safety officers such as a County Sheriff, coordinator of the County Office of Emergency Services, Police or Fire Chief, information about communications service is crucial for the execution of their public safety duties. Mendocino County Sheriff Allman discussed at the Ukiah PPH the decisions he must make about deployment of law enforcement and county emergency services when telephone service is out to a large number of the people, businesses, and institutions he serves and protects.

Information is key as public safety officials have to decide whether to deploy patrol cars or ambulances to locations such as intersections or fire stations where people can get emergency help when access to 9-1-1 is down.¹⁹⁷ The Sheriff needs to decide whether to request aid from the local Ham Radio operator communities ("the Hams") and deploy them for emergency dispatch as they did during the communications outages in Mendocino in 2014 and 2015.¹⁹⁸ This OII received reports of the heroic role Ham Radio Operators play in many rural counties including Mendocino and Humboldt to relay emergency dispatch messages for ambulances and public safety when telephone service is out.¹⁹⁹ Lake County, Mendocino and others are considering bringing back sirens to alert residents to fire or disaster in light of widespread telephone outages during and after fires.²⁰⁰

¹⁹⁶ Ukiah, Tr. pp. 444 ff.

¹⁹⁷ Ukiah, PPH Tr. p. 446.

¹⁹⁸ Ukiah, PPH Tr. p. 447.

¹⁹⁹ *See*, Ukiah, PPH Tr. p. 447; Eureka, Tr. p. 687.

²⁰⁰ *See*, Middletown, PPH Tr., p. 912.

The Sheriff has to decide whether to send deputies to county jails whose phone service is down as it was in a December 2015 Mendocino outage.²⁰¹ Mendocino County Sheriff Allman and Willits Police Chief Gonzales emphasized that they need information to make public safety resource prioritization decisions.²⁰² During such outages, public safety officials must respond to emergencies without modern communication. Constituents are unable to call 9-1-1, and public safety officials must find alternate means of communication to make help available and keep the peace.

TURN also commented about the inadequacy of the current notice standards that provide this Commission with limited information about outages such as those which occurred in Mendocino in 2014 and 2015. TURN commented:

Second, it is also clear from the transcripts and other evidence in Commission proceedings that rural outages, with significant impacts on communities, often fly under the radar, or are swept under the rug due to inadequate reporting of rural outages. The Commission should require the reporting of rural outages and establish a threshold reporting requirement of 90,000 user minutes.

Mendocino County and CforAT joined TURN in expressing concern about the information gap that results from the current reporting standard.²⁰³

The North Coast Broadband Consortium and Mendocino Country Broadband Alliance also commented about the need for redundancy and diversity in the network to prevent widespread outages from a single break. They recommended:

The connections of all AT&T in-county central offices and regional tandem offices should be fully redundant and diverse. 2) Redundancy and diversity should be supported by a competitive multi-carrier environment. 3) Emergency 9-1-1 PSAPs should be interconnected with an

²⁰¹ Ukiah, PPH Tr. p. 408; Mendocino ACR Comments, p. 3.

²⁰² Ukiah, PPH Tr. p. 445.

²⁰³ CforAT Comments on ACR; Mendocino County, Comments on ACR, pp. 10-11.

engineered solution that ensures that all dialed 9-1-1 calls always reach a staffed PSAP. 4) Mendocino County should develop and adopt countywide Broadband Goals and a Broadband Plan with specific strategies to meet these goals. 5) Fiber routes should be inventoried and any cabling that is currently un-secured should be secured. 6) Improvements in communications and protocols should continue to be developed with the incumbent Incumbent Local Exchange Carrier (ILEC), AT&T.²⁰⁴

Mendocino County requested in their response to the ACR that this Commission require carriers to offer diverse routing, redundancy, and resiliency options.

Dorri Lanni, Humboldt County Emergency Manager in the Sheriff's Office of Emergency Services stated at the Eureka PPH that they were informed after the September 3, 2015 fiber cut that led to loss of service in Mendocino, Humboldt, and Del Norte Counties that "a few commercial entities in Humboldt County did not lose phones and Internet because they had been offered the option and elected to pay more for critical redundancy. This available redundancy was not afforded to Humboldt County public safety access points."²⁰⁵ Dorrie Lanni, Humboldt County Emergency Manager in the Sheriff's Office of Emergency Services asked for public safety access points to have the option for a tariff to provide "critical redundancy" allegedly offered to some local businesses, but not to the Humboldt County OES.²⁰⁶

Ms. Lanni added that during the September 2015 tri-county outage due to the fiber cut in Mendocino County, the Humboldt County Sheriff's Office of Emergency Services (ORS) was "not notified that a countywide failure had occurred and were unable to reach anyone with AT&T who could or would provide information for the

²⁰⁴ Mendocino County comments on ACR, Appendix B., pp. 1-2.

²⁰⁵ Mendocino County ACR Comments; Eureka PPH, Tr., p. 681.

²⁰⁶ Eureka, PPH Tr., p. 680.

better part the outage. We have no reason to believe that redundancy will be provided in the future the next time fiber optic cable is out.”²⁰⁷

Other counties reported similar vulnerabilities resulting from a cut to major communications transport facilities. At the San Andreas PPH, Tuolumne County Deputy Sheriff Earhart discussed how a couple of years ago, a single fiber cut led to the loss of 9-1-1. “Somebody decided to cut the fiberoptic lines coming into our county. With no backhaul in place, our phone lines throughout the county went down.”²⁰⁸ Deputy Earhart recalled, “There was some phone service...primarily AT&T was non-operative, which is our vendor for 911 system as well as administrative lines in our organization.”²⁰⁹ He added, “Luckily, AT&T was responsive and they were able to get those lines back up and running in a reasonable amount of time. Again, we need to have reliable systems in place that have a backhaul to where if something like that occurs, the system can stay up and running.”²¹⁰

We take official notice under Evidence Code § 452(h) that other states such as Colorado require diverse routing for 9-1-1 facilities.²¹¹ We take official notice under Evidence Code § 452(h) that Nebraska has required since 1996 that carriers report to the Nebraska Commission within 120 minutes of an outage service interruptions as described in section 5 of the Nebraska Service Outage Reporting Requirements:

5(a): any service outage of a LEC's intraLATA long distance facilities for more than 30 minutes;

²⁰⁷ *Id.*, p. 682-683.

²⁰⁸ San Andreas, PPH Tr., p. 326.

²⁰⁹ *Id.*

²¹⁰ *Id.*, p. 327.

²¹¹ 4 Code Of Colorado Regulations (CCR) 723-2 Part 2 “Facilities for 9-1-1 service shall be diversely routed, using different circuit routes wherever feasible.”

- 5(b): any service outage of 30 minutes or longer affecting an exchange or 500 working lines in any NXX central office, excluding planned outages;
- 5(c): Complete loss of EAS [extended area service] or toll trunk groups in a central office for 30 minutes or longer;
- (5d): Loss of a distribution facility affecting 100 or more working lines for 30 minutes or longer;
- (5e): any service outage of a company's 911 equipment or facilities which causes isolation of working lines in any exchange from 911 access for 30 minutes or longer;
- (5f): the loss of service to airports, military facilities, or hospitals affecting public safety.²¹²

These standards are keyed to the number of lines affected or loss of a type of service for 30 minutes or more, rather than using the “user minute” standard the FCC employs for NORS (potentially affected lines times the number of minutes).

Nebraska’s outage reporting is not limited by whether the outage of lines, certain types of services, or major facilities affected reached the FCC NORS reporting standard or a customer or carrier initiated a repair ticket. The line and service losses resulting from the Mendocino fiber cut in Comptche in August 2014, the fiber cut of September 2015 that affected Mendocino, Humboldt, and Del Norte counties, and the December 2015 fiber cut that affected Humboldt County would have been reportable under the State of Nebraska’s outage reporting requirements if those rules were applied to California.

Ohio requires that “(e)ach facilities-based local exchange carrier (LEC) shall design, operate, and maintain its facilities to continue to provide customers with the

²¹² Nebraska Public Service Commission, Service Outage Reporting Requirements, adopted Dec. 26, 1995, http://psc.nebraska.gov/telecom/pdf/forms/Service_Outage_Letter.pdf, and as reflected in requirements adopted November 6, 2012, http://www.psc.nebraska.gov/telecom/pdf/forms/Service_Outage_Reporting_Requirements.pdf.

ability to originate and receive calls at all times.”²¹³ To monitor compliance with this standard and outages that interrupt continuous calling service, Ohio uses “existing FCC rules applicable to emergency and outage operations,” but adds requirements for notice to the Commission and the news media. An Ohio Local Exchange Carrier shall “submit, within two hours of discovery, to the commission's outage coordinator and when appropriate, the news media in the affected area, a notification that it has experienced an outage,” expected to last for 30 minutes or more.²¹⁴ Ohio law would have required reporting of the September 3, 2015 outage to the Commission and the news media, and may have required reporting of other outages, in light of the voice services affected by the rupture of service on transport facilities that carry calls and data.

The practice of other states in tailoring outage reporting to their state needs is a model California should consider. The size of California, long distances between many rural communities, the public safety responsibilities given to local, county, regional, and state bodies under California law, and this Commission’s responsibilities to ensure compliance with the law and safe, reliable service merit outage reporting responsive to the needs of this state.

7.3.2.4. Decision

In its response to the September 2016 ACR, TURN recommends the Commission instruct either its Communications Division and Safety and Enforcement Division Staff to further investigate, identify additional violations, and correct them, and to assess fines and penalties where violations are systemic, persistent and ongoing. In light of the extensive impact of each of the outages in Mendocino, Humboldt, and Del Norte counties in 2014 and 2015 discussed above, we determine that examination by CPED is

²¹³ Ohio Administrative Code, Retail Telecommunications Service, 4901:1-6-31 Emergency and outage operations, <http://codes.ohio.gov/oac/4901:1-6-31v1>.

²¹⁴ *Id.*

appropriate to determine if carrier action in association with these outages complied with California law and the Commission's rules, decisions, and orders.

We direct CPED to investigate the events associated with the outages associated with fiber cuts on August 3, 2014, September 3, 2015, and December 9, 2015 to analyze whether carriers provided safe, reliable service was provided in compliance with Cal. Public Util. sections 451, and 709, and in compliance with California laws, and the Commission's rules, orders, and Decisions. CPED shall examine whether the carriers involved in the outage promptly notified PSAPs and took appropriate action to allow public safety officials to take prudent steps to facilitate emergency services access while 9-1-1 was down, and to protect public safety.

CPED shall examine whether the lack of route diversity contributed to the extent and length of the outages. CPED shall analyze reports that software modifications were made to increase resiliency, and inquire why such modifications were not made prior to the outages of 2014-2015 in the Mendocino, Humboldt, and Del Norte regions. CPED shall recommend whether to bring an adjudicatory OII or take other actions based on these outages in light of their scale, widespread loss of dial-tone including access to 9-1-1 service, and effect on several types of services.

7.3.3. Meet and confer on 9-1-1 addressing issues with Federally recognized Tribes in California and County OES

7.3.3.1. California Federally Recognized Tribe 9-1-1 Address Issue

At the Middletown PPH, several speakers stated that the 9-1-1 (ETNS) database did not identify their household when they called 9-1-1 due to differences between the tribal address system and that used in the ETNS database. We asked in the September 9 ACR, what steps the Commission should take to assure that the ETNS database is populated with accurate addresses, including in Tribal areas.

CforAT noted that Ursula Simon, a member of the Middletown Rancheria, described at the Middletown PPH how calls to 911 from the Rancheria do not provide

location information on the reservation (which does not use standard addresses).²¹⁵ The 9-1-1 addressing issue leads to delays when a tribal member calls for emergency services including an ambulance.

Ms. Simon described the lack of reliable service on a Native American reservation, including the impact of unreliable service on her personally as the mother of a child with asthma.²¹⁶ She also described the inability of residents of the reservation to communicate during the 2015 Valley fire that impacted their community.²¹⁷ She added that residents of the Middletown Rancheria are told that they cannot sign up for phone service as “there are not enough ports that can support the housing structures on the reservation...You have to wait until somebody can’t pay their bill.”²¹⁸ Ms. Simon urged, “They need to come out and add more ports to the pole to grow with our growth on the reservation.”²¹⁹

At the San Andreas PPH Tuolumne County Deputy Sheriff Lee Earhart commented that they had worked with a Native American tribe in Tuolumne County where 9-1-1 call “came back to the same address that was on that property. So we didn’t know where the call was placed. We were able to resolve that. Contracted them, made them aware of it and we were able to resolve that.”²²⁰ Such collaboration between California Native American tribes, public safety, carriers, and the Commission is important to ensure that all Californians are properly recognized in the 9-1-1 database so their address shows to public safety personnel when help is needed.

²¹⁵ CforAT Comments on ACR, (Citing Middletown Tr., pp. 869-876).

²¹⁶ *Id.*

²¹⁷ *Id.*

²¹⁸ Middletown Tr., pp. 878.

²¹⁹ *Id.*

²²⁰ San Andreas PPH, Tr., p. 328.

Through our work with California's Native American tribes, we recognize that several federally-recognized tribes have different addressing systems than the one used by the U.S. post office. This may create issue for 9-1-1 databases and location, and delays if all tribal members are shown as having the same address.

7.3.3.2. Decision

We order respondent carriers to hold a meet and confer within 180 days of the date of this Decision with federally recognized tribes in the areas they serve, including the local County OES or 9-1-1 database manager to discuss the 9-1-1 addressing and location issues. The goal of the meet and confer is not to impose an address on tribal members, but to allow tribal members to get quicker access to emergency services through a commonly agreed to addressing system that will speed help to their door when needed.

Carriers shall report to the Commission within 30 days of each meet and confer regarding the progress and substance of their meet and confer and mutual efforts to improve 9-1-1 location information on tribal lands in California.

7.3.3.3. Disaster-driven Outages, and Outages During Extended Emergencies

7.3.3.3.1. Communications or the Lack Thereof During Wildfires

California has suffered dozens and dozens of large-scale wildfire over the past five years of drought. These fires endanger communities, wildlife, resources, property, infrastructure, our water, air, security, and safety.

Through this OII's proceedings, we heard terrifying accounts of people running for their lives during fires as telephone and in some cases electric lines and poles burned and 9-1-1 was out. Sheriffs drove neighborhoods in patrol cars and used bull

horns to tell residents of Calaveras County, the 2015 Butte fire, the 2015 Valley and 2016 Clayton fires in Lake County, and the 2013 Rim fire in Tuolumne County.²²¹

We heard frustration and fear from residents, government and public safety officials about the long delays, often one to two weeks to establish mobile telephone and Internet service for fire response, even for very large fires such as the 2013 Rim Fire, the third largest in the state.²²² We learned about 9-1-1 database access issues that led Tuolumne County to scramble to buy Comcast's VoIP database during the Rim Fire.²²³ We also received comments about the inability of callers to reach 9-1-1 due to no dial tone and other issues.²²⁴

Communications plays a key role in fire response, evacuation, and the aftermath. CforAT ACR Comments: Butte Fire: "In addition to these general concerns, which he [Calaveras County Supervisor Cliff Edson] has previously sought to have addressed by the Commission, he also described the difficulties faced in his community during a recent serious fire, in which the county had to send its "beloved sheriff, our deputy sheriffs, and our emergency first responders out to evacuate people because there were no phone lines left here. There were no electric lines left here. And we were sending our beloved sheriffs [sic] department out to evacuate people in areas they didn't know if it was on fire, if it had burnt or what was going on." He continued by describing the

²²¹ Middletown, Tr., p. 865 (during the Valley fire "We did not have any communication, phone lines were burnt from the fire. Our cell phones did not work no longer...We could not even communicate with each other, to our [Middletown Rancheria tribe] membership and to our loved ones, because we were still here.") (statement of Larry Galupe, Director, Twin Pine Casino); Middletown, Tr., p. 910 ("all of a sudden you see the fire, five minutes later you get the bullhorns to leave") (statement of James Bernauer); San Andreas Tr., p. 329 (stating that during the Rim Fire "(w)e had to notify several residents it was time to evacuate. To do so we had 120 cops from all over the state in our little town of Tuolumne to start doing evacuations, because our Reverse 911 system wasn't reliable enough because we didn't have the information." (Tuolumne County Deputy Sheriff Earhart).

²²² San Andreas Tr., p. 303.

²²³ San Andreas Tr., p. 305.

²²⁴ San Francisco Workshop, Tr. pp 132, 180, 182; Ukiah Tr., pp. 427-428, 430, 433, 479, 483.

ongoing concerns from inadequate telecommunications resources in his community, noting that emergencies such as fires continue to be a risk to communities and natural resources such as the waters sources that provide drinking water to major population centers. He noted that for future emergencies, “if we don't have communications to be able to manage these events and save people's lives in the process, and keep people able to be able to follow through with what they are tasked to do to be able to control these large wildfires and these events, then not only are our lives at stake but also great resources for our state is at stake because -- and that costs millions of dollars, kind of delayed response on the way we are going to pay for that but pay for it eventually.”²²⁵

At the San Andreas PPH, Tuolumne County Supervisor Randy Hanveldt and Deputy Sheriff Earhardt expressed their frustration at learning during a fire about the process for access to the database of certain carriers for the purpose of populating the database for 9-1-1 to call the customer. During the Rim Fire, Tuolumne County learned that it did not have and had to buy Comcast's VoIP database.²²⁶ Tuolumne County Supervisor Randy Hanvelt explained that when the County was trying to make evacuation calls during the Rim Fire they realized they were missing certain Comcast customers and that Comcast “never gave us the list. They said, “Oh, well, you've got to sign a nondisclosure agreement. You've got to pay us.”²²⁷ “I've got to pay you so that I can treat your clients with Reverse 911 information, emergency information?...Turns out I guess everybody does that. It should be a requirement that it be in the system so it

²²⁵ Cfor AT, p. 12 (citing San Andreas Tr., pp. 367-368).

²²⁶ San Andreas Tr., pp. 304-305 (“Comcast they just come in and put some fiber in their area...They signed up people because they got better service with fiber but they never gave us the list.” (Tuolumne County Supervisor Randy Hanvelt)).

²²⁷ *Id.*, p. 304.

works,” said Supervisor Hanvelt.²²⁸ While buying a database may be standard practice, the process can delay evacuations when done during a large-scale fire.

One of the key roles for County Emergency Service Offices (County OES) is to act as the “Operational area level” manager and/or coordinator when the state’s SEMS incident management system is activated to respond to an emergency. Under California Code of Regulations (CCR) Title 19, § 2401.

County Offices of Emergency Services manage the operational area level in coordination with or under command of the County Sheriff. The operational area level “serves as the coordination and communication link between the local government level and the regional level,” and thus communications are vital to performing that function to coordinate field and local response, and regional assistance as needed.²²⁹ The state level serves as “the coordination and communication link with the federal disaster response system,” and manages resources at the regional and state level. This division of responsibilities leverages mutual aid and the scale of resources commensurate with the emergency.

State law assigns counties key role in coordination of emergency response beyond the local level. Communications between the county operational level for incident command and local political subdivisions, as well as to the state emergency operations centers are foundational responsibilities for the operational areas level. Communications facilities and services are key to executing these duties.

During fires and other disasters, working communications can greatly facilitate aid, evacuation, battling the fire, getting and coordination resources. Poor communications service hampers fire response as field crews fought fires without the benefit of the Internet age, or even the telephone age.

²²⁸ *Id.*

²²⁹ The California Code of Regulations (CCR) Title 19, § 2401.

During the Rim Fire public safety personnel organized “cell phone brigades” to drive out of the fire zone to make a call, then drive back to the fire camp with information, and send the next person on the connection relay. The September 9 ACR asked “How should the Commission address 9-1-1, dial tone, and emergency service access issues including for first responders, and public safety officials? What steps should the Commission take to facilitate communications access for first responders and public safety officials during an emergency response and recovery?”

California, home of the Silicon Valley, can and must do better for our communities, public safety personnel, and environment. We all suffer from the greenhouse gases emitted by fire, toxins left after a fire burns homes and businesses, and devastated forests that produce debris flows and floods that endanger residents and water resources.

Cell phone brigades are necessary while emergency services are established to support a fire response. Construction of the connection to support a Cell-on-Wheels (COW) or a Cell on Light Trucks (COLT) to provide emergency communication services including mobile phone and data often takes five days to two weeks. Although OES coordinates with carriers, particularly AT&T, Mobility, Verizon, Wireless, to provide a COW or a COLT to provide the communications and data modern firefighters need, it takes time build the backhaul and connections needed to carry calls and data. Carriers will often extend plain old telephone lines from a Central Office to provide fire fighters with some communication while they are connecting the COW or COLT to mobile services and the Internet.

During the time the COW or COLT is being set up, a wildfire often rages and grows. This poses risks to the public, first responders, the environment, and property at risk of burning. Utility infrastructure has been heavily affected by California’s fires in the past five years.

The Commission allows electric utilities to set up Catastrophic Event Memorandum Accounts (CEMA) for large fires and states of emergency. One large fire produced a CEMA account over \$100 million, while others generated claims of \$374 million. Together, PG&E energy ratepayers are requested to pay more than \$200 million for destruction of infrastructure and utility resources during fires since 2013 as indicated by CEMA accounts.

7.3.3.3.2. Decision

To foster cooperation prior to emergency incidents, and understanding of mutual needs and opportunities, we direct the Safety and Enforcement Division and the Communications Division to convene a meet and confer between respondents and the California Utility Emergency Association (CUEA), the California Communications Association, and invite Cal OES, Cal-Fire, the Governor's Tree Mortality Task Force, the Governor's Office of Tribal Advisor, Emergency Services representatives for federally-recognizes tribes in California, County OES representatives, to discuss emergency communications needs, and options to improve speed of access to communications facilities and services during emergencies.

Within 90 days of the date of this Decision, we direct carriers to provide County OES offices with written information about how to obtain access to the database for the purpose of having 9-1-1 call constituents about evacuation or other such emergency messages. The information should detail the price for such database(s) and the process for obtaining it. Carriers shall work cooperatively with County OES and any local OES who wants to purchase the database to facilitate public safety and safe, reliable service.

8. Data Gap for Information about Dial Tone Outages and Lack of Access to 9-1-1**8.1. NORS Data Gap for Outages Under 900,000 User Minutes, and GO-133(D) Data Gap when the Repair Ticket Standard is Not Prompted**

This OII has highlighted a data gaps for outages that fall below the Major Service Interruption Threshold of GO 133-D(4) that parallels the NORS standard, and is not adequately captured by the Out-Of-Service repair time after trouble ticket metric. Additionally, GO 133-D reporting is at the statewide level. This statewide reporting can obscure localized problems, even those that generate frequent repair requests.

The Commission has the ability to analyze GO 133-D reports at a more localized level. Communications Division's analysis of the GO 133-D reports for August 2014, the month of the first major Mendocino outage, highlights the lack of reports of service restoration in response to repair tickets. This example reveals the data gap that results from the reliance on repair tickets to spur reporting of outage response.

The exact number of Californians who lost phone service in the 2014 Mendocino outage is not known to this Commission because of the data gap in NORS reporting and the repair ticket reporting thresholds set in GO 133-D. If customers are unable to make a call to report an outage during a large-scale outage, or an outage at their home or business, an "out of service trouble report" may not be submitted by the consumer to the carrier or by the carrier before service is restored. If customers were unable to or did not submit an "out of service trouble report" during the outage, and the carrier did not submit a ticket on its own initiative, the clock never began on compliance with the Out-Of-Service standard of GO 133-D. The clock never begins for outages that customers have difficulty reporting, or do not report, or where carriers do not to initiate a report for all consumers affected by an outage. GO 133-D doesn't capture the breadth and extent of such outages, even when they affect hundreds or thousands of customers.

Following Frontier's transition from Verizon, California, Frontier admitted that their call center did not enter repair tickets for some customers so the repair time standard under GO 133-C never began for those customers. If a customer cannot reach a carrier during an outage while their phone is down to enter request a repair ticket, the repair standard is not triggered. If the carrier doesn't generate a repair ticket for each line that is out during a widespread outage the GO 133-D standard is not triggered. These practices circumvent GO 133-D, making it difficult for the Commission to analyze compliance with service quality standards, even when the Commission can see local data, because no data is generated if no repair ticket is started, even when there's a widespread outage.

GO 133-D is one way to measure compliance with service quality standards required by Cal. Pub. Util. Code section 709. This Commission General Order does not capture all obligations to provide high-quality service throughout the state. Neither does it purport to override the statutory duty to provide reliable service with adequate facilities under CA PU Code 451, and the duty not to maintain unreasonable differences in services or facilities between localities or classes of service under Cal. Pub. Util. Code section 453.

Neither are such events captured by NORS data submitted to the FCC if the voice outage affects less than the NORS threshold of 900,000 user minutes for an outage lasting at least 30 minutes. Nor would such a voice outage be captured by NORS if the carrier only reports a "transport facility" outage, that fiber carrying data traffic is out, but does not report the extent of voice outages that result from lack of the transport backhaul.

This OII identified a significant data gap neither filled by GO 133 (D) information for outages where no repair tickets is generated, and for outages that fall below the federal reporting threshold in the FCC Network Outage Reporting System (NORS) that requires outages to be reported when they affect 900,000 user minutes for at least 30

minutes.²³⁰ The Commission's recently adopted GO 133-D rules require reporting to the Commission of "Major Service Interruption" as defined by the NORS standard as may be modified over time.²³¹ The FCC is examining whether to modify those outage reporting requirements for *wireless* carriers, but its May 2016 Order left in place the 900,000 user minute outage for 30 minute threshold for wireline carriers.²³²

8.2. Decision

The data gap discussed above leaves this Commission unable to quantitatively assess the extent and occurrence of wide scale communications outages. Concurrently, California legal standards and this Commission's rules, orders, and Decisions require carriers to provide safe, reliable service, and high-quality communications service throughout the state. Cal. Pub. Util. Code sections 451, 709, and 2896(c). Information about outage below the NORS level and not adequately captured by customer one-by-one initiation of trouble tickets would also inform the Network Study we ordered in D.15-08-041, in R.11-12-001.

The Commission confronted a similar information gap in its proceeding to revise electric reliability reporting requirements as required by Cal. Pub. Util. Code section 2774.1. In D.16-01-008 the Commission noted "(t)he current focus of [electric] reliability reporting is at the system-level. This means information is aggregated for the entire electric service territory or system for each electric utility. Thus municipalities, businesses or homeowners who want reliability information that is specific to their

²³⁰ 47 C.F.R. 4.5; FCC, Report and Order and Further Notice of Proposed Rulemaking on Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications, ¶ 1 (PS Docket No. 15-80; ET Docket No. 04-35; PS Docket No. 11-82), May 26, 2016 [hereinafter *FCC, NORS R&O and FNPRM*].

²³¹ Order Instituting Rulemaking to Evaluate Telecommunications Corporation Service Quality Performance and Consider Modification to Service Quality Rules, D.16-08-021, Appendix B, Section 4 [hereinafter "*2016 Service Quality Rules Decision*"].

²³² *Id.*, ¶ 188.

location may have trouble getting information at the level of the electrical circuit(s) that serve them. This rulemaking aims to improve access to information specific to each “local area” (as directed by Section 2774.1).”

The data gap identified in this proceeding leaves public safety officials, municipalities, counties, government, non-profit agencies, businesses, homeowners, and even the Commission without data to assess the reliability of the communications facilities and services in their area. Neither is there sufficient information available to public safety or to the public to decide what to do when a communications outage is widespread or extensive. This information is critical to public safety planning and response, for business and personal decisions, and to the ability of this Commission to ensure that carriers comply with state law and the Commission’s rules, orders, and Decisions.

The Commission currently lacks explicit requirements for carriers to report outages to public safety personnel, even when those public safety officials are responsible for communicating and coordinating during incidents. Yet, current carrier reporting practices create a knowledge gap that raises the risk of action during a state-of-emergency caused and compounded by outages. Local emergency and public safety personnel must act to carry out their public safety duties. Concurrently, the Commission needs more detailed information about such outages to do its job of ensuring compliance with carrier duties and standards.

A communications outage can create or become a state of emergency. When the jail can’t make calls between one wing and another, when deputies can’t be reached to come into work, and when large numbers of people can’t call 9-1-1 this creates a state of emergency that if widespread will trigger the need for emergency operations center by the county. The county’s duties under California law in those circumstances are to coordinate and communicate with the localities and the state during emergencies, both of which are made much more difficult when communications services are out.

8.3. Comments about Actions to Address Data Gap, and Legal Basis for Commission Action

The September 27, 2016 ACR in this proceeding asked several questions about dial tone and emergency 9-1-1 access issues raised by the proceeding's PPH's, Workshops, and Comments, including whether the Commission should require outage reporting. "Should 9-1-1 or dial outages be promptly reported to Public Safety Answering Points (PSAPs), local public safety officials, and the Commission? Should outages be reported to the public? How widespread and lengthy should the outage be before the reporting is required? Should reporting requirements vary by area, e.g. rural vs. urban?"

Carriers who replied on this issue (AT&T, California CTIA, Comcast, the California Cable & Telecommunications Association (CCTA)) argued that the Commission should defer to the FCC to set national outage standards and only require reporting based on the national thresholds the FCC sets. Cox's ACR comments counseled waiting for the California Legislature to act on rural outage reporting standards. TURN, CforAT, and the County of Mendocino argue that the Commission should adopt an outage reporting threshold of 90,000 user minutes.

Comcast argued in its ACR comments that outage reporting is not within the scope of this proceeding, and that the Commission rejected rural outage reporting requirements in the Service Quality Proceeding so should not consider them here. The May 2015 Assigned Commissioner's Scoping Memo and Ruling amended the scope of the OII to include a "review of 911 call completion and access issues, including, but not limited to, those due to loss of dial-tone for reasons other than service cancellation."²³³ Consideration of loss of dial-tone and 9-1-1 access raises the question what actions the

²³³ Amended Scoping Memo, p. 4. This document is titled "Amended Scoping Memo," as it amends the preliminary scoping memo in the OII.

Commission should take under its jurisdiction in response to information about such outages.

Tuolumne County Deputy Sheriff Earhardt, Calaveras County Supervisor Cliff Edson, and Mendocino County, a party to this proceeding, request that this Commission order carriers to provide public safety personnel with reliable phone service access to public safety and timely information about outages.²³⁴ They request that this information include the geographic and affected population breadth of the outage, the estimated repair time, and preliminary information about cause so they can deploy their public safety resources and determine whether law enforcement action is needed to address the outage cause or consequences.²³⁵

The Commission has a responsibility to ensure that carriers comply with California law, including responsibilities to provide access to 9-1-1, safe, reliable service, and high quality universal service. Cal. Pub. Util. Code § 709(a) declares the policy of the State of California to promote “affordability and widespread availability of high-quality telecommunications services to all Californians.”

Cal. Pub. Util. Code section 453 prohibits a public utility from maintaining any unreasonable difference as to rates, charges, service, facilities, ...between localities or as between classes of service.” Cal. Pub. Util. Code section 453 prohibits a public utility from maintaining any unreasonable difference as to rates, charges, service, facilities, ...between localities or as between classes of service.”

The Commission “may supervise and regulate every public utility in the State and may do all things, whether specifically designated in this part or in addition

²³⁴ See, San Andreas, PPH Tr., p. 326 (“without quality reliable phone access to public safety we can’t get to our citizens to provide services they need.”)(Tuolumne Deputy Sheriff Erhart); Ukiah, PPH Tr. pp. 444 ff.; County of Mendocino, Comments in response to Assigned Commissioner Ruling.

²³⁵ County of Mendocino, Comments in response to Assigned Commissioner Ruling.

thereto, which are necessary and convenient in the exercise of such power and jurisdiction.” Cal. Pub. Util. Code section 701. The Commission may require utility records, under Cal. Pub. Util. Code § 313 “so that an examination thereof may be made by the commission or under its direction.” Records of communications outages are an example of utility records the Commission may order produced.

Some of the communications outages highlighted through the comments, PPHs, and Workshops in this OII were caused by accidents such as the August 3, 2014 Mendocino fiber cut caused by a hit and run drive in Comptche, California. California Pub. Util. Code § 315 requires that “The commission shall investigate the cause of all accidents occurring within this State upon the property of any public utility or directly or indirectly arising from or connected with its maintenance or operation, resulting in loss of life or injury to person or property and requiring, in the judgment of the commission, investigation by it, and may make such order or recommendation with respect thereto as in its judgment seems just and reasonable.” This accident resulted in property damage to AT&T, and left thousands unable to dial 9-1-1.

Cal. Pub. Util. Code section 315 directs the Commission to investigate such incidents and authority to “make such order or recommendation with respect thereto as in its judgment seems just and reasonable.” Though the Commission has the authority to impose fines and penalties for violations under Cal. Pub. Util. Code s section 2107, Cal. Pub. Util. Code section 315 also gives the Commission equitable discretion to fashion appropriate remedies. We determine below that those remedies may include outage reporting necessary to protect public safety and provide the information this Commission requires to ensure compliance with California law.

Pursuant to § 2101, the Commission is directed to:... [S]ee that the provisions of the constitution and the statutes of this State affecting public utilities, the enforcement of which is not specifically vested in some other officer or tribunal, are enforced and obeyed and that violations thereof are promptly prosecuted and penalties due the state

therefor recovered and collected...” Commission jurisdiction emanates from the California Constitution and California statutes and is independent from federal responsibilities of the Federal Communications Commission. The Commission may determine whether remedies, information, or other steps are necessary and appropriate to carry out its duties, ensure compliance with California law, and to ensure safe, reliable service in California.

This Commission must carry out its responsibilities under state law. We decline to defer to the FCC’s judgment about the federal outage reporting standard in lieu of analyzing and determining the appropriate type and level of information to be collected and reported in California to ensure public safety and reliability. We determine that additional reporting about outages to the Commission and local, county, and state Office of Emergency Services contacts is necessary to do so.

8.4. Discussion of Reporting Threshold to Address the Data Gap about California Communications Outages

The County of Mendocino calculated that the “threshold of 90,000 user minutes is appropriate for rural counties, as this would mean that an outage for a community of 300 households would require reporting in five hours; and a community of 1,000 households would require reporting in 1.5 hours.”²³⁶ Mendocino argues that “All telephone companies, both wireline and wireless, should be required to report such outages, as households vary in which technology they use. Many household in rural counties do not receive a mobile signal, and rely exclusively on landlines and VoIP. In other areas, where a mobile signal is received, households rely exclusively on cellular and wireless VoIP. Both should be subject to reporting standards and thresholds.”²³⁷

²³⁶ Mendocino County, ACR Comments, pp. 10-11.

²³⁷ *Id.*

Carriers AT&T, California, CTIA, Comcast, and CCTA argued in their comments in response to the September 2016 ACR for continued reliance on the FCC's NORS reporting standard of an outage of 900,000 user minutes, lasting at least 30 minutes. The Commission's recently adopted GO 133-D rules require reporting to the Commission of "Major Service Interruption" as defined by the NORS standard as may be modified over time.²³⁸ GO 133-D, 3.4 requires reports of "the time of the reporting carrier's receipt of the out of service trouble report to the time service is restored for residential and small business customers."

FCC is currently considering whether to change the threshold for *wireless* reporting of outages and asked in their 2016 FCC Network Outage Report and Order and Further Notice of Proposed Rulemaking (FNPRM) whether to adopt lower or different reporting thresholds for wireless reporting than the 900,000 user minutes adopted for reporting to the FCC about wireline outages.²³⁹ The FCC asked:

"We also seek comment on alternative measurements for outages in rural areas. For example, could we adopt a lower user-minute threshold for rural areas to increase the reporting of events affecting rural communities? For example, would a threshold of 300,000 user-minutes in rural areas increase our chances of receiving information on outages that affect rural communities? Conversely, for example, would clear geographic criteria, such as a county-based threshold, for wireless outage reporting simplify the M2M rules for automated outage reporting and eliminate the need for manual interpretations of thresholds?"

²³⁸ Order Instituting Rulemaking to Evaluate Telecommunications Corporation Service Quality Performance and Consider Modification to Service Quality Rules, D.16-08-021, Appendix B, Section 4 [hereinafter "*2016 Service Quality Rules Decision*"].

²³⁹ Report and Order and Further Notice of Proposed Rulemaking, and Order on Reconsideration, Amendment to Part 4 of the Commission's Rules Concerning Disruptions to Communications, New Part 4 of the Commission's Rules Concerning Disruptions to Communications, and the Proposed Extension of Part 4 of the Commission's Rules Concerning Disruptions to Communications Regarding Outage Reporting to Interconnected Voice over Internet Protocol and Broadband Internet Service Providers, (PS Docket No. 15-80, ET Docket No. 04-35, PS Docket No. 11-82 (May 26, 2016), ¶ 188 [hereinafter "*FCC Network Outage Report and Order and FNPRM*"].

The FCC has not decided yet to change the threshold for wireless outage reporting. The FCC may set a standard appropriate to that Commission's federal responsibilities. Such a standard may not be responsive to California's needs and does not supplant the authority of this Commission to adopt appropriate rules to enforce California law including requirements for safe and reliable service with adequate facilities under Cal. Pub. Util. Code section 451.

The FCC NORS FNPRM asks for comment on a wireless outage reporting standard based on a "clear geographic criteria, such as a county-based threshold." California has some very large counties. If San Bernardino County County which measures 20,164 square miles were a state, it would rank in size just below West Virginia and be twice the size as the next largest state, Maryland.²⁴⁰ Likewise, Riverside County would rank in size between the state of Massachusetts and the State of New Jersey, while Mendocino and Humboldt Counties ranks in size just below the State of Connecticut.²⁴¹ Outage reporting based on a threshold equivalent to or greater than many U.S. states would leave many outages unreported, particularly in less densely populated areas of California counties.

Another potential basis for determining outage reporting is to consider whether reporting should reflect the population patterns of Americans in urbanized areas, urban clusters, and rural areas. The U.S. Census divides areas into urbanized areas of 50,000 people or more, urban clusters, of 2,500 to 50,000 people, and rural areas below 2,500 people.²⁴² Under the FCC NORS threshold, an area with a population of 2,500 people

²⁴⁰ California State Association of Counties, Square Mileage by County, <http://www.counties.org/pod/square-mileage-county>; The US 50, Fast Fact Study Guides (State Areas), <http://www.theus50.com/fastfacts/area.php>.

²⁴¹ *Id.*

²⁴² U.S. Census Bureau, Urban and Rural Classification, <https://www.census.gov/geo/reference/urban-rural.html>.

potentially affected by an outage would have to be out of service for six hours to hit the 900,000 user minute threshold.

An outage of 300,000 user minutes as contemplated in the FCC FNPRM on wireless outage reporting, would be have to last two hours to reportable if it affected a population of 2,500. For a rural area with 1,000 lines potentially affected by the outage, the outage would have to last for five hours to be reportable under a 300,000 user minute threshold. For an urban cluster with 10,000 lines potentially affected by the outage, the outage would have to last 30 minutes to be reportable under a 300,000 user minute threshold.

County operational areas are activated when “a local government has activated its EOC and requests county-level operational EOC support, when two or more cities in the county have declared a local emergency, the county or one or more cities have declared a local emergency,” or for larger state-level emergencies.²⁴³ California’s 58 counties “provide a vast array of municipal services to residents, including roads, parks, law enforcement, emergency response services and libraries. Counties also serve as a delivery channel for many State services, such as foster care, public health care, jails and elections.”²⁴⁴ Providing information about communications outage is critical to these county responsibilities for each of these services.

While city sizes vary, an outage potentially affecting 5,000 people, half of a large urban cluster, is commensurate with the size that may trigger operational area management needs and county-level EOCs. At a reporting threshold of 300,000 user minutes, an outage affecting 5,000 people would be reportable in one hour.

²⁴³ CCR Title 19, § 2409 (f).

²⁴⁴ California State Association of Counties, California’s Counties, <http://www.counties.org/californias-counties>.

Regarding the geographic scope of outage reporting requirements, at this time we lack sufficient information to determine statistically whether outages of 300,000 user minutes are more prevalent in rural areas, urban clusters, or urban areas. This OII received information about outages in all three types of areas. Requiring COLRs to provide this outage information to the Commission will fill in some of the information gap about the prevalence and distribution of such outages.

8.5. Decision

We determine that to meet the Commission's duties under state law duties to ensure safe, reliable service, that calls are completed, the 9-1-1 access is available, and that service is reasonably comparable in California's diverse regions, it is critical to fill the current information void about call failures and outages between the levels of individual calls for service and the Commission's current limited access to FCC NORs data for large-scale outages affecting at least 900,000 user minutes and last 30 minutes. To close the data gap and provide safe, reliable, high-quality service throughout California, we order respondent COLRS to beginning within 60 days of the date of this Decision report to the Commission within 120 minutes of an outage of 300,000 user minutes that last 30 minutes or more. We direct Communications Division to develop a format for reporting to the Commission.

Cal. Pub. Util. Code section § 313 allows the Commission to require production of records from a public utility. The Commission already has the power to issue a series of post-outage data requests, or a standing request for data about any outage of 300,000 user minutes lasting 30 minutes or more. Rather than relying on data requests, we directing this outage data to be systematically provided to this Commission to enable analysis of outage trends and appropriate follow-up action.

A reporting threshold of 300,000 user minutes reflects the number of users that may trigger county-level public safety obligations under California's Standardized

Emergency Management System (SEMS), detailed in California Code of Regulations (CCR) Title 19, § 2401. Carriers should not rely solely on customer calls and requests for repairs to initiate outage reporting, and should use information generated from alarms and network data to maintain situational awareness about the network and generate outage reports.

Requiring COLRs to report to the Commission outages affecting 300,000 user minutes and lasting at least 30 minutes [hereinafter localized access failure outages"] threshold strikes the right balance to close the data gap meet Commission responsibilities, and protect public safety and communications reliability. A 300,000 user minute reporting threshold is approximately 3.3 times larger than a 900,000 user minute threshold suggested by Mendocino County, TURN and CforAT, and three times smaller than the 900,000 user minute threshold used by the FCC NORs standard and the GO 133-D major service interruption standard.

The data we will gather will help us determine if the 300,000 user minute threshold hits the Goldilocks standard and is just right. We need not continue to be blinded by this data gap to determine that we should nevertheless proceed to gather more data. We do so in a reasonable fashion to protect public safety and fulfill this Commission's responsibility.

We recognize that a reporting threshold of 300,000 user minutes of outage lasting at least 30 minutes for localized access failure outages may be too high for small rural communities outside of urban clusters as an outage in a small community of 1000 people would have to last five hours or more to be reportable. We believe 300,000 user minutes is a prudent level to start COLR reporting of outages, and direct Communications Division to monitor and analyze the reports received under the 300,000 user minute outage threshold, in conjunction with GO 133-D and other data on outages, customer complaints, and network performance, to make recommendations to

the Commission about the trends observed and whether this reporting threshold merits adjustment.

We impose this outage report duty on COLRs only at this time in light of their responsibility to provide service to any customer who requests it within their service territory. We think that such reporting will reduce burdens of outages on local communities, counties, and the state, and not create an undue burden on COLRs who have an obligation to provide safe, reliable service to all customer who request it within their territory.

This Decision directs that Phase II of this Proceeding will determine whether the Commission should require any respondents to report outages to public safety officials at the local, county, and state level, in addition to the outage reporting to the Commission we order herein. A Working Group shall be convened in Phase II including Communications Division, Safety and Enforcement Division, the parties, and inviting Cal OES, County OES, City OES, and federally recognized California tribe Emergency Services officials to discuss whether outage reporting by carriers to public safety officials should be required, and, if so, policies, procedures, rules, thresholds, requirements, and protocols that reflect California's public safety needs and this Commission's responsibilities.

In D.16-01-008 the Commission determined reliability reporting requirements for electric utilities by balancing "what is fair and appropriate, what promotes better understanding of reliability information for utility customers, what is technically feasible and what best supports safety and overall electric grid reliability."²⁴⁵ Phase II shall consider these balancing factors. In addition, Phase II shall take into account the responsibilities of public safety officials and balance carrier confidentiality concerns

²⁴⁵ D.16-01-008, p. 6.

with public knowledge about outages currently spread through social media, and consider the responsibilities of this Commission.

During the pendency of Phase II we encourage respondent carriers to voluntarily outages of 300,000 user minutes lasting 30 minutes or more to city, county, state, and federally recognized tribal OES contacts to promote public safety and provide safe and reliable service. Carriers should inform the Commission of any such notice voluntarily provided.

9. Conclusion

This proceeding examined call completion issues of several types: rural, short code, and false disconnected or fast busy messages. It also examined call access issues including 9-1-1 initiation problems and dial tone access issues. It identified 9-1-1 addressing and database issues, as well as the need for carrier contact information for local, county, and state public safety officials.

This Decision identifies the need for action and referrals to address these issues as described herein. It also identifies a data gap for outages reporting not triggered by customer or carrier repair tickets or by the NORs standard. Under the Commission's authority to obtain carrier records, it orders COLRs to provide the Commission with data about outages of 300,000 user minutes, lasting for at least 30 minutes. It orders Phase II of this proceeding to consider whether the Commission should order any reporting of outages to local, county, state, or federally recognized tribe emergency services representatives to ensure safe, reliable service.

10. Categorization and Need for Hearing

This proceeding is categorized as Quasi-Legislative. The Amended scoping memo determined that no hearings were necessary.

11. Comments on Proposed Decision

The proposed decision of the Commissioner/ALJ in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's rules of Practice and Procedure.

Comments were filed on _____, and reply comments were filed on _____.

12. Assignment of Proceeding

Catherine J.K. Sandoval is the assigned Commissioner and Robert Mason is the assigned Administrative Law Judge in this proceeding.

13. Findings of Fact

1. FCC data revealed that in California, Verizon Business and Level 3 account for three-fourths of long distance call delivery to Rural Local Exchange Carriers and that Verizon Business and Level 3 had the largest gaps between attempted calls and completed calls.

2. It is necessary to the exercise of this Commission's jurisdiction and duty to ensure that telephone corporations carry and complete calls that carriers going forward provide information intrastate and interstate (originating from or going to California) call completion issues through a detailed letter to Communications Division.

3. Public information about call completion issues, how to track and identify them is important to tracking those issues and ensuring the carriers complete calls.

4. It is reasonable to prepare comment to the FCC to ask them to address data gaps and inconsistencies in their Rural Call Completion Problems database.

5. Short codes including 2-1-1, 8-1-1, 7-1-1, and other non-9-1-1 short codes are important means for Californians to connect with information and assistance and we should take steps to enable callers to reach them.

6. Multi-line Telephone System or PBX operators must program short code access and require education about why and how they should do so.

7. Some telephone corporations program MLTS or PBX systems for customers and must take steps to program short code access.

8. Carriers must maintain the proper underlying call directions to complete short code calls at their intended destination.

9. The 2-1-1 coalition and the 8-1-1 coalition are good sources of information about short code education and access.

10. SB 1212 assigned the Commission to determine whether to use California Teleconnect Funds to support 2-1-1 expansion to other counties.

11. D.15-08-041, in R.11-12-001 ordered a Network Study of AT&T, California and Frontier, and it is reasonable and prudent for that Network Study to examine the issues identified in this proceeding regarding 1) allegations of false disconnected messages, fast busy messages for what should be working lines, and extremely poor call quality comments; 2) network and call path diversity (the number of ways a call can travel to be completed), redundancy, and resiliency issues highlighted by large-scale outages; 3) the physical condition of the AT&T, California and Frontier networks to be studied, including network maintenance and service practices that may contribute to outages and influence their breadth, length, and occurrence; 4) trouble ticket response time and outages reported through GO 133-D, and reports of outages of 300,000 user minutes or more, lasting at least 30 minutes.

12. Call path diversity, resiliency, and redundancy are important to maintaining safe and reliable telecommunications service.

13. Several consumers spoke at the PPH about false busy messages and fast busy messages for what should be working lines, and the Commission's Consumer Affairs Branch (CAB) is available for customer informal complaint resolution services, and consumers may also file a formal complaint at the Commission.

14. GO 95 provides rules and standards for utility poles, lines, and certain types of facilities to promote public and worker safety, reliability, competition, and service to consumers.

15. This OII received comments about telephone facility maintenance practices that may affect dial tone outages including reports of lines affix to trees, dead, diseased, or alive.

16. This OII received reports about the need for more vegetation management near telephone lines including those near trees dead or dying from bark beetle infestation, and concern the likelihood that deferred vegetation management will lead to dial tone outages.

17. On April 9, 2014 an outage started by Intrado's systems in Colorado led to the loss of 9-1-1 access in several states including in eight Northern California counties where Verizon Business supplied 9-1-1 access services to AT&T Mobility and Verizon, Wireless customers, and an investigation by the Commission's Consumer Protection and Enforcement Division into the April 9, 2014 outage of 9-1-1 service is reasonable and prudent.

18. Fiber cuts in Mendocino and Humboldt counties including the August 3, 2014 outage, the September 3, 2015 outage, and the December 9, 2015 outage, each resulted in the loss of dial tone and in several cases 9-1-1 access and Internet access for hundreds, if not thousands of Californians in one or several counties, and an investigation by the Commission's Consumer Protection and Enforcement Division into these outages is reasonable and prudent.

19. Following the Verizon-Frontier transition in April-May 2016, the Commission and the FCC received approximately 1,500 complaints about dial tone and 9-1-1 access outages, some lasting one to three weeks, as well as Internet and video outages.

20. Frontier's call center did not enter appointments for customer repair into Frontiers data base on at least some occasions, delaying the company's awareness of and response to the outage.

21. Submitting comments to the FCC about compliance with NORs reporting standards for reports of OC3 data outages to ensure the reports reflect voice customer outages is reasonable and prudent to ensure accuracy for reports also accessible to the Commission.

22. Some of California's 109 federally-recognized tribes lack residential addresses visible to 9-1-1 databases, delaying emergency response.

23. It is important to safe and reliable service and to public safety that carriers to provide within 30 days of this Decision to city, county, and federally recognized tribal OES officials an emergency contact name and number available 24 hours a day, 7 days a week, not a general 800 or 8xx number.

24. The availability of communications services to first responders including those fighting wildfires is important to situational awareness and public safety, and the time to set up emergency communications services creates risks during a set up that may last one to two weeks.

25. Coordination between Safety and Enforcement Division, Cal OES, respondents, the California Utility Emergency Association (CUEA), the California Communications Association, Cal-Fire, the Governor's Tree Mortality Task Force, the Governor's Office of Tribal Advisor, Emergency Services representatives for federally-recognizes tribes in California, County OES representatives, and Communications Division is important to discuss options to improve speed of access to communications services during emergencies such as large-scale fire response.

26. The Commission's current outage reporting system leaves a gap under GO 133-D when neither the customer, nor the carrier files a repair ticket to trigger the repair response time tracked by that general order.

27. Some dial tone and 9-1-1 outages occur in California that affect fewer than the NORS standard of 900,000 user minutes for 30 minutes.

28. Data from Carriers of Last Resort to the Commission about outages of 300,000 user minutes or more, lasting at least 30 minutes will provide the Commission with information to ensure that carriers provide safe and reliable service and comply with California law, and the Commission's rules, orders, and Decisions.

29. It is important to receive and analyze data on OC3 data outages that affect voice customer use.

30. Voluntary report of outages of 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts, is consistent with safe and reliable service and protecting public safety.

31. This proceeding received requests that the Commission direct carriers to inform public safety and Office of Emergency Services personnel about dial tone and 9-1-1 outages, and that suggestion should be explored in Phase II of this Proceeding.

32. Development, posting, and disseminating a survey and reporting tool and an App to allow input, retrieval, sorting, and viewing of material relevant to telephone corporation compliance with Commission rules including outages, 9-1-1 access and initiation failures, call completion failures, and any associated causes such as compliance with pole safety rules and GO 95 and GO 128 is a reasonable and effective means for consumers to share information and link that information to Commission rule compliance.

33. It is important to public and worker safety and safe, reliable service that telephone corporations provide contact information that is not a public 800 or 8xx number for 24 hour, seven day a week contact between public safety officials and the telephone corporation contact to speed emergency calls for restoration, repair, pole removal, and other emergency requests.

34. During communications outages public safety officials have to make decisions about deployment of public safety personnel, and the State Emergency Management System charges the local and county level with coordination and communication.

35. There is a data gap for information about outages of voice service as well as data and Internet services for outages below the 900,000 user minute threshold of the Federal Communications Commission Network Outage Reporting Standard level

36. Reports of OC3 (data) outages may not reflect the number of voice customers affected by that outage, obscuring the impact of data or transport outages on safe, reliable service including voice service.

37. GO 133-D reports may not reflect all outages if customer-generated or carrier-generated repair tickets do not trigger the repair time clock, though customer service is out.

38. Some federally recognized tribes in California appear in 9-1-1 databases as if they all have the same address, though they may use various systems to distinguish between residents. This creates a public safety hazard when calling 9-1-1 if the first responder cannot tell which residence or business called for emergency assistance.

39. Outages that affect 300,000 user minutes reflects the number of users that may trigger county-level public safety obligations under California's Standardized Emergency Management System (SEMS), detailed in California Code of Regulations (CCR) Title 19, § 2401.

40. Information about outages of user minutes resulting from OC3 or transport outages is important and reasonable to obtain as in some cases, an outage of a single OC3 or transport line can result in the outage of hundreds, thousands, even tens of thousands of user minutes, particularly if there is no diverse routing or redundant path to serve those users.

41. 300,000 user minutes reflects the number of users that may trigger county-level public safety obligations under California's Standardized Emergency Management

System (SEMS), detailed in California Code of Regulations (CCR) Title 19, § 2401. Receiving timely information about such outages is critical to enabling this Commission to ensure that carriers provide service in compliance with California law, and this Commission's Decisions, rules, and Orders.

14. Conclusions of Law

1. Carriers have a duty under CA PU Code 451 to provide safe, reliable service with adequate facilities.

2. The Commission has jurisdiction to investigate whether carriers have fulfilled their duties and to require the submission of data to the Commission to analyze compliance with those duties.

3. California Pub. Util. Code § 558 creates a statutory duty for telephone corporations to carry and complete calls, and requires that "Every telephone corporation and telegraph corporation operating in this State shall receive, transmit, and deliver, without discrimination or delay, the conversations and messages of every other such corporation with whose line a physical connection has been made." The Commission has the authority to investigate call completion failures and to recommend appropriate action to ensure accountability for such failures and compliance with call completion laws.

4. All carriers, whether wholesale, intermediate, or retail traffic haulers, must terminate traffic for one another and from an end user to another end user in every instance. The obligation to complete calls applies not just to Incumbent Local Exchange Carriers (ILECs), but equally to all carriers involved in the origination, routing, and completion of calls."²⁴⁶

²⁴⁶ *Id.*, citing Order Instituting Rulemaking on the Commission's Own Motion Into Competition for Local Exchange Service; Order Instituting Investigation on the Commission's Own Motion Into Competition for Local Exchange Service [D.97-11-024] (1997), 76 CPUC.2d 458, at 460.

5. This Commission has authority to oversee compliance with the State of California's universal service policy of ensuring "affordability and widespread availability of high-quality telecommunications services to all Californians" as articulated by Cal. Pub. Util. Code § 709(a).

6. Utilities have a duty to provide reasonable statewide service quality standards, including customer service, installation and repair California Public Utility Code section 2896(c), and the Commission has authority to oversee compliance with those standards.

7. The Commission adopted Go-133-D in 2016, replacing the former GO 133-C, to establish service quality rules and a schedule of fines for violations.

8. Cal. Pub. Util. Code § 275.6 provides for "rate-of-return regulation in furtherance of the state's universal service commitment to the continued affordability and widespread availability of safe, reliable, high-quality communications services in rural areas of the state," and call completion issues affect areas of the state subject to rate-of-return regulation.

9. This Commission has authority to oversee compliance with Cal. Pub. Util. Code Section 453 which prohibits a public utility from maintaining any unreasonable difference as to rates, charges, service, facilities, ...between localities or as between classes of service."

10. The Commission has the duty to oversee compliance with the duty of to provide access to 9-1-1 emergency service as required by Cal. Pub. Util. Code section 2883(2)(b): "All local telephone corporations, excluding providers of mobile telephony service and mobile satellite telephone service, as defined in Section 224.4, to the extent permitted by existing technology or facilities, shall provide every subscriber of tariffed residential basic exchange service with access to "911" emergency service.

11. Cal. Pub. Util. Code section 2889.6 requires carriers to provide information provide information concerning emergency situations which may affect the telephone

network including the procedures which the corporation will follow during emergencies, and how telephone subscribers can best use the telephone network in an emergency situation, and the emergency services available by dialing "911," and the Commission must ensure this information is provided and that procedures are followed to enable access to 9-1-1 during emergencies.

12. Access to 9-1-1 emergency services can be evaluated "end-to-end," examining customer access to 9-1-1 call initiation, as well as the ability of the 9-1-1 Public Safety Answering Point to receive the call, and this OII found examples of both 9-1-1 call initiation issues and call completion failures.

13. Carriers have a duty to comply with General Order 95 (*Rules for Overhead Electric Line Construction*), and General Order 128 (*Rules for Construction of Underground Electric Supply and Communication Systems*) which regulate access to poles, conduits, and rights-of-way by overhead or underground facilities and conduits. Among other requirements, GO 95 requires carriers to manage vegetation near wires and poles, and to sets standards for the strength and integrity of poles to support wires and attachments.

14. Carriers have a duty to Comply with Commission Orders, Decisions, and Rules as mandated by Cal. Pub. Util. Code section 702.

15. Under Cal. Pub. Util. Code § 701, the Commission may supervise and regulate every public utility in the State and may do all things, whether specifically designated in this part or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction, provides that:

16. Under Cal. Pub. Util. Code § 313 "The commission may require, by order served on any public utility, the production within this State at such time and place as it designates, of any books, accounts, papers, or records kept by the public utility in any office or place without this State, or, at its option, verified copies in lieu thereof, so that an examination thereof may be made by the commission or under its direction," and the

carrier reporting required herein is made under the Commission's authority including Cal. Pub. Util. Code section 313.

17. Under Cal. Pub. Util. Code § 314, "(a) The commission, each commissioner, and each officer and person employed by the commission may, at any time, inspect the accounts, books, papers, and documents of any public utility," and the carrier reporting required herein is made under the Commission's authority including Cal. Pub. Util. Code section 314.

18. Cal. Pub. Util. Code § 315 requires that "The commission shall investigate the cause of all accidents occurring within this State upon the property of any public utility or directly or indirectly arising from or connected with its maintenance or operation, resulting in loss of life or injury to person or property and requiring, in the judgment of the commission, investigation by it, and may make such order or recommendation with respect thereto as in its judgment seems just and reasonable," and several outages that affected Mendocino, Humboldt, and Del Norte counties were caused by accidents and affected utility property and customer access to dial tone and 9-1-1; accordingly, and we order the Commission's Consumer Protection and Enforcement Division to investigate these accidents, their causes including network design, diversity, and resiliency issues, and the consequences of these outages, and refer to the Network Study analysis of the network design, diversity, and resiliency issues associated with these outages.

19. Cal. Pub. Util. Code Section § 768 provides that the Commission "may, after a hearing, require every public utility to construct, maintain, and operate its line, plant, system, equipment, apparatus, tracks, and premises in a manner so as to promote and safeguard the health and safety of its employees, passengers, customers, and the public. The commission may establish uniform or other standards of construction or equipment, and require the performance of any other act which the health or safety of its employees, passengers, customers, or the public may demand," and the Commission has the authority and duty to ensure that utilities comply with this requirement to

promote and safeguard the health and safety of its employees, passengers, customers, and the public.

20. The Commission has the authority to gather data from respondent carriers under Cal. Pub. Util. Code sections 313 and 314, and the requirement that Carriers of Last Resort report to the Commission communications outages of 300,000 user minutes lasting 30 minutes or more, is ordered under this authority and other provisions of the Cal. Pub. Util. Code including section 701.

21. Pursuant to § 2101, the Commission is directed to: "[S]ee that the provisions of the constitution and the statutes of this State affecting public utilities, the enforcement of which is not specifically vested in some other officer or tribunal, are enforced and obeyed and that violations thereof are promptly prosecuted and penalties due the state therefor recovered and collected..." charging the Commission with oversight of carriers and their compliance with state law and the constitution.

22. Cal. Pub. Util. Code section 2107 et. al. authorizes fines and penalties for violations of California law under Commission jurisdiction and the California Public Utilities Code, Commission rules, orders, and decisions, and we refer to the Consumer Protection and Enforcement Division analysis of the issues listed in the order below to determine whether an adjudicatory OII should be brought regarding those issues, and carriers should be subject to penalties.

23. Cal. Pub. Util. Code § 710(c)(7) preserves the Commission's authority relative to the construction and maintenance of support structures and other communications facilities pursuant to General Orders 95 and 128, and The Warren 911 Emergency Communications Act, California Government Code 53100(b) which declares that "it is in the public interest to shorten the time required for a citizen to request and receive emergency aid."

24. Voluntary reporting by respondents for outages of 300,000 user minutes lasting 30 minutes or more, and initiation of Phase II to develop standards for reporting of such

outages to Emergency Services officials is reasonable and in the public interest to promote safe, reliable service under Cal. Pub. Util. Code section 451, and is encouraged within the Commission's authority under the California constitution and the Cal. Pub. Util. Code including section 701.

ORDER

IT IS ORDERED that:

1. We direct the Consumer Protection and Enforcement Division and the Communications Division to seek data to analyze why Verizon Business and Level 3 had the largest gaps between attempted calls and completed calls to or from California, and to recommend appropriate action to close that gap and ensure that calls are completed consistent with California Law.
2. Carriers that experience call completion problems going forward shall provide information about the issue in a detailed letter to Communications Division. The Commission's Alternative Dispute Resolution mechanism is available to mediate inter-carrier issues that may affect call completion. Carriers may also file a formal complaint about call completion problems.
3. We direct the Commission's News and Public Information Office and Consumer Affairs Branch to develop and post on the web and through brochures consumer information about rural call completion failure issues as discussed herein.
4. We direct Communications Division and our Legal Division to draft comments for our consideration to file at the FCC about the data gaps and inconsistencies in their Rural Call Completion Problems database. We direct the Communications Division to coordinate with the FCC Enforcement Bureau to seek improvements in the reporting, data gathering, and monitoring process for rural call completion.
5. We direct carriers to educate their MLTS customers about steps to enable short code access.

6. We order carriers who program MLTS systems do such programming on behalf of their customer or provide MTLTS systems (whether premise, cloud, or centrex-based) to enable short codes, with an opt-out for customers for short codes except for 9-1-1, 8-1-1, 2-1-1, and 7-1-1 in light of the public safety and health services available upon reaching these short codes. Carriers shall maintain the proper underlying call directions to complete the call to the proper agency or short code destination.

7. We direct carriers to hold a meet and confer with the 2-1-1 coalition and the 8-1-1 coalition, as described herein to discuss short code access and education.

8. We refer to the proceeding that will implement SB 1212 to bring 2-1-1 statewide to determine whether additional steps are prudent and necessary to ensure 2-1-1 access, including from MLTS users.

9. We refer to the Network Study analysis of AT&T, California and Frontier we ordered in D.15-08-041, in R.11-12-001 analysis of: 1) allegations of false disconnected messages, fast busy messages for what should be working lines, and extremely poor call quality comments; 2) network and call path diversity (the number of ways a call can travel to be completed), redundancy, and resiliency issues highlighted by large-scale outages; 3) the physical condition of the AT&T, California and Frontier networks to be studied, including network maintenance and service practices that may contribute to outages and influence their breadth, length, and occurrence; 4) trouble ticket response time and outages reported through GO 133-D, and reports of outages of 300,000 user minutes or more, lasting at least 30 minutes.

10. We encourage carriers to offer diversity, resiliency, and redundancy options to Emergency Services Offices and public safety access managers.

11. We direct the Commission's the Commission's Consumer Affairs Branch (CAB) to reach out to the consumers who spoke at the PPHs about these issues and offer CAB's informal complaint resolution services, and inform consumers about the formal complaint process at the Commission. We refer to SED to determine whether practices

such as affixing telephone lines to trees are inconsistent with GO 95. SED may issue citations, as appropriate for violations of GO 95. We direct SED to issue guidance clarifying the duty to affix lines to proper support structures and addressing the issue of lines attached to trees, dead, diseased, or alive.

12. We refer to SED to determine what additional steps are warranted to ensure compliance with vegetation management duties, including through the citation program, issuance of guidance about vegetation management duties in light of the tree mortality epidemic, and, if warranted, an adjudicatory OII.

13. We refer to the Commission's Consumer Protection and Enforcement Division (CPED) to analyze as described herein whether an adjudicatory OII should be brought for any violations of state law or this Commission's rules, orders, and Decisions arising from: 1) the April 9, 2014 outage started by Intrado's systems in Colorado that led to the loss of 9-1-1 access in several states including in eight Northern California counties where Verizon Business supplied 9-1-1 access services to AT&T Mobility and Verizon, Wireless customers; 2) the outages resulting from fiber cuts in Mendocino and Humboldt counties including the August 3, 2014 outage, the September 3, 2015 outage, and the December 9, 2015 outage, each of which resulted in the loss of dial tone and in several cases 9-1-1 access for thousands in one or several counties; 3) the outages following the Verizon-Frontier transition in April-May 2016. CPED shall have access to all of the relevant record from this proceeding for its analysis of these issues.

14. We direct Communications and Legal Division to prepare a resolution to submit comments to the FCC to request review of whether adequate reporting was submitted under NORs and FCC rules, orders, and Decisions, and federal law for the August 3, 2014, September 3, 2015, and December 9, 2015 outages in Mendocino, Humboldt, and Del Norte Counties. The comments shall request review of whether voice outages that resulted from OC3 or transport outages were adequately reported, including the loss of

end-to-end 9-1-1 service for hundreds or thousands of customers affected by the OC3 or transport outage.

15. We direct carriers to meet and confer with California's federally-recognized tribes and County OES offices to determine if action is needed to make residential addresses visible to the 9-1-1 database, including assigning a unique address by mutual agreement in areas where all households currently have the same address.

16. We direct respondents to provide within 30 days of this Decision to city, county, and federally recognized tribal OES officials an emergency contact name and number available 24 hours a day, 7 days a week, not a general 800 or 8xx number.

17. We direct a meet and confer with OES officials, Communications Division, and Safety and Enforcement Division (SED) to discuss communications during and after emergencies such as fires and means to shorten the time for accessible communications.

18. We direct the Safety and Enforcement Division to within 120 days of this Decision coordinate and hold a meet and confer with Cal OES, respondents, the California Utility Emergency Association (CUEA), the California Communications Association, Cal-Fire, the Governor's Tree Mortality Task Force, the Governor's Office of Tribal Advisor, Emergency Services representatives for federally-recognizes tribes in California, County OES representatives, and Communications Division to discuss options to improve speed of access to communications services during emergencies such as large-scale fire response.

19. We direct Safety and Enforcement Division to recommend appropriate next steps for this Commission to speed communications services during emergencies to protect public safety, the environment, resources, and property including private, public, and utility property and infrastructure.

20. We order data to be provided by Carriers of Last Resort (COLRs) to the Commission about outages of 300,000 user minutes or more, lasting at least 30 minutes. Such notice shall be provided within 120 minutes of the outage.

21. For any outage of OC3 minutes or transport outage, COLRs shall report to the Commission the number of user minutes affected by the OC3 outage.

22. We direct Communications Division to make available to carriers within 90 days of the adoption of this Decision a format for reporting outages 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage.

23. We encourage all respondents to on a voluntary basis report outages of 300,000 user minutes that last 30 minutes or more, and the number of user minutes affected by an OC3 or transport outage to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts. We encourage such reports to be made as soon as possible, and such reports should be communicated no later than 60 minutes after their discovery of such outages.

24. Phase II of this Proceeding will explore whether the Commission should require COLRs or other respondents to report outages to Cal OES, City, and County OES, and California federally recognized tribal OES official contacts.

25. Phase II shall convene a Working Group including Communications Division, Safety and Enforcement Division, the parties, and inviting Cal OES, City, County, and federally recognized tribal OES officials to discuss and recommend outage reporting thresholds, requirements, and protocols that reflect California's public safety needs and this Commission's responsibilities.

26. We direct Communications Division to monitor reports of outages submitted to the Commission of 300,000 user minutes lasting 30 minutes or more, OC3 outages and their effect on user minutes, and other outages that fall below the Major Service Interruption threshold of GO 133-D.

27. We direct the Commission's News and Public Information Office continue and enhance the Call Completion survey and reporting tool now available on the CPUC's web site developed during this OII, and to look into the feasibility of developing an

App to allow for easy mobile input and viewing of material relevant to telephone corporation compliance with CPUC rules including outages, 9-1-1 access and initiation failures, call completion failures, and any associated causes such as compliance with pole safety rules and GO 95 and GO 128.

28. We direct the Commission's News and Public Information Office to make available on the Commission's website and through a mobile Application "App" a consumer Call Completion Survey to facilitate reporting and sharing information regarding: call completion failures; telephone corporation compliance with CPUC rules, orders, and Decisions including, but not limited to, GO 95, GO 128, GO 133-D; information about outages, 9-1-1 access and initiation failures including lack of dial tone on what should be a live line; false disconnected number messages, fast busy signals for what should be a working line, or other such issues for working lines such as poor call or jittery call quality, and; other compliance and service issues.

29. This Investigation shall remain open for Phase II as discussed above.

This order is effective today.

Dated _____, at San Francisco, California.

APPENDIX A
List of California Rural Carriers Operating Company Numbers

STATE	OCN	California CPCN	Company Name
CA	2301	1004	Calaveras Tel. Co.
CA	2308	1024	Citizens Telecom Co. of California, Inc. dba Frontier Communications of California
CA	2311	1006	Cal-Ore Telephone Co.
CA	2313	1007	Ducor Tel. Co.
CA	2318	1009	Foresthill Tel. Co., Inc.
CA	2321	1010	Happy Valley Tel. Co.
CA	2322	1011	Hornitos Tel. Co.
CA	2323	1021	Winterhaven Tel. Co.
CA	2324	1012	Kerman Tel. Co.
CA	2332	1014	Ponderosa Tel. Co.
CA	2334	1015	SureWest Telephone
CA	2338	1016	Sierra Tel. Co., Inc.
CA	2339	1017	Siskiyou Tel. Co.
CA	2343	1019	Volcano Tel. Co.
CA	2344	1020	Frontier Communications West Coast Inc. - CA
CA	2346	1013	Pinnacles Tel. Co.

Note: U# 1020 merged into U# 1024. See D.13-05-028

APPENDIX B

List of Reporting Covered Providers

Armstrong Telecom	Charter Comm
Nsighttel Wireless (Cellcom)	Telepacific
West IP Comm	Bandwidth-com
PNG Telecom	Cellular South (C Spire)
PuertoRico Tele	West Telecom (Hypercube)
Matrix telecom	Ntelos
General Communications	8X8
Sprint	US Cellular
CenturyLink	Affinity Networks
Consolidate Comm	TDS Long Distance
Comcast	Onvoy
Bright House Networks	Google
Ntelos	T-Mobile
Cincinnati Bell	
Windstream	
Cebridge Telecom (dba Suddenlink)	
Enhanced Comm of NNE (Fairpoint)	
RCKEC Inc	
Level 3	
Cricket	
Cellco	
Momentum	
Ooma	
Broadview Networks	
CSC Holdings	
Vonage	
Cox	
Cablevision Lightpath	
Verizon	
Wide Open west	
RCN Telecom	
TWC digital Phone	
XO Comm	
Skype	

APPENDIX C
Sample Response Cause Codes

Name	SS7	ISDN	CAS	SIP	Route retry
Unallocated number	1	1	1	404	Stop
No route to network	2	2	2	404	Continue
No route to destination	3	3	3	404	Continue
Send special tone	4	4	4	404	Continue
Misdialed trunk prefix	5	5	5	404	Continue
Channel unacceptable	6	6	6	404	Continue
Call awarded in established channel	7	7	7	404	Continue
Preemption	8	8	8	404	Continue
Reattempt	9	9	9	491	Continue
Ported number	14	14	14	603	Continue

APPENDIX D
Map of Affected Counties in California



State of California
No. Counties affected: 8 of 58
Population Affected: 30,000
As Percentage of Total State Population: 0.08%

PROPOSED DECISION

APPENDIX E

