The Colorado Public Utilities Commission (PUC)

Report on the State of 9-1-1 Services in Colorado, 2024-2025

SEPTEMBER 10, 2025

COLORADO
Public Utilities Commission
Department of Regulatory Agencies

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COLORADO
Public Utilities Commission
Department of
Regulatory Agencies

The General Assembly
State Capitol Building
Denver, CO 80203

September 10, 2025

Dear Members of the Colorado General Assembly,

The purpose of the attached report is to fulfill the requirements of § 40-2-131, C.R.S., which requires the Commission to produce a State of 9-1-1 report for the members of the General Assembly, covering seven specific topic areas.[1] Statute also requires that the Commission present the report to the Senate Committee on Business, Labor, and Technology, or its successor committee, and the House of Committee on Business Affairs and Labor or its successor committee, on or before February 1.

Additionally, the statute requires that the report be developed in consultation with Public Safety Answering Points (PSAPs), 9-1-1 governing bodies, and statewide organizations that represent public safety. For a description of how this consultation was obtained, and how input from the stakeholders was incorporated into this report, see Appendix C.

9-1-1 technology is complex, as are the funding and governance issues that are involved in the provision of 9-1-1 service to the public. This complexity has resulted in jargon and acronyms that can make it difficult to follow for newcomers to the topic. The reader is encouraged to consult the glossary (Appendix B) as necessary.

The Commission is pleased to present this eighth edition of its State of 9-1-1 Report to the members of the General Assembly, and looks forward to presenting this material and providing the members with a deeper understanding of this critical service. 9-1-1 is the first service to be accessed by members of the public in an emergency, and it must be a strong first link in the public safety chain. The Commission looks forward to working with the members of the General Assembly in ensuring that Colorado has the most robust, effective, and efficient 9-1-1 system possible.

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[1] § 40-2-131(1)(a)-(g), C.R.S.

Respectfully submitted,

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Executive Summary

Key Points:

- **The ESInet Users Group continues to plan for future deployment of Next Generation 9-1-1 (NG9-1-1) services, ESInet performance, and ESInet service disruptions.**
- **Commission staff, members of the ESInet Users Group, and the Colorado Council of Authorities (CCOA) have significant concerns regarding the customer service PSAPs and governing bodies receive from CenturyLink, also known as Lumen Technologies,[1] as the state's Basic Emergency Service Provider and in its unregulated roles.**
- **9-1-1 professionals in the state are public safety's first, first responders, and perform incredible work every day. However, Colorado is one of a few states with no minimum operational or training standards for 9–1-1 call centers. Progress has been made in this area at the national level and by Colorado stakeholders.**

The state of 9-1-1 services in Colorado is dynamic. Technologically, Colorado has the IP network needed to move toward Next-Generation 9-1-1 (NG9-1-1), known as an ESInet. Many steps remain in achieving NG9-1-1, such as the implementation of geospatial routing within the ESInet (IP-based network used to transport, route, and deliver 9-1-1 calls) and the provision of other NG9-1-1 Core Services. Public Safety Answering Point (PSAP) capabilities related to universal access to 9-1-1 vary across the state based on the local programs adopted by the local governing bodies, which may result in disparities among the services citizens and visitors may receive when reaching out to 9-1-1 for emergency assistance.

Colorado has several avenues for 9-1-1 stakeholder collaboration and involvement. Many PSAPs and governing bodies take advantage of those opportunities, lending their voices to the conversation and helping shape Colorado's future in 9-1-1. This results in vigorous conversations and debate leading to collaborative decisions. Commission staff expended considerable effort in 2025 on outreach to PSAPs and 9-1-1 governing bodies, to gather feedback and find ways to effectively disseminate information to them so they can participate fully in these conversations.

9-1-1 funding decisions in Colorado remain entirely local (for a detailed explanation of funding mechanisms, see Section 5). 9-1-1 charge funding is generally not sufficient for governing body costs related to the provision of baseline 9-1-1 service. Additionally, costs related to a robust ubiquitous 9-1-1 service and full implementation of NG9-1-1 are difficult to pay for through other local funding sources. One solution to help mitigate this problem was enabled in 2024, and is discussed in Section 7.

The Commission herein makes several recommendations to the legislature for consideration, which are discussed in detail in Section 7. **These recommendations are of the Commission, not**

[1] CenturyLink also goes by Lumen Technologies, but they operate with the Commission as CenturyLink QC.

of the Commission's 9-1-1 Advisory Task Force, the Department of Regulatory Agencies, the Governor's Office, nor any other organization.

1. Commission Activity Regarding 9-1-1 Service

Commission Activity During the 2024-2025 Fiscal Year

During the 2024-2025 Fiscal Year the Commission undertook the following activity:

- A proceeding to set the state 9-1-1 Surcharge rate, the threshold for Commission approval required for Emergency Telephone Charge (ETC) rates, the Prepaid Wireless 9-1-1 Charge rate, and distribution formulas for the state 9-1-1 Surcharge and Prepaid Wireless 9-1-1 Charge funds, for calendar year 2025 as required by § 29-11-102.3 and 102.5, C.R.S.[2]

- A rulemaking following passage of HB24-1234, HB24-1336, and SB24-139, to incorporate into Commission rules requirements of those bills.[3]

- Staff participated as both trial and advisory staff for a tariff amendment proceeding, in which CenturyLink[4] proposed to add new services to Basic Emergency Service, in partial fulfillment of next steps toward NG9–1-1 implementation. Several entities, including PUC staff, intervened and raised concerns. CenturyLink eventually withdrew the tariff amendment and is expected to re-file it in late 2025.[5]

- Staff participated in a proceeding in which several 9-1-1 governing bodies filed a petition for Declaratory Order or Rulemaking seeking clarity about optional tariffed services and reimbursement of such costs. The Commission ruled that tariffed services could be optional and directed staff to conduct a rulemaking for defining optional services and means of reimbursement through the statewide 9-1-1 Surcharge.[6]

- Staff conducted workshops for developing draft rules which were then filed in Proceeding 25R-0174T. The proposed rules provided definitions for "Core" Basic Emergency Services (BES) components and "Optional" BES components. They also clarify the procedure by which governing bodies would be reimbursed for costs of Core and Optional Components, and add a reporting requirement to annual data collection.[7]

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[2] See Proceeding No. 24M-0329T

[3] See Proceeding No. 24R-0338T

[4] CenturyLink also goes by Lumen Technologies, but they operate with the Commission as CenturyLink QC.

[5] See Proceeding No. 24AL-0397T

[6] See Proceeding No. 24D-0534T

[7] See Proceeding No. 25R-0174T

- Staff served as advisory staff in a formal complaint filed by Larimer Emergency Telephone Authority vs. CenturyLink QC. The proceeding is ongoing as of the writing of this report.[8]

- Facilitated six meetings of the Commission's 9-1-1 Advisory Task Force, which was created pursuant to 4 CCR 723-1-2145.[9] Beginning in 2022, staff has also arranged "lunch-and-learn" webinars for local 9-1-1 stakeholders in alternate months between meetings of the Task Force.

- Facilitated a GIS Informational Series of webinars, consisting of 8 online and in-person sessions taught by GIS experts to help educate 9-1-1 professionals about GIS for NG9-1-1.

- Facilitated monthly meetings of the ESInet Users Group, which is a committee of the 9-1-1 Advisory Task Force that was created by Commission Decision.[10]

- Conducted two in-person regional 9-1-1 meetings designed to bring 9-1-1 leaders together to discuss common challenges and available resources. Four more meetings are planned in the 2025-2026 fiscal year.

- Facilitated meetings and activities of Task Force committees, including:
    - Equal Access Committee partnered with the Colorado Training Standards Institute to produce an educational video which demonstrates a 9-1-1 call from inception to dispatch of field responders
    - Legislative Committee worked with members of the legislature to draft and pass SB25-60, making misuse of 9-1-1 and related systems a crime
    - ESInet Users Group drafted and approved a revised NG9-1-1 Strategic Plan

- Filed an annual report with the Federal Communications Commission pursuant to the New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act).[11]

- Continued collaboration with the 9-8-8 Program Manager at the Colorado Behavioral Health Administration, to further establish relationships between 9-8-8 and 9-1-1 and aid smooth implementation of 9-8-8 and mobile crisis response services.

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[8] See Proceeding No. 24F-0470T

[9] The Commission's authority for creating the Task Force derives from its oversight of Basic Emergency Service. See § 40-15-201 (2), C.R.S. See the Task Force's website at https://sites.google.com/state.co.us/9-1-1-advisory-task-force/home.

[10] See Decision R18-1063T.

[11] See https://www.fcc.gov/general/911-fee-reports

- Provided administrative facilitation to the meetings of the 9-1-1 Services Enterprise created by Senate Bill 24-139.

Commission staff were also very engaged in statewide and national activities regarding 9-1-1 service, including:

- Serving as an officer on the boards of the Colorado 9-1-1 Resource Center and the National Association of State 911 Administrators (NASNA).

- Serving as co-chair of the technology committee of the Colorado joint chapter of National Emergency Number Association (NENA) and the Association of Public Safety Telecommunications Officials, Intl (APCO).[12]

- Serving as an officer of the Colorado NENA/APCO Chapter.

- Serving on several committees of the Commission's 9-1-1 Advisory Task Force.

- Serving as co-chair of NENA's Education Advisory Board.[13]

- Serving as the governor-appointed 9-1-1 representative on Colorado's Standing Committee on First Responder Safety.[14]

- Serving on NENA's FutureThink Committee.[15]

- Serving as chair of the Next Generation 9-1-1 Interoperability Task Force.

- Assisted the Colorado Training Standards Institute and Colorado 9-1-1 Resource Center in refreshing Colorado's ENP study group videos. Fourteen sessions were recorded and placed on the 9-1-1 Resource Center website for use by those seeking to attain their ENP certification.[16]

Commission staff assigned to 9-1-1 related matters for the 2024-2025 fiscal year primarily consisted of the following:

- Jennifer Kirkland, State 9-1-1 Program Manager - 1.0 FTE
- Daryl Branson, Telecom Programs Section Chief - 0.5 FTE
- Holly Bise, State Relay Administrator - 0.2 FTE
- Jolene Sena, Surcharge Administrator - 0.3 FTE

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[12] See www.conenaapco.org for more information

[13] See https://www.nena.org/page/EducationAdvisoryBrd for more information

[14] See https://sites.google.com/state.co.us/coloradotim/frc

[15] See https://www.nena.org/page/NENAFutureThink or more information.

[16] See Colorado 9-1-1 Resource Center website

Ms. Kirkland is the Commission's only staff member fully focused on 9-1-1 related issues. Mr. Branson, Ms. Bise, and Ms. Sena have other duties in addition to 9-1-1. As of the beginning of the 2025-2026 fiscal year, Ms. Bise was relocated, along with the state TRS program, to the Department of Human Services and is no longer housed within the PUC's Telecom Section.[17]

Commission Activity Planned for the 2025-2026 Fiscal Year

Commission Staff will continue to oversee implementation of the two-year BES network improvement plan, approved in 2024.[18] Staff expects CenturyLink to file its next improvement plan proposal in late 2025 or early 2026, and anticipates the 9-1-1 community to be heavily involved in the proceeding.

CenturyLink has expressed its intent to file a tariff amendment in late 2025 that would provide text-to-9-1-1 over the ESInet, geospatial routing of 9-1-1 calls, and a GIS management module that would assist governing bodies in managing the GIS data necessary for statewide geospatial routing of 9-1-1 calls. Staff anticipates that the resulting proceeding will generate significant discussion in the 9-1-1 community.

Staff will host a series of workshops beginning late 2025 for members of the ESInet Users Group and the Commission's 9–1-1 Advisory Task Force, exploring ways to bring competition to the state for Basic Emergency Service provision and seeking input from 9-1-1 stakeholders.

Staff will continue to work with the Colorado Behavioral Health Administration, serving as a bridge between the 9-8-8 Program and the 9-1-1 Program.

Staff will continue to facilitate administration of the 9-1-1 Services Enterprise Board, which has authority to set a 9-1-1 Enterprise Fee collected by Commission staff in conjunction with the statewide 9-1-1 Surcharge.

Staff will complete the annual reporting request from the Federal Communications Commission. Due to a lapse in congressional authorization, the National 9-1-1 Program has suspended its data collection efforts.

Staff will continue administration of the Commission's 9-1-1 Advisory Task Force and facilitate its meetings and agendas, pursuant to 4 CCR 723-2-2145(a), as well as facilitate meetings of the ESInet Users Group and other committees.

Staff will continue to participate in NENA, APCO, National Association of State 911 Administrators (NASNA), and the National Association of Regulatory Utility Commissioners (NARUC) activities and events.

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[17] See HB25-1154

[18] See Proceeding 23A-0197T

2. The Current 9-1-1 Service Environment

Structure

A description of the current 9-1-1 service environment is archived and documented on the Colorado 9-1-1 Program website in a document titled "Colorado's 9-1-1 Service Environment."[19] It is also attached as Appendix A. This section highlights changes that occurred during the reporting period.

- The number of 9-1-1 governing bodies increased by one. Bent-Kiowa Counties severed their partnership, and Kiowa County 9-1-1 calls are now being answered by Rocky Ford Communications Center. Kiowa County formed their own Emergency Telephone Authority and is now collecting its own Emergency Telephone Charge. There are now 58 governing bodies in Colorado.

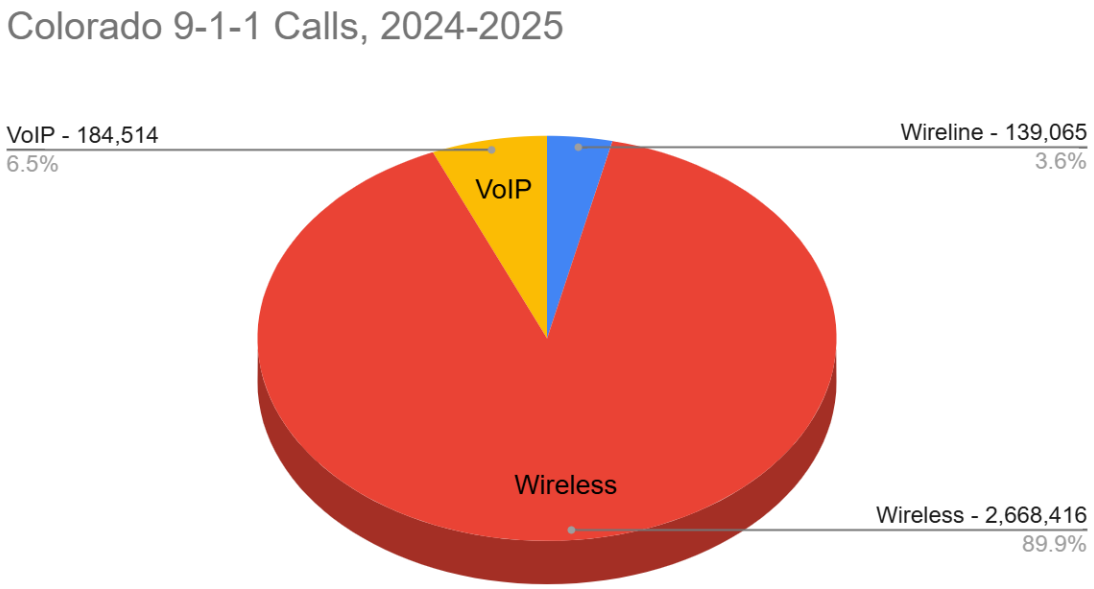

Figure 2.1: 2024-2025 Statewide 9-1-1 calls by type. Total call volume was 2,924,042. This includes initial calls to a PSAP and calls transferred in from another PSAP, resulting in some calls being counted twice.

General Operations

Operations within Colorado's 83 PSAPs are locally controlled. PSAPs often operate as a part of a local law enforcement agency, but are sometimes operated as independent agencies of a city or

[19] See Appendix A

county government, as part of a fire agency, or as a local government operating as a separate legal entity of the state. While the term "PSAP" refers only to facilities that answer 9-1-1 calls from the public, every PSAP in Colorado is also a dispatch center, dispatching calls for service to first responders of one or more law enforcement agencies, fire protection services, emergency medical services, and other agencies. PSAPs also answer a large number of non-emergency calls from the public, often exceeding the number of 9-1-1 calls received.[20]

Commission staff uses its statutorily-provided data collection authority to track trends in PSAP service capabilities.[21] Specifically, staff tracks the adoption of three categories of PSAP services that are generally considered essential to PSAP operations, but which are not universally adopted in Colorado.

Text-to-9-1-1

Text-to-9-1-1 service allows users to send a message by entering "911" in the recipient field of their texting app. No federal or state mandate to provide text-to-9-1-1 exists. Many of Colorado's PSAPS were early adopters of text-to-9-1-1, with some PSAPs implementing as early as 2014. Currently text-to-9-1-1 is available in the jurisdictions of all but six primary PSAPs. The Black Hawk Police Department makes text-to-9-1-1 service available, although the service is not available in other parts of Gilpin County. Durango-La Plata Communications Center makes it available, but the Southern Ute Police Department does not. Each PSAP providing text-to-9-1-1 service is doing so via "interim" methods that bypass the ESInet (the network provided by the BESP to deliver 9-1-1 calls), using either dedicated connections to a Text Control Center (TCC) provider or, more commonly, using the public Internet and a browser-based solution.

- Starting two years ago, we asked PSAPs not currently receiving text-to-9-1-1 to indicate whether they are planning to implement this capability. Bent County, Crowley County, and Southern Ute Police Department indicated this intention.
- Kiowa County is now receiving text-to-9-1-1 services, as their calls are being answered by Rocky Ford Communications Center.
- CenturyLink intends to file in late 2025 a tariff amendment to provide text-to-9-1-1 statewide via the ESInet.
- The majority of Colorado's PSAPs are using RapidSOS, a company that provides many free and some paid capabilities to participating PSAPs. One of the free capabilities is

[20] Note: There is an industry trend to move away from the term "Public Safety Answering Point" or "PSAP" in favor of the term "Emergency Communications Center" or "ECC". For the purposes of this report, we continue to use the term PSAP since it is the term defined in statute and specifically refers to ECCs that receive 9-1-1 calls, whereas the term "ECC" can be more broad.

[21] §29-11-102(4), C.R.S. requires 9-1-1 governing bodies to comply with annual reporting requirements established by the Commission for assisting the Commission in meeting federal reporting requirements and data requests and to gather information for inclusion in this report.

text-to-9-1-1, and this could be an option PSAPs can use to incorporate text-to-9-1-1 into their operations.

The current status of text-to-9-1-1 is illustrated in the map below.

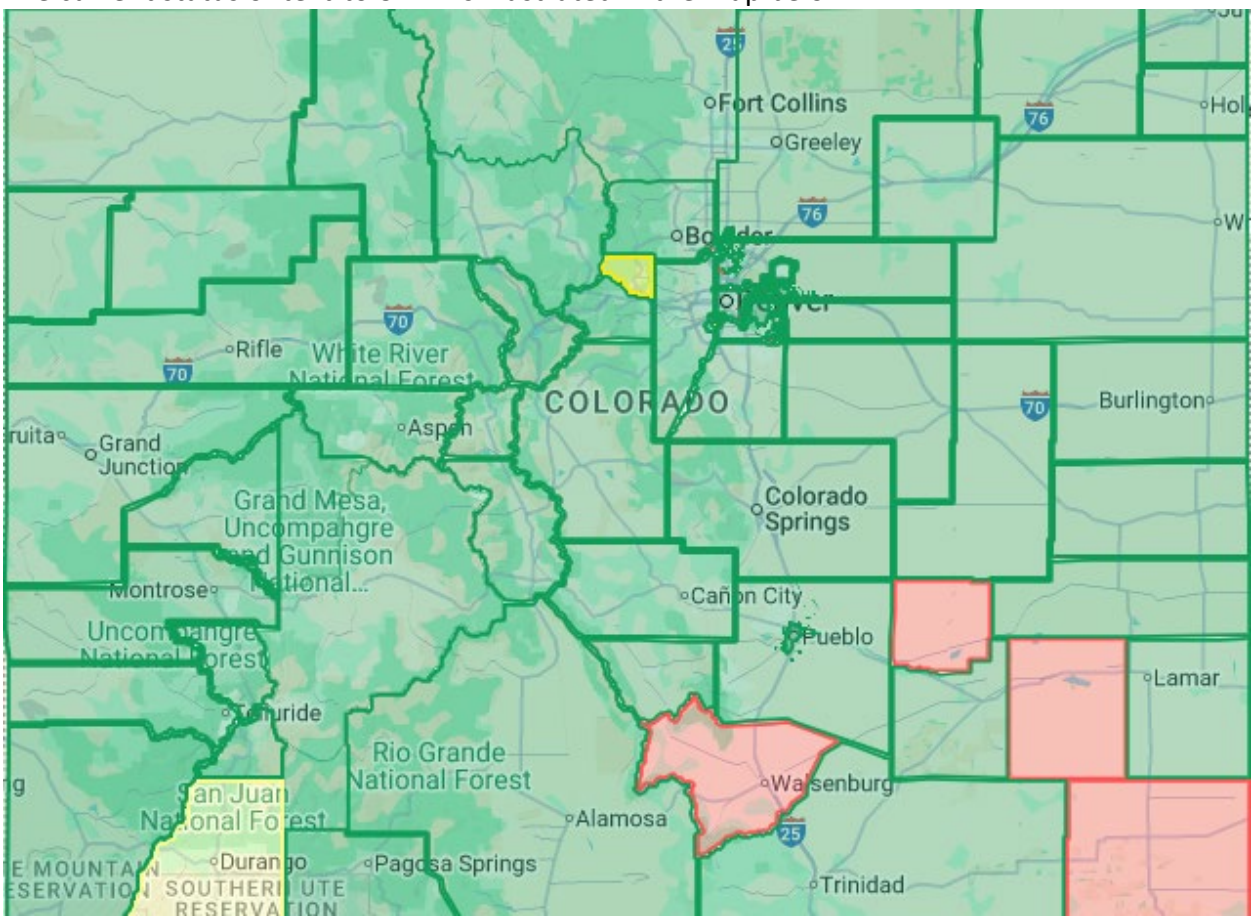

Figure 2.2: Text-to-9-1-1 service in Colorado by governing body.
Red = No text-to-9-1-1 service.
Yellow = Text-to-9-1-1 service offered in some parts of the governing body's jurisdiction.
Green = Text-to-9-1-1 service offered in all of the governing body's jurisdiction.

For the purpose of this map, a PSAP is considered to have text-to-9-1-1 service even if that service is being provided by another PSAP.

The availability of text-to-9-1-1 service can mean the difference between life and death for individuals who may be unable to make a traditional voice call. This includes callers who are deaf, hard-of-hearing, or may have a speech impairment, and also includes callers reporting dangerous incidents in which the suspect may still be present, such as a domestic abuse situation or an active shooter. Text-to-9-1-1 may also work in some instances where a cellular signal may not be strong enough to maintain a voice 9-1-1 call.

For these reasons, the Commission's 9-1-1 Advisory Task Force strongly supports implementation of text-to-9-1-1 in every PSAP. Discussions regarding how to encourage and facilitate statewide deployment of the service are ongoing. These efforts are being assisted

largely by the Colorado 9-1-1 Resource Center, a non-profit entity created by order of the Commission in 2006 to provide support and informational resources to local 9-1-1 officials. In the past, the ESInet Users Group has held discussions with CenturyLink regarding the possibility of ubiquitous text-to-9-1-1 being delivered statewide via the ESInet, thereby using the same path as voice 9-1-1 calls. By doing so the service would receive the benefit of being delivered over a secure, dedicated network with that network's redundancy and diversity. It would allow PSAPs that currently receive text-to-9-1-1 calls via an Internet browser to begin receiving them natively in their Call Handling Equipment (CHE), subject to the equipment supporting that functionality. It would ensure 100% availability to the PSAPs and add a layer of redundancy that could help improve the reliability of the public's ability to contact 9-1-1. PSAPs that wish to continue receiving text-to-9-1-1 via interim methods for additional redundancy could do so. As noted in Section 1 above, CenturyLink has signaled intent to bring this to fruition by adding text-to-9-1-1 to its BES tariff with the Commission.

RapidSOS, a third-party independent company that provides data and location information services via its own proprietary platform, provides text-to-9-1-1 services via its platform, which is available for free to all PSAPs. All but two of Colorado's primary PSAPs are using RapidSOS, so this may become another solution for PSAPs to receive text-to-9-1-1.

The Task Force's Equal Access Committee also urges the Task Force, the ESInet Users Group, and CenturyLink to identify solutions for statewide deployment of text-to-9-1-1, and is monitoring adoption of this capability.

EMD/PAI Implementation

The use of Emergency Medical Dispatch (EMD) protocols, including the delivery of Pre-Arrival Instructions (PAI), for medical calls is standard throughout most of Colorado, with the service being implemented fully by PSAPs related to 56 of the 58 governing bodies. One PSAP In Otero County (Rocky Ford FD) provides EMD for its service area, but the other PSAP (La Junta PD) does not.

- The Commission asked PSAPs not providing EMD to indicate whether they were planning to implement these protocols. Of the three primary PSAPs that are not currently providing EMD, Baca County and Lake County indicated intent to eventually implement EMD protocols, leaving La Junta PD as the sole primary PSAP not providing EMD and no plans to implement.

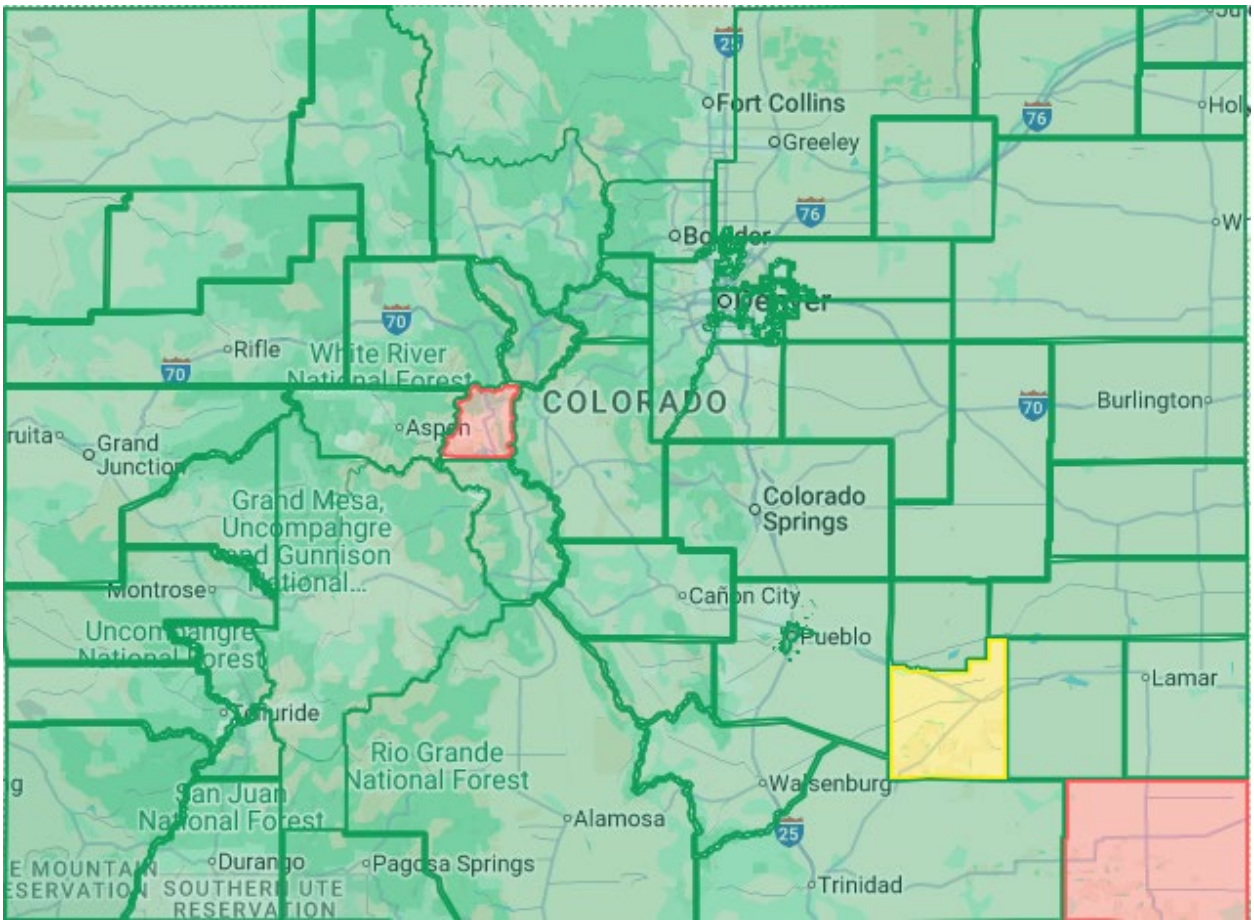

Figure 2.3: EMD/PAI service in Colorado by governing body.
Red = No EMD/PAI service.
Yellow = EMD/PAI offered in some parts of the governing body's jurisdiction.
Green = EMD/PAI offered in all of the governing body's jurisdiction.

For the purpose of this map, a PSAP is considered to provide EMD/PAI even if that service is being provided by another PSAP on its behalf.

Although EMD is not mandated in Colorado, it is a critical service which may make the difference between life and death for callers requesting medical assistance. The ability to provide CPR instructions over the phone, provide instructions to control bleeding, or other instructions to stabilize a patient prior to arrival of emergency medical service personnel, can and does have an impact on patient outcomes.

Language Interpretation for 9-1-1 Calls

Every PSAP in Colorado faces the possibility of receiving 9-1-1 calls from people who do not speak English fluently, or who might be better able to communicate if provided the opportunity

to use their native language. Several vendors provide services which allow PSAPs to connect a non-English-speaking caller with a trained interpreter that can facilitate communication between the caller and the call taker. Typically, these services can also help identify the language being used by the caller before bringing on an appropriate interpreter. Many call-handling and/or recording systems are also incorporating transcription services which can translate languages in real-time, without the need to create a three-way call.

Currently, 54 of the 58 governing bodies' respective PSAPs use interpretation services. In La Plata County the Durango-La Plata 911 center uses an interpretation service, but the Southern Ute Police Department PSAP does not.

- Since our last report, both PSAPs in Otero County began using a language interpretation service, and by extension, Kiowa County is also now covered, since their 9-1-1 calls are now answered by the Rocky Ford Communications Center.
- The majority of Colorado's PSAPs are using RapidSOS, a company that provides many free and some paid capabilities to participating PSAPs. One of the paid capabilities RapidSOS offers is transcription that includes instantaneous foreign language translation (including language recognition), and this could be an option PSAPs can use to incorporate foreign language translation into their operations.

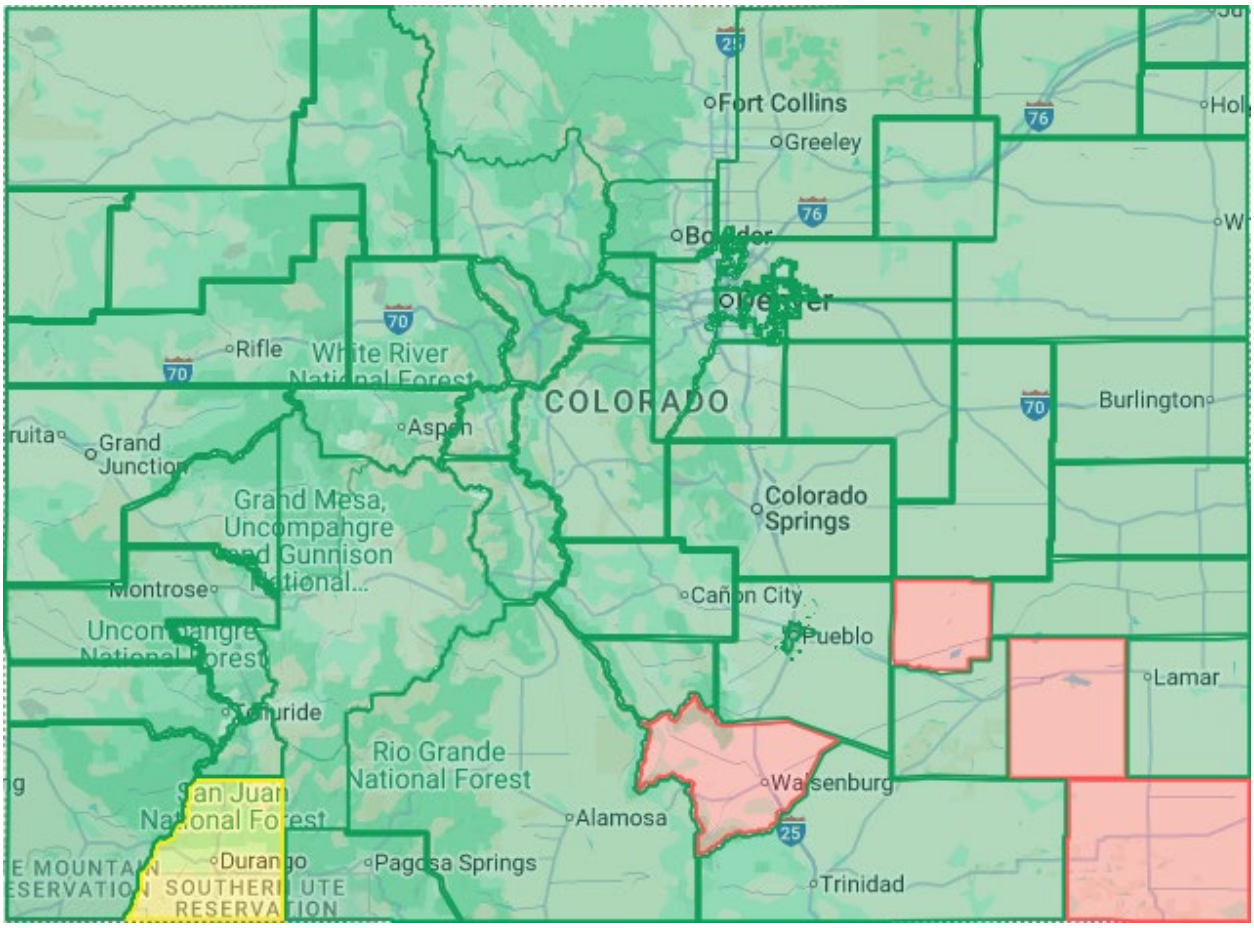

Figure 2.4: 9-1-1 Call Language Interpretation Service Availability by Governing Body
Red = No language interpretation service for 9-1-1 calls.
Yellow = Interpretation service offered in some parts of the governing body's jurisdiction.
Green = Interpretation service offered in all of the governing body's jurisdiction.

Colorado is an international destination for travelers who come to enjoy the state's natural beauty, visit family, or conduct business. It also has a significant resident population which does not speak English. Without the ability to communicate in a variety of languages, PSAPs run the risk of not being able to fully serve a caller, leaving no other option than to dispatch law enforcement to meet the person. In some cases, the PSAP may not even be able to determine the caller's location without interpretation services.

Some PSAPs without interpretation services report they have Spanish-speaking dispatchers or law enforcement officers who can assist with translation. This is not considered a sufficient alternative to an interpretation service[22] because it is (1) dependent on those Spanish-speaking personnel being on duty and available when a call needs to be interpreted, (2) does not guarantee that the personnel are sufficiently proficient in Spanish to interpret the call, and (3) does not provide for interpretation of other languages.

[22] See NENA Standard for 9-1-1 Call Processing

Emergency Notification Services

Outbound emergency notifications to the public are provided using different services for different applications, including emergency notifications services (ENS). Local 9-1-1 governing bodies may use 9-1-1 surcharge funds to pay for ENS.[23] However, ENS is not part of the 9-1-1 system and its use and operation by local agencies is not regulated by the Commission.

In Colorado, responsibility for operation of ENS depends on how the governing agency designates the alerting authority. PSAPs often serve a central role, incorporating the task of issuing emergency alerts into their operational duties. However, current ENS technologies lack the capability to deliver alerts in multiple languages or in formats compatible with assistive technologies such as screen readers, braille devices, and American Sign Language (ASL). These accessibility features have not yet been fully developed or integrated into existing alerting platforms.

Beginning January 1, 2026, Colorado law will require that all emergency alerts be issued in English as well as in the predominant minority language within the community, and that they be fully accessible in compliance with the Americans with Disabilities Act (ADA). At present, no single alerting platform meets all these requirements, meaning that jurisdictions will need to implement supplemental, over-the-top solutions to achieve compliance, at significant unsupported expense.

All but one governing body contracts with an emergency notification system provider. San Juan County Emergency Telephone Services Authority reported having no ENS services.

Accessibility

Access to 9-1-1 services for individuals with accessibility needs is a consideration that must be included in any evaluation or planning regarding the future of 9-1-1 services. There are a number of ways persons with accessibility needs can use the 9-1-1 system in Colorado.

TTY, Relay Services, and Other Accessibility Devices

TTY (an abbreviation that originally stood for “teletypewriter”) is a method still used by some individuals who are deaf, hard of hearing, DeafBlind, or have speech disabilities. It enables the user to connect a keyboard telephone and type to send and receive responses. The individual on the other end of the call may also be using a TTY device or may communicate through a third-party relay service if using a traditional telephone. Although it is no longer considered a

[23] See § 29-11-104(2)(a)(I)(C) and (D), C.R.S.

primary method for individuals with communications-related disabilities to contact 9-1-1, the U.S. Department of Justice still requires all PSAPs nationwide to be able to accept and respond to 9-1-1 calls made with TTY devices. Due to the widespread availability of text messaging via mobile devices, and due to limitations of TTY devices, fewer people continue to use TTY.

- In a survey conducted in 2024 by the PUC 9-1-1 Task Force Equal Access Committee, zero members of the Access/Functional Needs community in Colorado who responded reported using TTY to communicate with 9-1-1.

- The Committee also distributed a survey to Colorado's 9-1-1 community. Out of 82 respondents, 42% reported receiving zero TTY calls in their career. 52% reported receiving between 1-5 TTY calls annually, and 6% reported receiving between 6-25 annually.

Relay services include traditional Telecommunication Relay Services (TRS), Captioned Telephone Services (CTS), Video Relay Services (VRS), and IP Relay Services. Use of traditional TRS has declined in recent years in favor of Internet-based relay services and video relay services that accommodate sign language. Because relay services involve a third party calling the PSAP, location information for the caller is sometimes not readily available.

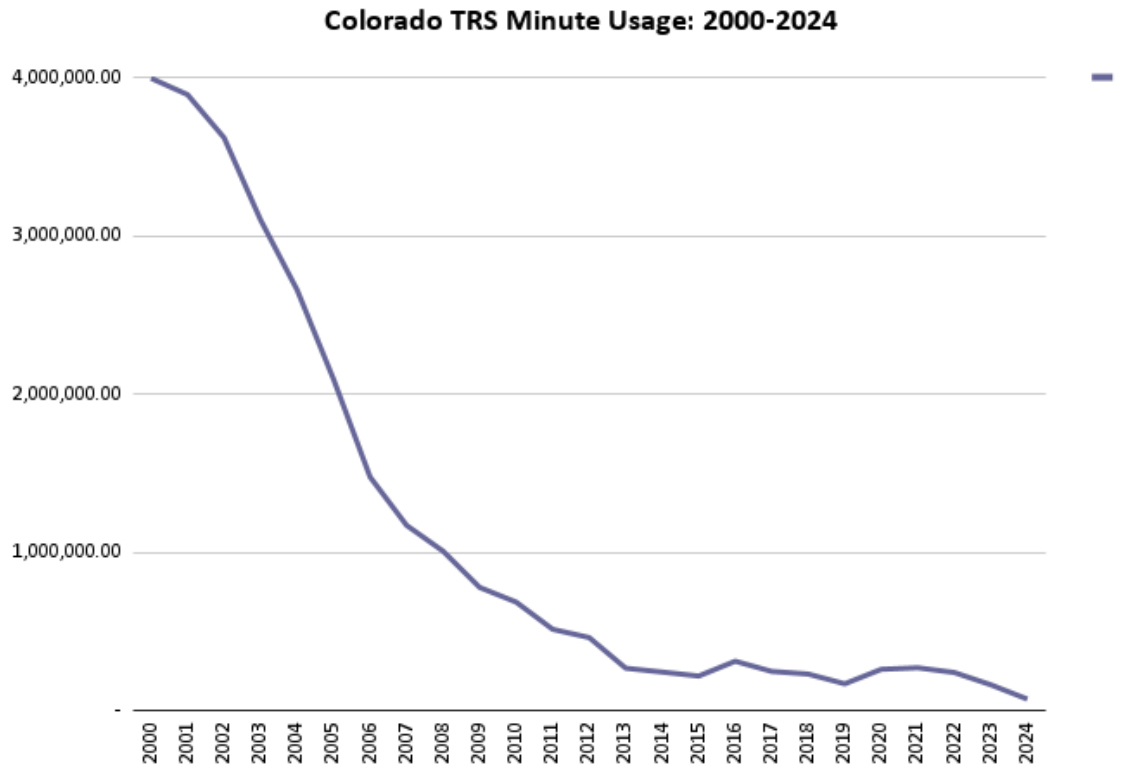

Figure 2.5: Number of minutes of state TRS service usage by year.

There are many other communications methods that a caller with an accessibility need might use, with the choice being relative to the nature of the disability. These include IP-captioned telephone services, video relay services, IP instant messaging, email, voice carry over (VCO) phones, and more. These methods have various limitations, most notably that they require an Internet connection or specialized equipment that may not be convenient for mobile use. Some of these methods, such as IP instant messaging and email, are rarely, if ever, used to request emergency assistance.

Text-to-9-1-1

Although text-to-9-1-1 service has applications for hearing individuals, it is an important modern communications accessibility option for callers who are deaf, hard of hearing, DeafBlind, or have a speech disability. As discussed previously in this Section, text-to-9-1-1 service is optional and not universally available in Colorado.

The survey to the Access/Functional Needs Community referenced above noted that the majority of respondents use text as the primary mode to communicate with friends and family.

Real-Time Text (RTT)

The Federal Communications Commission (FCC) also requires providers to provide Real-Time Text (RTT). Real-time Text is the ability for citizens to send and receive text and other characters in real time, as they are typed.[24] It is up to the PSAP to provide accessibility to this service.

Other Considerations Regarding Accessibility

Next Generation 9-1-1 provides opportunities for more consistency in the availability of accessibility functions for 9-1-1 services. It is essential that as NG9-1-1 and related applications or services are implemented the accessibility community is included in discussions to ensure their needs and concerns are addressed and accommodated to the greatest extent possible.

3. 9-1-1 Network Reliability and Resiliency

Current Status

[24] See NENA's "PSAP Readiness for Real-Time Text (RTT) Information Document"

As discussed in Colorado's 9-1-1 Service Environment,[25] Commission authority is restricted to only one portion of the 9-1-1 call flow process. Therefore, certain types of disruptions to 9-1-1 service are not captured in the data collected by the Commission. Examples of those include:

- Disruptions due solely to failure of an originating service provider's network (such as T-Mobile, AT&T, Verizon, etc.).
- Disruptions affecting local wireline customers but not affecting a PSAP directly.
- Disruptions that occur due to a failure of a local network on the governing body or PSAP side of the delivery demarcation point.
- Disruptions occurring due to an equipment failure at a PSAP, or due to the failure of a third-party hosted service contracted by a PSAP.

With these limitations in mind, the Commission provides the following statistics related to disruptions of the delivery of 9-1-1 calls to a PSAP, referred to in the Commission's rules as a PSAP Service Disruption.

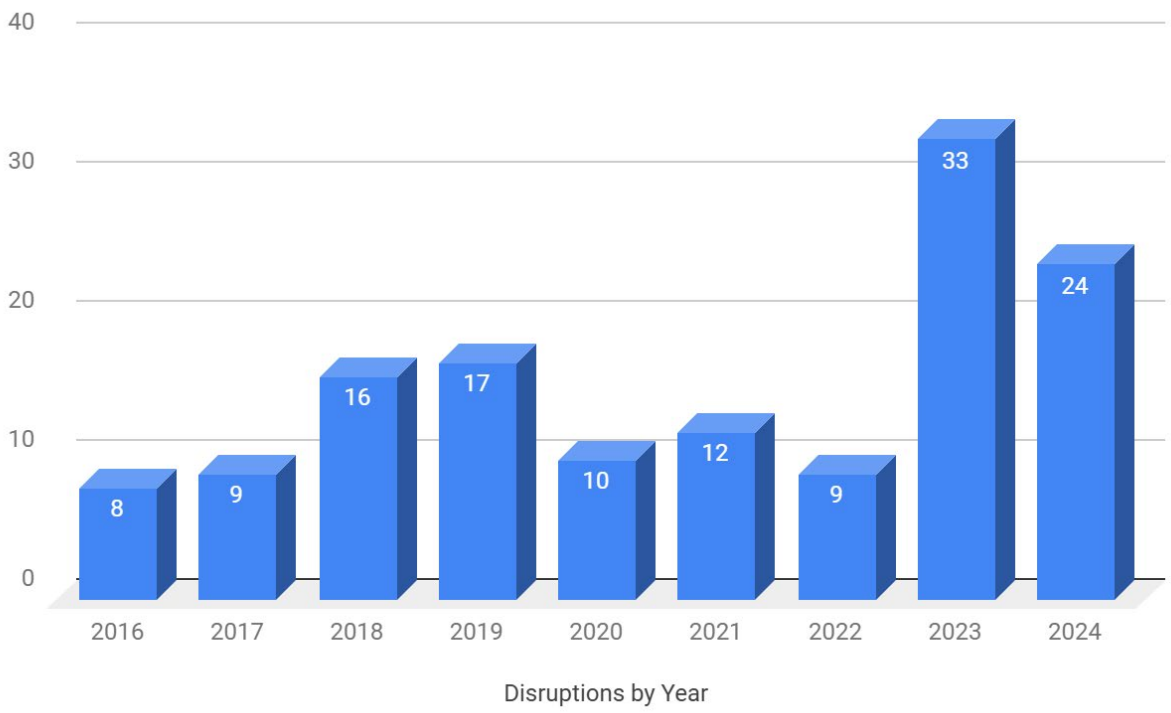

Figure 3.1: PSAP Service Disruptions by Year, 2016-2024.

[25] See Appendix A

As can be seen in Figure 3.1, the total number of disruptions recorded by Commission staff starting in 2023 far outstrips any previous year.[26] One reason for this is potentially due to Commission staff being aware of more disruptions than were previously being reported. Beginning in 2023, CenturyLink began copying Commission staff on all disruption notification emails sent to PSAPs, enabling recording of service events that previously may not have been reported to Commission staff.

It is noted that the recorded disruptions beginning calendar year 2023 shown above do not count every notification received by Commission staff. They only include service events that Commission staff determined were likely PSAP service disruptions under the Commission's rules.

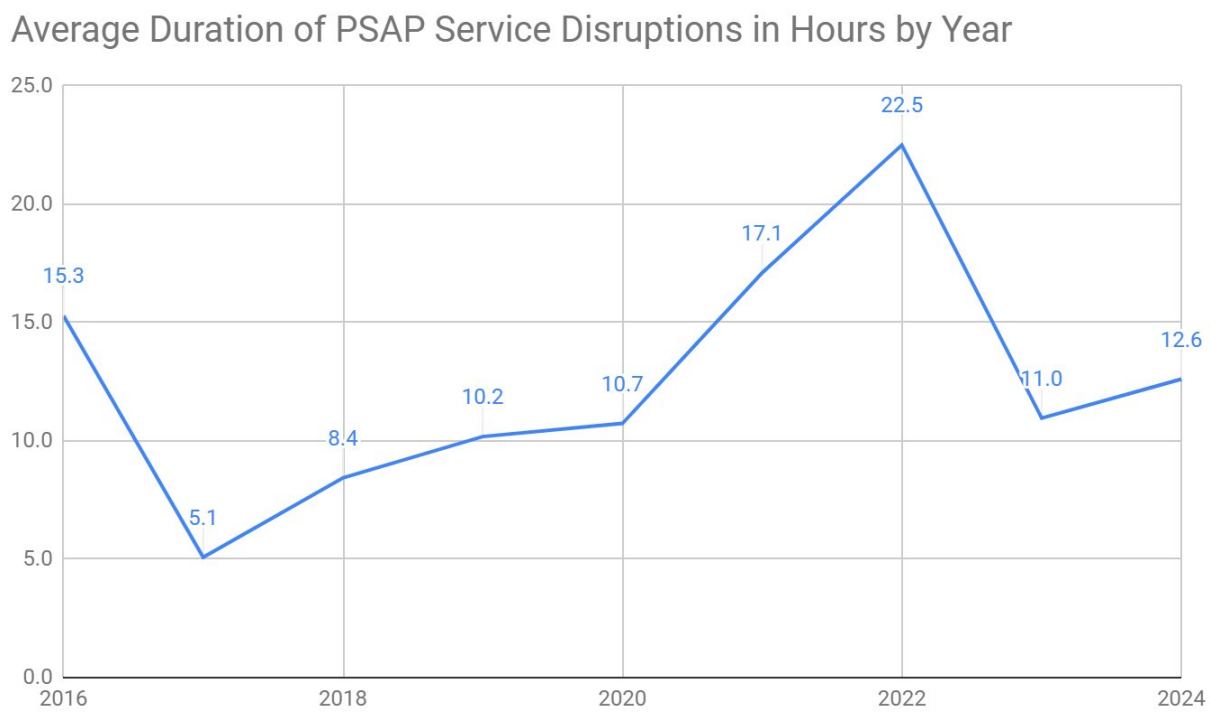

Figure 3.2: Average duration of PSAP Service disruptions in hours.

PSAP service disruption duration, as shown in Figure 3.2, is measured in hours, with 2022 having the highest average duration of disruptions on record. The average duration of BES disruptions for calendar year 2023 dropped significantly to 11 hours, but ticked upwards in 2024.

[26] Commission staff recorded 33 incidents in 2023 as compared to only 9 in 2022. The previous record year was 2019 with 17 incidents.

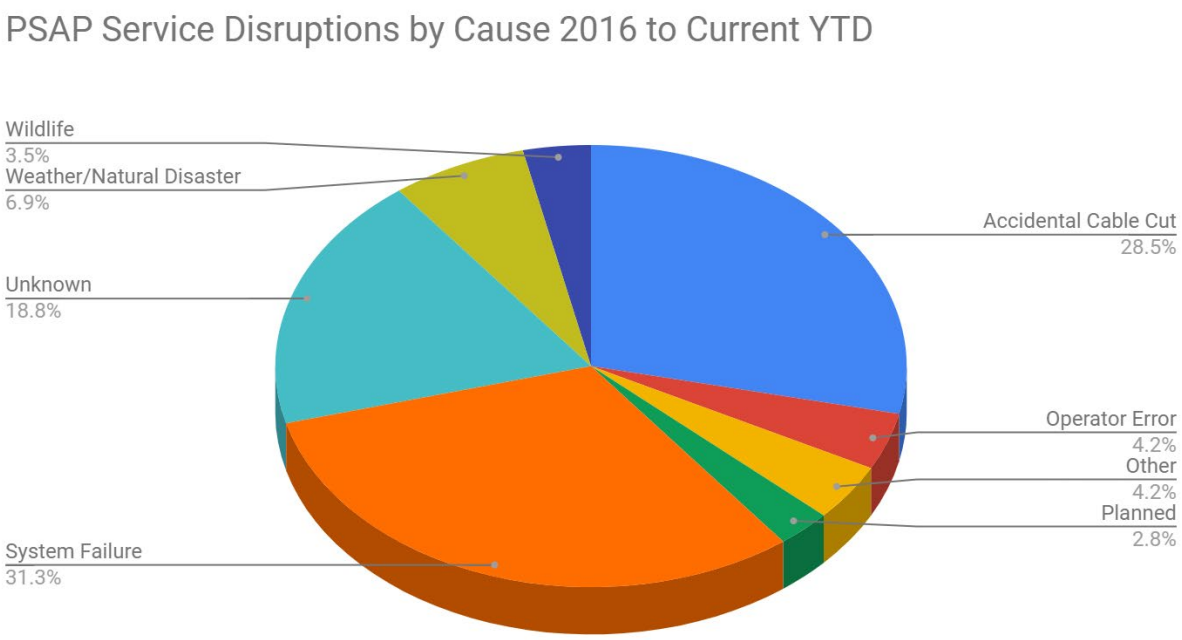

Figure 3.3: PSAP service disruptions by cause, historical overview.

Figure 3.3 shows the causes of PSAP service disruptions over time, with the largest portion being "system failure" and the second-largest being "accidental cable cut." Commission staff maintain a PSAP Service Disruption Dashboard that is available to the public.[27]

[27] 9-1-1 Advisory Task Force - Disruption Dashboard

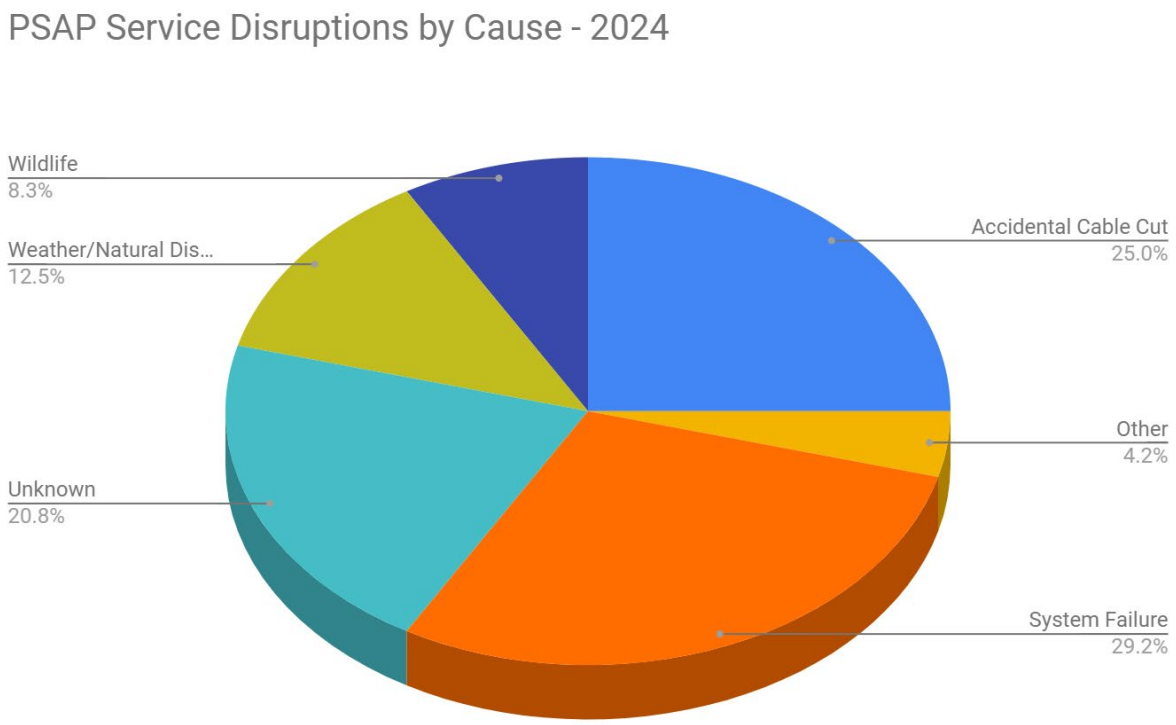

Figure 3.4: PSAP service disruptions by cause, 2024.

Figure 3.4 shows the causes of PSAP service disruptions in 2024, with the largest portion being "system failure" and the second-largest being "accidental cable cut."

- Commission staff highlights the sharp increase in disruptions due to "system failure." These disruptions are caused by card failures or other equipment problems within CenturyLink's network. Based on investigation findings, it is staff's belief that many of these disruptions could be prevented through the use of regular, proactive maintenance.
- Commission staff have serious concerns about the high number of disruptions where the cause could not be determined. Colorado's citizens rely on the CenturyLink BES network to get help in emergencies, and it is crucial that the cause of system failures are identified and rectified.
- Following the adoption of new Commission rules regarding disruptions, CenturyLink has begun applying billing credits when required, although the process is slow and, thus far, credits have not been provided to the impacted agency within the two billing credits required by Commission rules.[28] In recent discussions regarding this topic, CenturyLink has stated that it has made changes to its billing credit process.

[28] See Proceeding 23R-0577T

Commission Process for Improvement

Historical information on the Commission's Process for Improvement can be found in Colorado's 9-1-1 Service Environment.[29] Changes implemented since last year's reporting period are listed below:

- On April 24, 2023, CenturyLink filed its initial BES Improvement Plan Application.[30] The proposed improvement plan was dependent upon CenturyLink winning federal grant funding, which it did not. The process was held open, and on February 15, 2024, CenturyLink filed a new BES Improvement Plan Application, which resulted in an adjudicated proceeding. The Commission approved the five projects: 2 new fiber builds, 1 project strengthening middle mile diversity, the purchase of a portable generator and accompanying fuel trailer, and upgrading each PSAPs connectivity to Ethernet, which includes adding last-mile diversity. CenturyLink is in the process of implementing the improvement plan, starting with the last-mile diversity project and the Ethernet upgrades.

- Commission staff continue to monitor and investigate 9-1-1 service disruptions that meet the criteria set forth in 4 CCR 723-2-2143(k),[31] and has identified multiple areas of concern. These are enumerated in the document Outage Investigation Repeat Staff Findings and Global Recommendations[32], which was provided to the ESInet Users Group in August 2024 and recently updated.

- 26 PSAP Service Disruption Investigations were filed in 2024 and 2025 as of the writing of this report[33]. Of those:
    - 9 note that CenturyLink asked for extensions of time beyond 30 days in order to provide answers to questions posed by the Outage Committee
    - 11 note that CenturyLink's response to the incident was delayed, some by hours
    - 7 note that CenturyLink was unresponsive to questions, had to be asked multiple times to provide answers, or did not have proper personnel on noticed meetings in order to provide answers to Commission questions

- These findings raise concerns that CenturyLink is not treating 9-1-1 service disruptions, or the investigations thereof, with urgency. Staff has reminded CenturyLink of the

[29] See Appendix A

[30] See Proceeding 23A-0197T.

[31] Multiple PSAPs affected; details unclear; disruption longer than 4 hours; failure to notify PSAP as required, repeated service disruptions of similar nature; at the request of an affected PSAP or governing body; possible violation of Commission rule

[32] https://docs.google.com/document/d/1HSPUfa4QSt4OrtjUaI_u0TrPihPst-d_2g4D9xr1XSk/edit?tab=t.0

[33] See Proceeding 24M-0020T and 25M-0020T

requirements and the potential consequences of failure to meet them, including formal proceedings.

- As a certified BESP actively providing service, CenturyLink is required by Commission rule 2143(e) to annually file a contingency plan, with the most recent being filed April 30, 2025[34]. The purpose of this requirement is to ensure CenturyLink has on file a list of current contacts for all of the PSAPs as well as phone numbers for alternate routing of 9-1-1 calls when necessary. The BESP must also provide the results of its most recent 9-1-1 reliability filing with the FCC. Some aspects of this report, including the FCC filing, are typically filed confidentially due to the security-sensitive nature of the information.

4. Migration to Next Generation 9-1-1

What Is Next Generation 9-1-1?

Next Generation 9-1-1 (NG9-1-1) is a set of technologies and components that, when implemented, comprise a standards-based approach to Internet Protocol (IP)-based 9-1-1 call delivery that incorporates scalable flexibility, capacity, and security into the 9-1-1 system for the PSAPs of a state or region. The National 911 Program Office has produced a helpful primer video for introducing NG9-1-1 and explaining its benefits.[35] Additionally, Commission Staff produced a video explaining NG9-1-1 and Colorado's status in implementation.[36]

The implementation of NG9-1-1 is a transitional process. The FCC's Task Force on Optimal PSAP Architecture (TFOPA) developed an NG9-1-1 Maturity Model which helps illustrate the different areas of NG9-1-1 deployment, including legacy, foundational, transitional, intermediate, and end state for different aspects or "domains" of NG9-1-1 deployment, governance, and funding.[37] These can be reviewed in depth in Colorado's 9-1-1 Service Environment.[38]

The industry-recognized basis for NG9-1-1 protocols is the NENA i3 Standard, an ANSI-approved technical standard developed by a large array of stakeholders through the National Emergency Number Association.[39,40] APCO published their "Definitive Guide to Next Generation 9-1-1" in August 2022, which outlines additional considerations regarding implementation of NG9-1-1 and provides a draft scope of work if NG9-1-1 were to be purchased through a Request for Proposal process.[41] It should be noted that due to the purely local funding of 9-1-1 in Colorado,

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[34] See Proceeding 23M-0236T.

[35] https://www.911.gov/issues/ng911/video-benefits-of-next-generation-911/

[36] https://youtu.be/yYMkX5q1MKM?feature=shared

[37] https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_WG2_Supplemental_Report-120216.pdf

[38] See Appendix A

[39] https://www.nena.org/page/i3_Stage3

[40] Colorado 9-1-1 Advisory Task Force, "Recommended 9-1-1 Standards". Published May 11, 2022. https://docs.google.com/document/d/1z2U7ABOpiGocRN84kvhYkIWtZtxkW-qzF9k2y6Zm2N4

[41] https://www.apcointl.org/technology/next-generation-9-1-1/apcos-definitive-guide-to-next-

purchase of NG9-1-1 call delivery must currently be accomplished through a Commission-regulated tariff rather than a statewide RFP & contract.

Although there is a national standard for NG9-1-1, disagreement exists in the industry about what actually constitutes "full Next Generation 9-1-1," meaning that there may not be a specific point in time when we can specifically say "Today, we have implemented NG9-1-1." Treating NG9-1-1 as an evolutionary process applicable to the entire 9-1-1 call flow is a more helpful perspective.

Planning, Transition, and Implementation

- Colorado's current states on the TFOPA NG9-1-1 Maturity Model can be reviewed in Colorado's 9-1-1 Service Environment.[42] No technological forward progress has been made in this reporting period.

- The ESInet Users Group is in discussion with CenturyLink on terms and pricing for the delivery of text-to-9-1-1 calls via the ESInet, for the provision of Geographic Information System (GIS) data tools to 9-1-1 governing bodies to assist with preparing local GIS data for use in 9-1-1 call routing, and for geospatial routing of 9-1-1 calls within the ESInet. CenturyLink intends to file this tariff amendment in late 2025 after having filed, then withdrawn, this amendment in 2024.

- The National Association of State 9-1-1 Administrators (NASNA) recently published a national map depicting NG9-1-1 system deployment across the nation. This map is useful as a measure of comparison, indicating Colorado's progress compared to other states.[43]

generation-9-1-1/

[42] See Appendix A

[43] See https://www.nasna911.org/ng911-status for a full explanation of this map.

Figure 4.1: NG9-1-1 Deployment Status by State. Source: NASNA.

Projected Timeline for Full Implementation

The ESInet Users Group adopted its updated Strategic Plan in June 2025.[44] Chief among its priorities is GIS data development and standardization across the state, and continuing a phased approach to NG9-1-1 implementation, focusing on critical elements first, such as i3 core services. Some of the timing is dependent on CenturyLink and its subcontractors to implement the additional components, as well as the telecommunications service providers to implement their components, for attaining full NENA i3 NG9-1-1 status. Full implementation of NG9-1-1 is also dependent upon PSAPs having NG9-1-1-capable call-handling equipment. The ESInet Users Group may propose a timeline for further NG9-1-1 implementation steps, but only CenturyLink can file a tariff amendment to bring those to fruition.

In November 2024, the FCC adopted rules regarding NG9-1-1, which place one piece of NG9-1-1 implementation, the option to compel Originating Service Providers (OSP) to provide 9-1-1 calls in SIP format, in the hands of 9-1-1 Authorities[45]. The ESInet Users Group is working with CenturyLink and its subcontractor, Intrado, on required next steps before making this request to the OSPs.

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[44] See https://docs.google.com/document/d/1tIiET0JM2Qpc8V0G2pllh7VFZSEg6AirSoSQC006gBs/edit?tab=t.0#heading=h.gjdgxs

[45] See FCC 24-78

One significant factor negatively impacting the establishment of a timeline for full deployment is that Colorado's tariff-only model to 9-1-1 network procurement relies on the Basic Emergency Service Provider to update its tariff to add features and services to complete the transition to NG9-1-1. While Commission rules can force deadlines when necessary, such tariff filings are generally filed at a pace set by the provider itself. In Fall 2025, Commission staff intends to hold one or more workshops to discuss with local 9-1-1 stakeholders alternatives to the tariff model and seek input from the stakeholders regarding whether such alternatives should be explored.

5. Funding and Fiscal Outlook

Costs of Providing 9-1-1 Service

Key point: Based on partial responses to a data request sent to the 9-1-1 governing bodies, Commission staff estimated that at least $133 million was spent by all of the state's PSAPs combined, but this number underestimates the full cost of providing 9-1-1 service, for reasons discussed below.

The 9-1-1 funding structure in Colorado is fairly static, and is reviewed in Section 7 in Colorado's 9–1-1 Service Environment[46]. As a high-level overview:

- Local 9-1-1 governing bodies are authorized to impose a monthly Emergency Telephone Charge (ETC), which is assessed per phone line, and fees are remitted to governing bodies based on the phone's respective service or billing address.[47]
- The Commission annually sets an ETC threshold, and requires governing bodies to obtain approval through an application process before they establish an ETC higher than the threshold.[48]
- The Commission annually sets a statewide 9-1-1 Surcharge amount[49].
    - Beginning in 2026, the Statewide Surcharge amount will include an amount requested by the 9-1-1 Services Enterprise Board, created by SB24-139 and seated in 2025. The Enterprise will produce an annual budget to help pay for eligible needs not covered by tariffed services.
- Telecommunications service providers remit ETCs directly to the appropriate governing body and remit the statewide 9-1-1 Surcharges to the Commission.
- Retailers remit statewide point-of-sale Prepaid Wireless 9-1-1 Charges to the Department of Revenue[50].

[46] See Appendix A

[47] § 29-11-102(2)(a), C.R.S.

[48] § 29-11-102(2)(f), C.R.S.

[49] See § 29-11-102.3(1)(b), C.R.S.

[50] See rule re: Prepaid

- The State proportionately distributes the 9-1-1 Surcharge and the Prepaid Wireless 9-1-1 Charge to the 58 governing bodies after subtracting its administrative fees.[51]

Commission staff annually issue a data request for calculating the cost of local government 9-1-1 services, which include BES, Emergency Telephone Service, and Emergency Notification Service; and for the total revenues collected by 9-1-1 governing bodies. The data request does not capture the total unrealized costs associated with a PSAP delivering 9-1-1 services to their service area, including costs housed within municipal, county, or other local government entities, such as HR and IT services.

Notable changes occurring in the current reporting period are:

- The results of the data request for 2024 indicate the respondents' cost of providing local government 9-1-1 services was approximately $133,633,602. However, five governing bodies did not provide this information, so the cost is likely higher.[52] The Commission notes that this is an improvement from the 2023-2024 reporting period, resulting in a figure that is likely more accurate than in previous years.
- The $133,633,602 figure is an estimate; if a governing body did not report 2024's data, 2023's data (when available) was substituted. However, two of the non-reporting governing bodies also did not report 2023's data.[53]
- Note that § 29-11-102(4), C.R.S., requires governing bodies to respond to annual data requests provided by the Commission, but does not provide penalties for non-compliance. The Commission does not have auditing authority regarding 9-1-1 governing bodies.

Costs Per Capita

The total annual cost of providing 9-1-1 service, approximately $133 million as reported by the 9-1-1 governing bodies, divided by the state population[54], results in a per capita cost of about $22.43 per year for 9-1-1 service, sans the costs of the five 9-1-1 governing bodies which did not respond.[55] This includes all funding sources, not just local ETC, the state 9-1-1 Surcharge,

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[51] The Commission is permitted by statute to keep up to 4% of the revenue received from the 9-1-1 surcharge for actual expenses related to administering the surcharge. (See § 29-11-102.3(3)(c)(II), C.R.S.) Currently the Commission is retaining 2.0%. Similarly, the Department of Revenue is allowed to retain up to 3% of the revenue collected from the prepaid wireless charge. (See § 29-11-102.5(3)(e)(II), C.R.S.)

[52] Governing bodies that operate PSAPs but failed to provide cost data: Grand Junction Emergency Telephone Service Authority, Logan County E-911 Authority, Pitkin County Regional Emergency Telephone Service Authority, Routt County E911 Authority Board, Sedgwick County Emergency Telephone Service Authority.

[53] Grand Junction Emergency Telephone Service Authority, Pitkin County Regional Emergency Telephone Service Authority

[54] 5.957 million, according to Google, searched 7/30/25

[55] This cost reported by the governing bodies may not include all costs related to providing 9-1-1 service. For instance, if the maintenance of the facility that serves as the PSAP is provided by a county or municipal government at no cost to the governing body and not budgeted separately for the PSAP,

and the Prepaid Wireless 9-1-1 Charge; thereby also accounting for additional funds spent out of county, municipal, and special district budgets.

The amount service users actually pay varies by jurisdiction. As discussed above, local ETC range from 70¢[56] to $4.00[57]. Although the per capita cost is $22.43 per year based on estimated PSAP expenditures and includes funding sources other than 9-1-1 charges, the annual 9-1-1 charge total that service users pay ranges from $9.84 to $49.44 per line (local ETC plus state 9-1-1 Surcharge x 12 months). Prepaid wireless telephone service users pay a portion of 9-1-1 service costs via the point of sale Prepaid Wireless 9-1-1 Charge. With that charge being set at $2.09 for 2025, equivalent monthly purchases would result in an annual total of $25.08.

ETC Rates Across the State

The local ETC rate is set and calculated by a 9-1-1 governing body. Previous issues of this report have highlighted variations in Emergency Telephone Charge rates across the state, with some residents and businesses paying $4.00 per line per month, and others paying as little as $0.70 per line per month, for similar service, depending on where they live. The higher ETC rates tend to be found in the rural and mountainous regions of the state.

While this is still concerning to the Commission due to the potentially negative economic impact on rural areas with significantly higher rates, local agencies have maintained to Commission staff that the setting of ETC rates is a local decision based on funding needs and that residents and business owners have the opportunity to participate in the process through the local 9-1-1 governing body.

The Commission notes that while statute requires governing bodies to seek approval from the Commission prior to setting an ETC rate above the threshold set annually by the Commission, statute provides no guidance to the Commission regarding the criteria that should be used for determining whether an Emergency Telephone Charge Application should be granted. Traditionally, the Commission has used a four-prong test for review of such Applications:

1. Are all standard filing requirements met in the Application?
2. Are all of the proposed uses for the increased surcharge rate allowable under § 29-11-104, C.R.S.?
3. Do financial projections demonstrate that the proposed ETC rate is necessary to fund the proposed allowable expenses?
4. Is there sufficient documentation of the proposed expenses?

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that cost is likely not to be included in this total. Similarly, originating service providers incur costs for delivering 9-1-1 calls to the basic emergency service provider, and those costs are generally passed on to the customers and not captured in this figure.

[56] 9-1-1 governing bodies of Arapahoe County, Cheyenne County, Moffat County, and San Luis Valley 911.

[57] 9-1-1 governing bodies of Phillips County and Pitkin County; Washington-Yuma 9-1-1 is at $3.25, and those of Gilpin County, Gunnison-Hinsdale, Las Animas County, and Park County are $3.00.

If the answer to all four questions is "yes," then Commission staff generally recommends approval of the Emergency Telephone Charge Application, although the Commission has included additional requirements or limitations on such approvals when the Commissioners felt it was appropriate.

Note that there is no upper limit or cap on the rate of Emergency Telephone Charge that is submitted to the Commission for approval in an Application.

Funding Sources

Key points:

- *Approximately $116,336,826 in revenues were received in 2024 through local ETC, the Prepaid Wireless 9-1-1 Charge, and the state 9-1-1 Surcharge, based on data collected from the local 9-1-1 governing bodies, sans revenues of the five governing bodies which did not provide this requested data.*

- *The total reported local government cost of providing 9-1-1 services in 2024 was approximately $133.6 million.*

- *The reported 9-1-1 charge revenues from all sources ($116,336,826) did not meet the reported costs of providing local government 9-1-1 services ($133,633,602) in Colorado.*

- *The state 9-1-1 Surcharge rate set by the Commission for calendar year 2024 was $0.09 per line per month. Revenues from it were $7,391,431.65, of which $7,243,603.02 was distributed to the governing bodies. The difference between these two numbers is the amount retained by the Commission to cover actual expenses for administration of the surcharge. Statute allows up to 4% to be retained. The actual amount retained was roughly 1.99%.*[58]

- *In contrast, the total statewide costs for BES monthly recurring charges was approximately $6.6 million. Thus the Commission achieved its goal of reimbursing the governing bodies for their costs of 9-1-1 call delivery, with an additional ~$643,603 that the governing bodies could use for other expenses as allowed under § 29-11-104, C.R.S. This number is higher than usual because in its final Decision setting the Surcharge rates, the Commission took into consideration an amount for a BES improvement plan that was expected to begin assessment in 2024. This assessment in fact did not begin until March 2025.*[59]

- *According to data provided by the Colorado Department of Revenue, approximately $17.6 million in Prepaid Wireless 9-1-1 Charges were collected in 2024.*

[58] See § 29-11-102.3(3)(c)(II), C.R.S.

[59] See Proceeding 23A-0197T

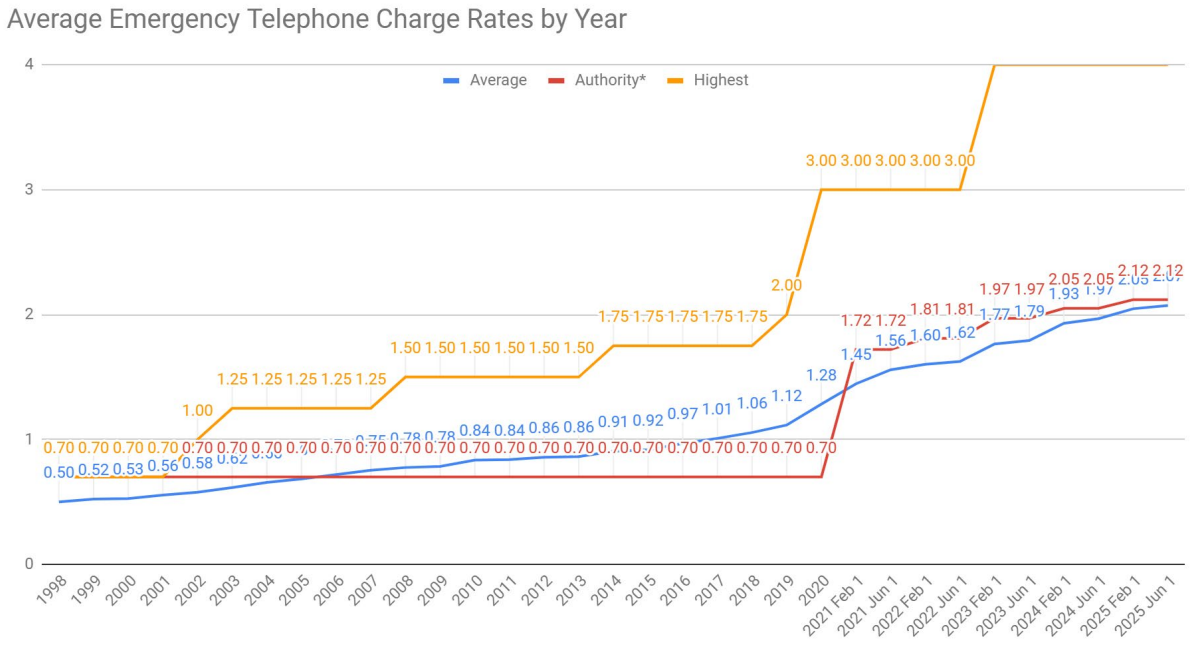

Figure 5.1: Emergency Telephone Charge rate averages in Colorado Since 1998 (blue) compared to the threshold above which governing bodies must apply for rate approval from the Commission (red). Prior to 2021, the threshold was set in statute at $0.70 per line per month.

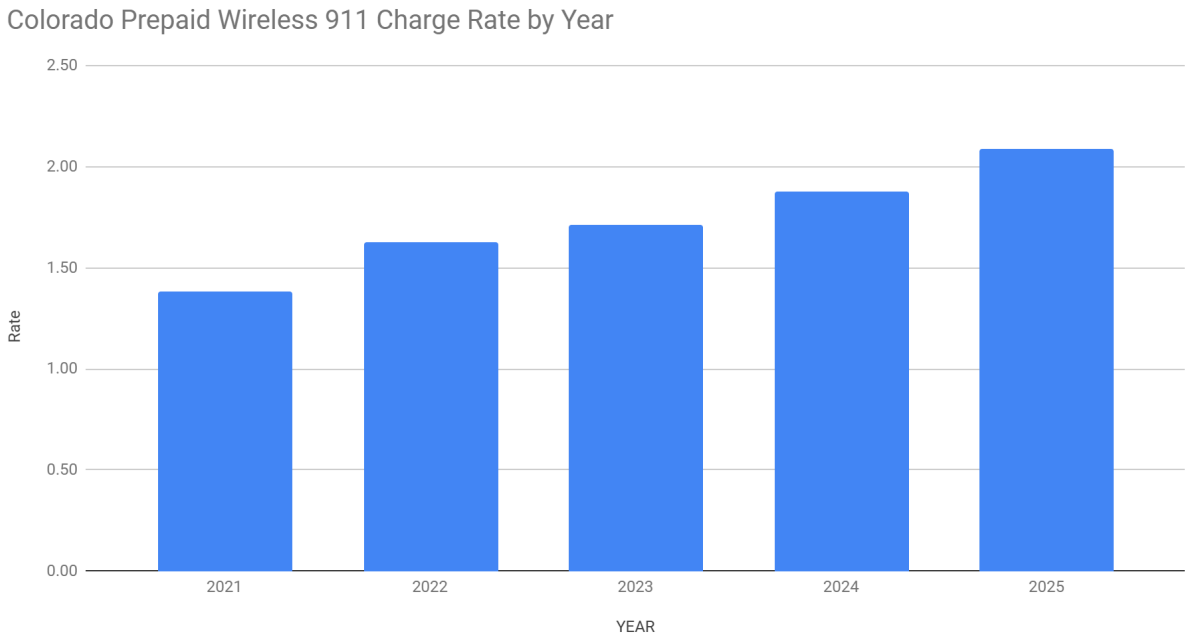

Figure 5.2: Prepaid Wireless 9-1-1 Charge revenues by year. Source of data: Colorado Department of Revenue.

Other Funding Sources

Some costs of providing local 9-1-1 services are difficult to categorize, since many are incorporated into county, municipal, special district, or agency budgets, such as personnel wages and benefits, and services for human resources, payroll, legal, facilities, IT, and other administrative needs. This makes it difficult to report the true total costs and expenditures associated with providing 9-1-1 service.

Funding Challenges

Per-line charges remain the primary method for funding local 9-1-1 services, not just in Colorado but nationally.[60] However, this method has challenges.

Threat to Prepaid Wireless Revenue

In June 2025, Colorado Department of Revenue issued a Private Letter Ruling in response to an inquiry by an undisclosed telecommunications provider or retailer of prepaid wireless telecommunications services.[61] This letter stated that companies that sell prepaid wireless telecommunications services on an unlimited basis by the month, rather than by the minute, are exempt from collecting and remitting prepaid wireless surcharges. This is potentially very detrimental to the 9-1-1 governing bodies that fund Colorado's Public Safety Answering Points, as this revenue source generated roughly $17.5 million in 2024. The Legislative Committee of the 9-1-1 Advisory Task Force Legislative is currently considering draft legislation to update the definition of prepaid wireless telecommunications services to rectify this apparent loophole.

Potential Line Count Fluctuations Throughout the State

The number of telecom access lines in the state has been increasing. 2020 phone line counts reported to the Commission by the telecommunications service providers numbered at an estimated 5.9 million. For the period of June 2021 through May of 2022 the estimated number of lines reported was 6.3 million, an increase of 5.2% in one year. For the same period from 2022 to 2023 the number of lines reported was 6.6 million, an increase of 4.8%. From 2023 to 2024 the average number of lines reported was 6.7 million, an increase of 1% over the previous year. From 2024-2025 the average number of lines reported was 6.8 million, an increase of 1% over the previous year. The total trend over the past four years shows a 12% increase over the time period.

This trend could be reversed in the future, and the Commission does not have data to determine whether line counts are increasing uniformly across the state. Local ETC rates

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[60] See https://cdn.ymaws.com/www.nena.org/resource/resmgr/docs/State_911_Fees_Updated_7-29-.pdf
for a list of 9-1-1 fees in other states.

[61] https://tax.colorado.gov/sites/tax/files/documents/PLR-25-003.pdf

depend on local line counts, and a sharp decrease could be highly detrimental to local 9-1-1 governing bodies which depend on this as their main revenue source. Further, total line counts in the State should not be relied on alone because they mask underlying factors, such as communities with high levels of out-of-state tourism, out-of-state student populations, and second-homes, and therefore high 9-1-1 costs without ETC funding support from those service users. This is exacerbated in small communities with low numbers of ETC rate payers.

Non-Traditional Sources of 9-1-1 Calls

A potential challenge for the per-line charge approach is that in the future a significant number of calls may originate from telecommunications services which do not have monthly billing. As an example, prepaid wireless telecommunications services have already proven a challenge to the traditional monthly charge model, requiring a separate charge applied only to them.

The proliferation of Internet-based sensors and other connected devices may increasingly become a source of 9-1-1 calls in the future, and could eventually represent a sizable portion of all calls. Examples of these include automated alarm systems, home-based Internet-of-Things (IoT) alarm systems, personal medical monitoring devices (including smartwatches that can monitor irregular heart rhythms and more), automatic crash notification systems installed in vehicles, smart cameras that can detect potential crimes in progress, and AI-driven smart speakers.

To date, many of these already access 9-1-1 but do so using an existing smart phone connection for which charge revenue is already being captured. In the future there may be a greater desire by the public for these devices to make requests for assistance directly to the ESInet through an Internet service instead of phone service. If that were to happen the resulting revenue shortfalls would have to be offset by either raising rates on the service users that pay monthly 9-1-1 charges, by shifting more of the costs to local governments, or by adding an equitable 9-1-1 funding mechanism for new types of 9-1-1 access connections.

The Commission does not currently have recommendations about this issue for the legislature, but makes note of it for awareness. The potential for a future mismatch between usage and funding sources for 9-1-1 service is not limited to Colorado, and will likely be a growing topic of discussion nationally over the coming decade.

Potential Funding Mechanisms for Transition to and Implementation of NG9-1-1

Currently all costs for NG9-1-1 deployment are expended through the payments by local 9-1-1 governing bodies: BES tariff non-recurring implementation charges, monthly recurring service charges, and local NG9-1-1-ready equipment and services. Creation of the 9-1-1 Services Enterprise could potentially alleviate some of the challenges of not having a state-level fund for

certain statewide 9-1-1 needs. Some required components of NG9-1-1 service, such as GIS data maintained for the purpose, must be implemented on a statewide level. The Commission will need to continue to work with the 9-1-1 community to determine the best way to fund them. The legislature can provide assistance by protecting 9-1-1 Services Enterprise revenue from attempts to use it for non-9-1-1-related expenses.

6. Federal Activities and National Trends

National 911 Program

The National 911 Program is housed within the National Highway Traffic Safety Administration's (NHTSA) Office of Emergency Medical Services, and is currently undertaking several activities which can be found at www.911.gov/projects.

- The National 911 Program was created with a 10-year authorization by The Middle Class Tax Relief and Jobs Creation Act of 2012. With the expiration of that authorization, it is unclear if the program will continue to be housed and funded through NHTSA.
- National 9-1-1 organizations such as the National Emergency Number Association (NENA) and the National Association of State 9-1-1 Administrators (NASNA) have called for the program to be re-authorized and fully funded.

The FCC

There are several FCC actions and proceedings of relevance to this report.

- In January 2024, the FCC adopted a Report and Order requiring all wireless carriers to implement location-based routing nationwide for wireless 9-1-1 calls and real-time text (RTT) communications to PSAPs. With this approach, 9-1-1 voice calls and RTT messages will be routed based on the location of the caller instead of the cell tower antenna used for the call. Location-based routing will result in most wireless 9-1-1 calls reaching the correct PSAP for their location without first having to be transferred from another PSAP, thereby reducing delays in emergency responses. The Report and Order provides nationwide mobile service providers six months and non-nationwide providers 24 months to implement location-based routing upon request by a PSAP or governing body. For RTT communications to 911, the Report and Order requires all mobile service providers to implement location-based routing within 24 months upon request by a PSAP or governing body.[62] It's important to note that this order affects 9-1-1 call delivery TO the ESInet, not within it.

- On July 18th, 2024, the FCC issued a Report and Order for facilitating implementation of Next Generation 9-1-1 (NG9-1-1). The Order requires OSPs (in two implementation

[62] https://www.fcc.gov/document/fcc-adopts-rules-improve-wireless-911-call-routing-0

phases) to deliver 9-1-1 traffic in IP-based SIP format upon request by 9-1-1 authorities, and later to deliver 9-1-1 traffic that supports routing, caller location, and transmission of emergency information in accordance with NG9-1-1 commonly accepted standards.[63] Colorado's ESInet Users Group is working with CenturyLink to facilitate implementation of this Report and Order.

- On October 17th, 2024, the FCC unanimously adopted a mandate for all wireless carriers to use georouting to deliver 9-8-8 Suicide and Crisis Lifeline voice calls, and proposed a similar georouting mandate for text messages. While not directly related to 9-1-1, it is important because it increases the speed at which responders can access those in crisis if they end up being transferred to 9-1-1 from the 9-8-8 crisis line.[64]

Federal Legislation

Federal legislation related to 9-1-1 service currently under consideration include:

- H.R. 637 - The 911 SAVES Act. This bill, reintroduced in the 116th Congress after several prior attempts, would direct the Office of Management and Budget to reclassify public safety telecommunicators as first responders rather than clerical workers. Many states, including Colorado, have recognized 9-1-1 call takers and dispatchers as first responders, but the federal occupational classifications still fail to recognize this. There has been no movement on this bill since it was introduced in January 2025.

- H.R. 540 - The 911 SAVES Act of 2025. This similarly-named bill would direct the Office of Management and Budget to consider reclassifying public safety telecommunicators as first responders, not going as far as H.R. 637. This bill has also had no activity since it was introduced in January 2025.

- H.R. 3658 - 911 Community Crisis Responders Act of 2025. This bill, among other things, would provide funding to 9-1-1 systems or centers to facilitate the integration of unarmed crisis response teams for non-violent mental health related calls into the spectrum of response for 9-1-1 calls.

- H.R. 2937 - The PROTECT 911 Act. This bill would direct the Secretary of Health and Human Services to develop resources and services to improve the detection, prevention, and treatment of mental health issues among public safety telecommunicators. There has been no movement on this bill since it was introduced in April 2025.

- There was a concerted effort of the national 9–1-1 organizations to include in H.R. 1 a reauthorization of the Federal Communications Commission's previously held authority

[63] https://docs.fcc.gov/public/attachments/DOC-403543A1.pdf

[64] https://drive.google.com/file/d/14FzTmoIY7F6cc2BMgz-bo-oqHZacUnRG/view

to auction off unused radio spectrum and to use the revenue from the sale of that spectrum to fund a federal grant program to assist states with further implementation of Next Generation 9-1-1, up to $15 billion. These efforts failed to make it into the bill.

National Trends

National Next Generation 9-1-1 Status

In past years, a good source for the status of NG9-1-1 deployment nationwide was the "National 911 Annual Report," previously titled the "National 9-1-1 Progress Report," published annually by the National 911 Program.[65] It used data collected from the states and territories, and notably, other metrics such as the implementation of training standards and EMD protocols. With the lapse of the 911 Office's congressional authority, these progress reports have ceased, with the most recent one highlighting data collected in 2021.

Recently, the National Association of State 9-1-1 Administrators (NASNA) published an online map depicting NG9-1-1 system deployment progress based on survey data from its members. With the loss of the National 911 Annual Report, this may be the best source of national progress data available.[66]

Other Technological Trends

A technological trend that may have a significant impact on 9-1-1 services is the hybrid use of wireless and satellite services for delivery of text-to-9-1-1. Apple announced that beginning with the iPhone 14 users may text to 9-1-1 in areas without wireless service.[67] In such instances the phone uses satellite connectivity to deliver the text message. This is of particular interest in Colorado where significant areas without wireless coverage still exist. Similarly, T-Mobile announced in August of 2022 that it was entering into a partnership with Starlink to provide texting service without a wireless tower signal.[68] In December 2022, AT&T Mobility announced a partnership with AST SpaceMobile for cellular-to-satellite communications.[69] In May 2024, Verizon Wireless also announced a partnership with AST SpaceMobile, after having previously explored working with Amazon's Project Kuiper for satellite connectivity.[70] If cellular-to-satellite service becomes standard, it is possible that in the future people will be able to request

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[65] National 911 Program. National 911 Annual Report: 2021 Data. No publication date. Retrieved July 19, 2023. https://www.911.gov/assets/2021-911-Profile-Database-Report_FINAL.pdf.

[66] https://www.nasna911.org/ng911-status

[67] https://support.apple.com/en-us/HT213426

[68] https://www.t-mobile.com/news/un-carrier/t-mobile-takes-coverage-above-and-beyond-with-spacex

[69] https://about.att.com/story/2024/ast-spacemobile-commercial-agreement.html

[70] https://www.cnet.com/tech/mobile/verizon-partners-with-ast-spacemobile-to-use-satellites-to-boost-coverage-and-fix-dead-zones/

help via 9-1-1 no matter their location, presuming that the satellite coverage is complete and the local PSAP is able to receive the text message.

As mentioned earlier in the report specific to Colorado, many PSAPs nationally are adopting technology which allows them to receive pictures and/or video from callers. These are third-party services which operate outside of the BES network and therefore are unregulated by the Commission. However, they may help bridge the gap between legacy E9-1-1 and NG9-1-1. RapidSOS is a widely-used application for this and a majority of Colorado PSAPs use RapidSOS, though it is unknown which PSAPs have specifically incorporated pictures and video into their call handling. Some Colorado PSAPs are early adopters of new technologies, and several have incorporated the receipt of pictures and video into their call-handling processes.

Advanced Automatic Collision Notification

Currently, NHTSA is coordinating efforts to improve the delivery of Advanced Automatic Collision Notification (AACN) data by Public Safety Answering Points. Traditionally, AACN data from services such as Onstar have been handled by routing emergency calls to a private call center prior to the call being relayed to an appropriate 9-1-1 center so that the private call center can provide any pertinent information from the vehicle sensors that might indicate the nature and severity of an automobile crash. This means that sensor data from a vehicle crash that might indicate the severity of the crash, indicated by the speed of the vehicle when the crash occurred and whether it rolled over as a result, whether airbags deployed, and more, is not being delivered to the 9-1-1 center directly. Other data, such as how many passengers were in the vehicle, the weight of the passengers (which might indicate whether a child was present), and other data is also seen as potentially useful to the PSAP or the Emergency Medical Services responders to help them improve their response to the incident.

NHTSA's efforts are bringing together vehicle manufacturers, medical professionals, and 9-1-1 experts to better integrate this data into the 9-1-1 call flow in the future with the use of Next Generation 9-1-1 data handling capabilities. To initiate this effort, NHTSA held a symposium of these three groups in late 2024 with a promise for additional future symposiums to explore solutions to this issue.

9-1-1 and Behavioral Health Response

There is ongoing discussion about how 9-1-1 service can be improved, particularly for people with behavioral health emergencies. Implementation of 9-8-8 as the national suicide crisis prevention hotline number helped invigorate these efforts, and a number of PSAPs and law enforcement agencies in Colorado now include mobile crisis response and co-responder programs as part of their services.

Commission staff and local 9-1-1 agency representatives continue working with the Colorado Behavioral Health Administration's 9-8-8 Program Office and a working group of the Colorado Department of Public Safety, to help inform the discussions from the perspective of the PSAP.

Telecommunicator Training

Telecommunicator training is also a topic at the national level. The National 9-1-1 Program is facilitating a group of interested entities, including NENA, APCO, NASNA, IAED, the Denise Amber Lee Foundation, and NFPA, for updating the National Minimum Recommended Training Guidelines for Telecommunicators. A member of Commission Staff is participating in this group's important work which informs the voluntary national standard, and could contribute to the eventual creation of adopted mandatory standards. Due to the pause in federal funding for the National 9-1-1 Program, this standard has not yet been published, but it is complete.

Additionally, Colorado has made strides in creating a statewide voluntary minimum training standard. The Colorado Training Standards Institute (CTSI) created a Colorado-specific training standard, which was approved by those in attendance at the Managers/Directors Forum at the CO NENA/APCO Conference. The CTSI is now socializing this voluntary standard to the rest of the 9-1-1 leadership throughout Colorado, and plans to take further steps to gain adoption from a variety of Colorado 9-1-1 entities.

Funding

Nationally, states have a mix of locally imposed 9-1-1 charges, a single statewide 9-1-1 surcharge, or a hybrid of both. Colorado's local ETC rates are neither the lowest nor the highest in comparison to those in other states. The highest charges include $6.00 in parts of Louisiana and $6.40 in parts of West Virginia.[71]

The Colorado state 9-1-1 Surcharge is currently $0.12, which continues to be the lowest in the nation.

For more information about 9-1-1 charges please see Section 5.

Commission and Colorado Involvement in National Venues

The Commission has been involved in national 9-1-1 venues in the following ways over the past year:

[71] https://cdn.ymaws.com/www.nena.org/resource/resmgr/docs/State_911_Fees_Updated_7-29-.pdf

- Commission staff is currently serving as Immediate Past President of the National Association of State 911 Administrators (NASNA).[72] This position was a three-year commitment, beginning with service as Vice-President in the prior year, followed by transition into the position of "immediate past president" in June of 2025.
- Staff moderated a session on Traffic Incident Management and Post-Crash Care at the 2025 Lifesavers Conference, in conjunction with federal partners at NHTSA and the National EMS Council.
- Staff is representing NASNA in the national working group convened to update the National Minimum Recommended Training Guidelines.
- Staff serves as co-Chair of NENA's Education Advisory Board (EAB).
- Staff is currently serving as the President of the CO NENA/APCO Chapter.

7. Gaps, Vulnerabilities, and Needs

What follows is a list of gaps, vulnerabilities, and needs regarding the provision of 9-1-1 service in Colorado. Potential solutions are also presented with some discussion. Although this document was circulated in draft form and input received and incorporated as appropriate from Colorado's 9-1-1 stakeholders, the entire 9-1-1 community may not be in agreement on the challenges or solutions presented here.

Most of the matters identified below could benefit from the existence of a state-level funding source for certain 9-1-1 related expenses on a statewide basis. A potential mechanism to fund such costs was created by legislation passed in 2024, and is discussed in this section.

Challenges to Be Addressed

Challenges with CenturyLink Customer Service

The Challenge: Based on complaints from local agencies, CenturyLink is struggling to provide adequate customer service to PSAPs in the unregulated capacities of its business, complicating agencies' efforts to maintain operational continuity.

The Details: CenturyLink functions in three roles in Colorado:
- As an open-market competitive vendor for PSAP 9-1-1 call-handling equipment;
- As an open-market, competitive, non-regulated provider of services such as administrative phone lines and certain IP-network connections;
- As the Basic Emergency Service Provider, responsible for aggregation, routing, and transport of 9-1-1 calls and related information for 9-1-1 service

[72] https://www.nasna911.org/

The first two roles are unregulated by the Commission, and therefore not subject to Commission oversight. Although these products and services are essential, their matters are solely between CenturyLink and the PSAPs or governing bodies.

In its regulated activities, CenturyLink is showing signs of improvement since Commission rules were strengthened regarding PSAP service disruptions (although required billing credits continue to be slow). However, in recent disruption investigations CenturyLink has been unprepared to answer questions or provide complete answers, hampering the Commission's attempts to determine causes for disruptions and possible solutions to prevent further disruptions. See the items discussed in Section 3. Commission staff have reminded CenturyLink of possible consequences of these actions.

In its unregulated activities, PSAPs and governing bodies have reported that CenturyLink has been unresponsive or slow to respond. Regarding CenturyLink's role as a vendor for call-handling equipment, PSAPs indicated waiting several months for quotes and scheduling of replacement equipment, or for servicing existing equipment. The ESInet Users Group, at the time of this report, is tracking five issues that, while unrelated to BES specifically, nevertheless negatively impact PSAPs' daily operations. All five issues have been unresolved for several months.

Commission Staff met with CenturyLink representatives in August 2024 to discuss these issues, at which time CenturyLink made promises to improve their customer service. A similar meeting was held in June 2025, with no improvement noted in the intervening time, based on reports from local agencies.

The Solution: The ESInet Users Group drafted and approved an updated Strategic Plan June 2025, and one of its primary goals is to hold CenturyLink accountable to customer service standards. Another primary goal is to explore options to invite other qualified companies to explore providing BES in Colorado.

Commission staff plan to hold a series of workshops beginning Fall 2025 to discuss possible options to increase competition for BES services, with the goal of improving the service provided to PSAPs, and therefore Colorado citizens, in this most crucial of networks.

Beginning with the Commission's annual 9-1-1 data collection efforts in 2026, Commission staff will survey local agencies regarding their satisfaction with CenturyLink as the state's only Basic Emergency Service Provider.

Recommendation: Currently, the Commission has no recommendations for the legislature regarding this issue, particularly since the difficulty outlined here primarily involves services that are not regulated by the Commission. Commission staff will continue to monitor the concerns regarding regulated and unregulated services to the extent that such service concerns impact the ability of the governing bodies and PSAPs to effectively provide emergency

telephone service to their citizens, and provide assistance when appropriate. Commission staff will update the legislature in future editions of this report.

No Public Safety Answering Point Minimum Training Standards

The Challenge: As of 2023,[73] Colorado is one of ten states with no minimum training standards for emergency communications specialists.[74] There is also no statewide standard for operations and performance by Colorado's PSAPs. This potentially results in disparate levels of care for 9-1-1 callers in various jurisdictions.

The Details: As a result of outreach efforts in 2025, as well as interactions with PSAP leaders throughout the past several years, Commission staff is aware that the work being done by Colorado's 9-1-1 professionals is amazing. Every day, emergency communications specialists save lives, deliver babies, assist those needing emergency law enforcement intervention, help crime victims and people affected by natural disasters, and those suffering medical emergencies. However, because Colorado has no statewide training standard, the level of service varies across the state. A person traveling through Colorado could experience different levels of assistance depending on where they place a 9-1-1 call. For example, some, but not all, PSAPs provide or require:

- Pre-arrival instructions for medical calls, such as CPR
- Quality assurance on random samples of their calls
- Language interpreter services for non-English speakers
- Text-to-9-1-1 capability
- Minimum training standards for public safety telecommunicators

[73] Unfortunately, due to federal funding issues, no recent data is available.

[74] https://www.911.gov/issues/911-stats-and-data/

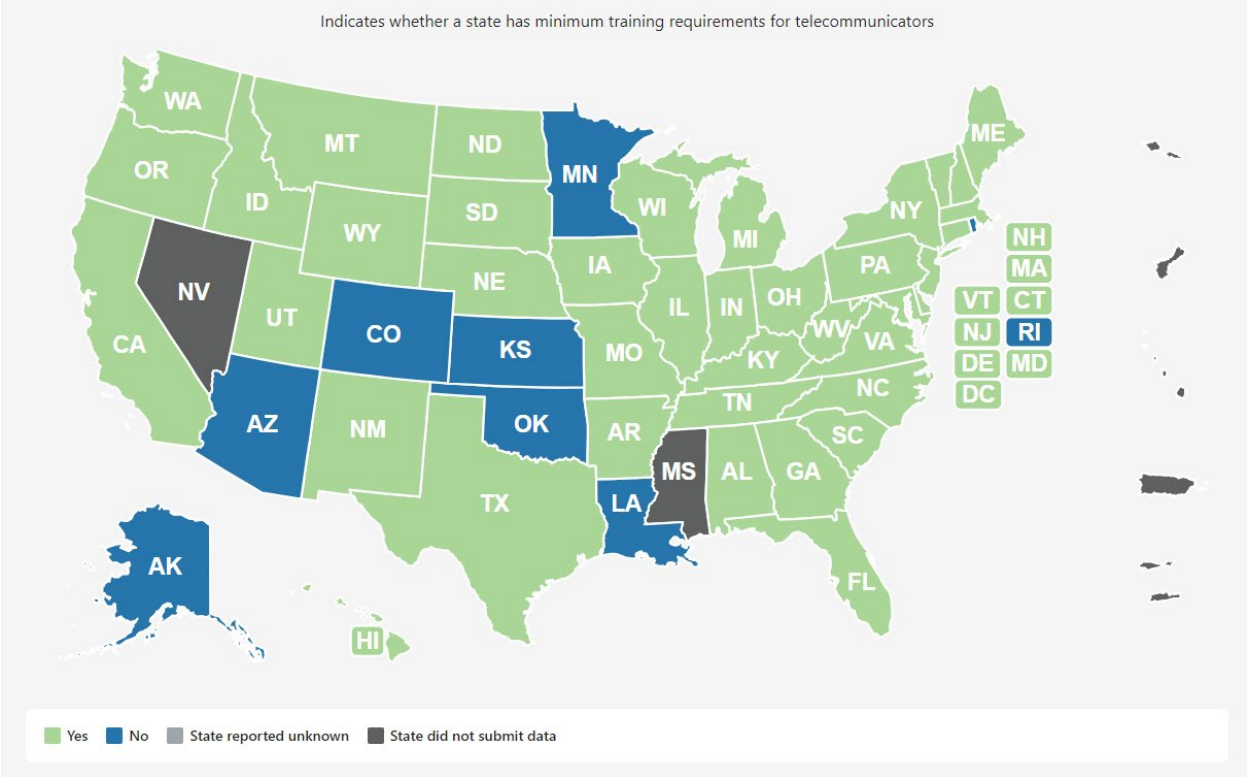

Figure 7.1: States with no minimum training requirements for telecommunicators shown in blue (2022). Source: 911.gov.[75]

The Solution: Emergency communications specialists are recognized by Colorado law as first responders. Law enforcement, firefighters, and emergency medical personnel are all required to meet a statewide minimum training standard in order to serve. The only solution to a lack of standards is to implement standards. Voluntary standards exist through national organizations such as NENA and APCO. Implementation of those standards is not consistent.

It is imperative that as Colorado moves forward with technological implementation of NG9-1-1, it must also ensure those operating the technology have a standardized minimum training level, to maintain a minimum quality of service across the state.

Adoption of minimum training standards would not be an unfunded mandate. All of the service disparity examples above can be funded with local ETC,[76] and 9-1-1 governing bodies may increase their Charges up to a threshold annually set by the Commission.[77] Governing bodies which determine that a Charge greater than the threshold is necessary may file an application for Commission approval to exceed the threshold.[78] Therefore, a funding mechanism for implementation of minimum PSAP training standards is already in place. Additionally, the creation of the new 9-1-1 Services Enterprise presents an opportunity to help fund this important and necessary need.

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[75] https://www.911.gov/issues/911-stats-and-data/

[76] See the full list of allowable uses of 9-1-1 funds enumerated in § 29-11-104, C.R.S.

[77] See § 29-11-102(2)(a), C.R.S.

[78] See § 29-11-102(2)(c), C.R.S.

The Commission believes citizens and visitors expect and deserve a foundational level of service when they call 9-1-1, and that the best way to achieve this statewide is with the implementation of minimum training standards for PSAPs. The Commission also believes that the State has an obligation to ensure every 9-1-1 caller receives a minimum level of service.

- During ongoing discussions at the Commission's 9-1-1 Advisory Task Force meetings and the CO NENA/APCO Managers/Directors Roundtable, it became apparent that support for standards, at least at the voluntary level, is strong. It is also clear that the 9-1-1 community recognizes the need for such standards, and that existing disagreements are about whether the standards should be voluntary or mandatory and which entity should be the curator of such standards.
- The Colorado Training Standards Institute (CTSI), a body which created and delivers a 40-hour basic telecommunicator course that meets the national minimum voluntary standards, was tasked with developing a statewide minimum voluntary standard. This was done, and the voluntary standard (which also meets the national voluntary standard) was circulated statewide for PSAP leadership approval.[79] Note that two methods for meeting the standard come at no outside cost to the PSAP.[80]
- CTSI in 2018 and 2019 delivered three sessions of the 40-hour basic telecommunicator course, and plans to begin offering more sessions starting in 2026, at no cost to PSAPs.
- CTSI next plans to request ratification and adoption by the Colorado NENA/APCO Chapter, the PUC 9-1-1 Advisory Task Force, and other groups to solidify acceptance statewide and to increase PSAP adoption.

Recommendation: The legislature should monitor CTSI's efforts to operationalize the voluntary standard throughout the state's PSAPs, and to provide training that meets the standard at no cost to PSAPs.

No Clear Path Toward Consistent Statewide Cybersecurity Defense at PSAPs

The Challenge: Cybersecurity of PSAPs is largely left to local IT resources, which vary in their ability to ensure it with respect to systems, equipment, and personnel.

The Details: CenturyLink is responsible for cybersecurity on the ESInet up to the network demarcation point with each PSAP or local 9-1-1 governing body. PSAPs and governing bodies

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79 https://docs.google.com/document/d/1644LL1m0P4VCUIRE7tVE1s5_7qBkCjjrk8es2gUuyUw/edit?usp=sharing

80 Completion of an agency-based training program that meets the elements outlined in Annex A, as attested to by the training coordinator or manager/director of the agency; certification in CTSI's training program

are responsible for all cybersecurity on their side of the demarcation point with the ESInet, from their systems and networks to operations and personnel. Although implementation of the ESInet provides a great number of benefits, it introduces potential vulnerabilities to every PSAP if one PSAP does not operate with sufficient precautions.

The Solution: The Commission does not have sufficient cybersecurity expertise to fill the gap for PSAPs which may need such assistance. Resources should be directed to this issue. The 9-1-1 Services Enterprise created by SB24-139 may serve as a funding source to assist PSAPs with an initial security assessment or plan, but it is unlikely to have the resources to fully address the issue.

Recommendation: Support for local cybersecurity may be a topic taken up by governing bodies and the 9-1-1 Services Enterprise. The legislature should monitor the activity of PSAPs, governing bodies, and the 9-1-1 Services Enterprise regarding cybersecurity to ensure that sufficient resources are made available in this area.

Conclusion

This report is intended to meet the requirements of § 40-2-131, C.R.S., providing "overall understanding of the state of 9-1-1 service in Colorado" by addressing the listed topics. The goal is to help the reader understand the entire 9-1-1 call flow from service user to the PSAP,[81] as well as the components and actors that make it work, not just the portion that is regulated by the Commission.

Colorado's 9-1-1 community is, for the most part, highly engaged with each other and actively working to find solutions to the challenges outlined in this report. Through participation in the PUC 9-1-1 Advisory Task Force, its committees, the ESInet Users Group, and other 9-1-1-related organizations, representatives of PSAPs and 9-1-1 governing bodies from around the state frequently and regularly gather to discuss, debate, and decide on solutions that fit their needs and those of their communities, and which preserve the ability to make those decisions at the local level. The frontline telecommunicators, who were rightfully recognized as first responders in 2024, are 9-1-1 professionals who dedicate themselves to answering the calls of those in need and keeping Colorado's emergency field responders safe. PSAP leaders in Colorado work to staff, fund, and provide services to the best of their abilities with the resources they have.

[81] For additional information, see Appendix A

Colorado continues to navigate the transition to NG9-1-1, collaborating with the BESP and each other to find solutions that work for PSAPs and governing bodies.

In the meantime, Colorado's 9-1-1 stakeholders must continue to work toward meeting citizen expectations. This includes promoting local implementation of text-to-9-1-1 service, providing emergency medical dispatch instructions, adopting language translation tools, improving adoption of voluntary minimum training standards for public safety telecommunicators, and improving the reliability and resiliency of the 9-1-1 network. Although the Commission has authority and is taking action on certain issues, such as reliability and resiliency of the BES call delivery network, it does not have authority to require PSAP adoption of text-to-9-1-1 service or minimum standards for operations and training. Fortunately, progress has been made on adoption of each of these issues.

An examination of the challenges discussed in Section 7 of this report reveals a common theme: some are difficult to address without a state-level fund to coordinate and pay for statewide solutions. Progress has been made in this area with the creation of the 9-1-1 Services Enterprise, which is required to prepare an annual financial report. Additionally, it is critical for the legislature to protect the 9-1-1 Services Enterprise funds from attempts to use them for expenses not related to 9-1-1 call-taking. Such uses are against federal statutes and regulations, and would make Colorado ineligible for future federal NG9-1-1 grant funding.

The Commission is committed to continuing to work with Colorado's 9-1-1 stakeholders and the legislature to ensure that the 9-1-1 system is reliable, resilient, and meets the needs of residents and visitors. Our partners include the counties, municipalities, certain special districts, 9-1-1 governing bodies, PSAPs, the BESP, and the citizens and visitors who rely on 9-1-1 service. Together, we will continue to develop solutions and strategies to ensure access to high quality ever-improving 9-1-1 service that they expect and deserve.

Appendices

Appendix A: Colorado's 9-1-1 Service Environment

Colorado's 9-1-1 Service Environment

This document provides supporting information for the Colorado Annual State of 9-1-1 Report. It follows the same organization structure as the Report.

1. Commission Activity Regarding 9-1-1 Service

This information is found in the current State of 9-1-1 Report.

2. The Current 9-1-1 Service Environment

Structure

9-1-1 service in Colorado exists in three domains, represented in *Figure 2.1* below.

1. **The Originating Service Network Domain**: When a service user dials 9-1-1 the call is initially handled by the caller's telephone service provider (Originating Service Provider [OSP]), which delivers the call to the Basic Emergency Service Provider (BESP). The call may pass through one or more intermediary aggregation service providers before reaching the BESP. As a result of telecom deregulation by the State of Colorado in 2014, this portion of 9-1-1 call flow is only regulated by the Federal Communications Commission (FCC).

2. **The Basic Emergency Service Domain:** The BESP aggregates 9-1-1 calls from all of the Originating Service Providers (OSPs) and their intermediates and routes them to a demarcation point for the appropriate Public Safety Answering Point (PSAP). This is the PUC-regulated portion of 9-1-1 call flow, also described in the Commission's definition of Basic Emergency Service (BES).

3. **The Local Domain:** 9-1-1 calls received from the BESP at the local demarcation point are the responsibility of the local agencies, including the PSAPs and/or 9-1-1 governing bodies. This portion of 9-1-1 call flow is not regulated.

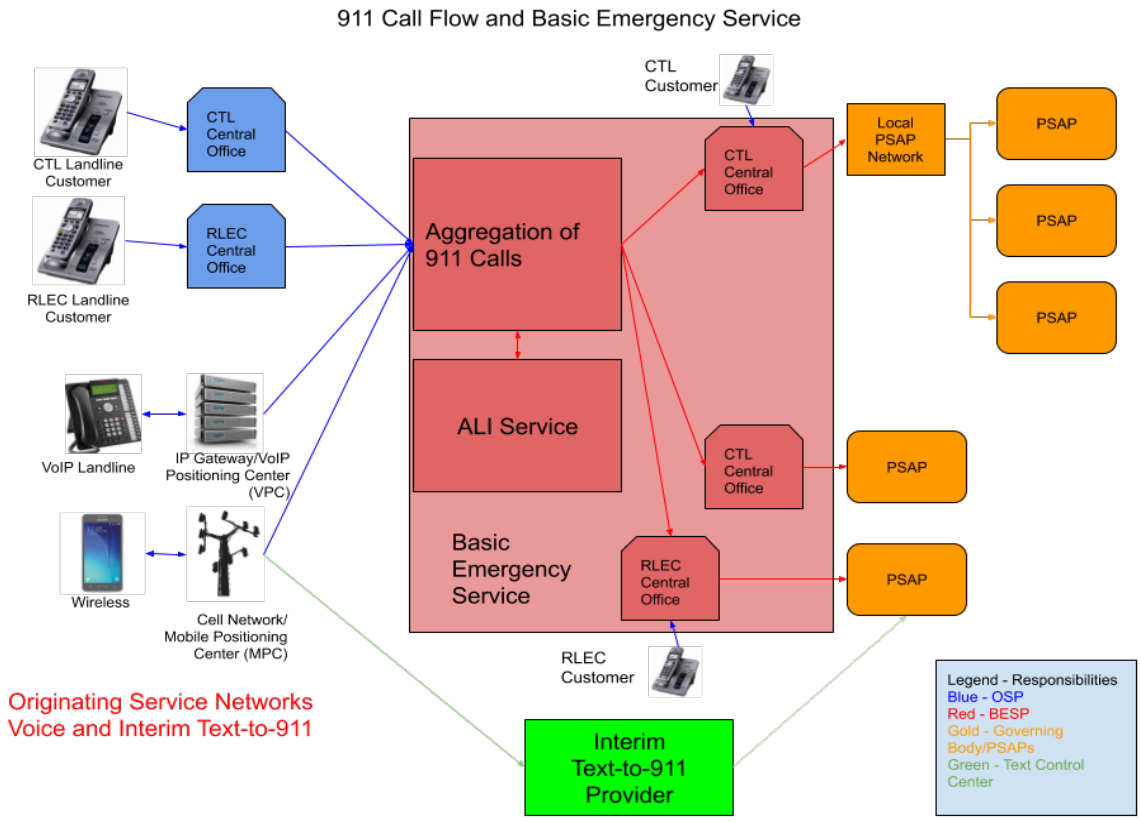

Figure 2.1: 9-1-1 Network Call Flow

The Originating Service Network Domain is on the left side of the chart above, consisting of FCC-regulated interconnected telephone services by Originating Service Providers (OSPs). It includes any vector by which a 9-1-1 call may be made, currently encompassing wireline, wireless, and Voice-over-Internet-Protocol (VoIP) services, and to a lesser extent satellite phones. In the future it may also include vectors from Internet-connected services, such as smart assistants and Internet-of-Things devices.

The Basic Emergency Service Domain is in the middle, where the chart illustrates BES aggregation, routing, and transport of 9-1-1 calls to a demarc for the appropriate PSAP.[82] BES also includes the delivery of the location information that is associated with a 9-1-1 call.[83] CenturyLink[84] is currently the only BESP in Colorado that has an active tariff on file for 9-1-1 call delivery.

Lastly, the right side of the chart represents the Local Domain, in which 9-1-1 calls are received and handled by PSAPs.[85] 9-1-1 calls received at a local demarc may be connected

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[82] § 29-11-101(7), C.R.S.

[83] 4 *CCR* 723-2-2131(i).

[84] CenturyLink QC, also known as Lumen Technologies and Qwest Communications.

[85] A full list of Colorado's PSAPs may be found on the Colorado 9-1-1 Program web page. See: https://sites.google.com/state.co.us/colorado911program/home

directly to a PSAP's phone system, or they may be connected to a local network operated by a "governing body" for further distribution to a PSAP.[86] These governing bodies collect 9-1-1 Emergency Telephone Charges (ETC) from service users via the OSPs, fund local emergency telephone services and equipment, and in some cases provide technical support and local call delivery networks for PSAPs.

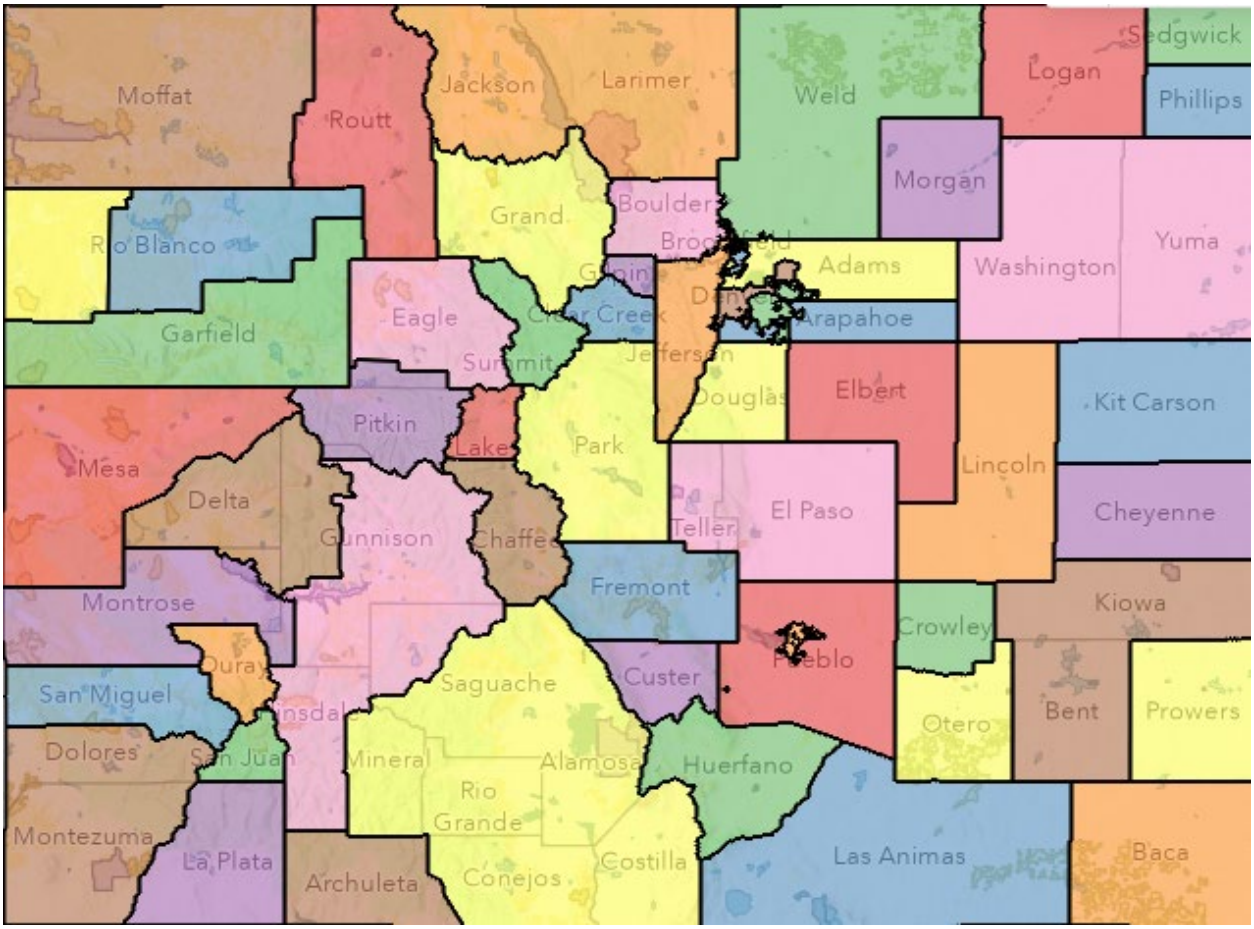

Figure 2.2: Colorado's 9-1-1 Governing Bodies. Each governing body may fund one or more PSAPs.[87]

The Statutory Limits of Commission Oversight of 9-1-1 Service

It is important to provide additional details about the three domains of 9-1-1 call flow; and to reiterate which parts are regulated by the Commission, and which parts statutes restrict the Commission from regulating.

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[86] See 29-11-101(16), C.R.S. A full list of Colorado's 9-1-1 governing bodies may be found on the Colorado 9-1-1 Program web page.
https://sites.google.com/state.co.us/colorado911program/regulation-of-bes

[87] An interactive version of this map may be found on the Colorado 9-1-1 Program web page.
https://sites.google.com/state.co.us/telecom-surcharges

A 9-1-1 call begins with a service user dialing 9-1-1 on their wireline, wireless, VoIP, or satellite phone. It must then pass through a variety of private networks, of which some may be for third-party intermediary processing and aggregation, before it is delivered to the BESP. This portion of the network is referred to as the Originating Network, and telephone service providers in this space are known as Originating Service Providers (OSPs). The Originating Network and processing of 9-1-1 calls within it are only regulated by the FCC; not a part of Commission-regulated BES.

The portion of the BESP's network from the point of aggregation from OSPs or their intermediaries to the point that the call is handed off at a demarc for a PSAP is the Basic Emergency Service network. The aggregation, routing, and transport of 9-1-1 calls via this network is what the Commission regulates as Basic Emergency Service (BES).

After the call is delivered by the BESP to the demarcation point with an appropriate 9-1-1 governing body or PSAP, it is no longer part of regulated BES. Any failure that occurs within local PSAP networks or within the PSAPs themselves is outside the scope of the Commission's authority. The Commission has no authority to regulate the operation of PSAPs.

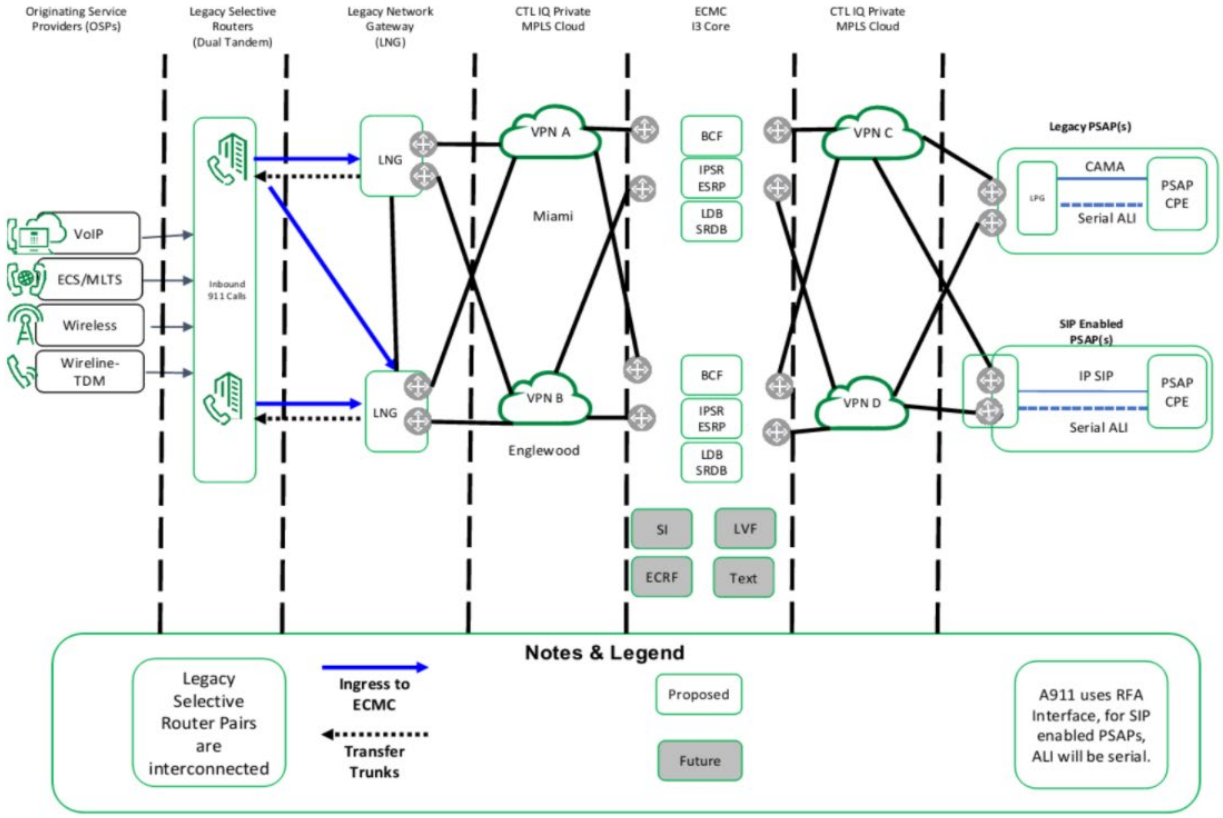
9-1-1 call failures can occur in all three domains. Because the Commission is only granted authority by statute over the BES domain, the other two are not subject to Commission regulation.[88] It is important to note that some portions of CenturyLink's facilities may serve as part of the separate OSN and BES networks, e.g., a segment of fiber optic cable may be used to transmit OSP calls to the BES network's aggregation point (making it OSN domain), and to transmit calls from the aggregation point to the PSAP (making it BES domain). For a visual representation of this, note that in Figure 2.1 above only the portion of the call flow shaded in red is regulated by the Commission. The blue and red lines could be in the same fiber optic cable, or even multiplexed in the same fiber, but still in different functional networks.

In practical terms, this means that the Commission cannot require reporting, nor impose penalties or requirements, for any outage other than those that impact the BES network. Neither can the Commission impose requirements or penalties, including outage reporting, on the OSPs, PSAPs, or governing bodies, with the exception of requiring governing body annual reporting as allowed in § 29-11-102(4), C.R.S.

Technology

9-1-1 calls are delivered by OSPs or their intermediaries to the BESP at several points of interconnection. Upon receipt, the BES network converts incoming calls to Session Initiation Protocol (SIP) format if necessary. A selective router looks for the phone number or pseudo mobile phone number in a selective router database (SRDB), and routes the call to the PSAP designated for that number. At some PSAPs the call is then converted back into an analog format for handling by the PSAP's 9-1-1 phone system, also referred to as Call Handling Equipment (CHE). If the PSAP's CHE is capable of handling calls in SIP format this last step conversion is unnecessary. It is anticipated that as older CHE is retired at the PSAPs, eventually all 9-1-1 calls will be handled locally in SIP format.

[88] § 40-15-201, C.R.S.



Legend:

BCF - Border Control Function
ECRF - Emergency Call Routing Function
ECS – Enterprise Communications System
ESRP - Emergency Services Routing Proxy
IPSR - IP Selective Router
LDB - Location Database
LNG – Legacy Network Gateway
LPG – Legacy PSAP Gateway
MLTS – Multi-Line Telephone System
MPLS – Multiple Protocol Labeling Service
SI - Spatial Interface
TDM – Time Division Multiplexing
Text - Text to 911 service
VPN – Virtual Private Network

Figure 2.3: ESInet 9-1-1 Call Flow with Legend. Source: CenturyLink/Lumen Basic Emergency Service Tariff, Colorado Tariff No. 25

Once received by the PSAP, the PSAP's CHE will use the phone number from which the 9-1-1 call originates to query the Automatic Location Identification (ALI) database. This database will then return basic information about the call to the PSAP, such as the subscriber name and address. For wireless and some VoIP calls, the OSP or its agent dynamically populates the ALI data with the caller's location, if known, in the form of X,Y coordinates and/or a dispatchable address.

Colorado's 9-1-1 network is currently a mix of "legacy" technology and "transitional" technology, as opposed to "Next Generation 9-1-1." As of the end of the 2023-2024 fiscal year all but one PSAP have been migrated to the "transitional" technology, a step toward a NG9-1-1 network. See Section 3 for information about Colorado's migration to NG9-1-1.

Legacy 9-1-1 networks are unable to deliver data types other than voice and ALI data to the PSAP. For example, text-to-9-1-1 service in Colorado is currently delivered separately from the BES network. Text-to-9-1-1 calls are currently routed through a third party called a Text Control Center (TCC) which delivers the call directly to the PSAP. Text-to-9-1-1 service delivered via alternative connections rather than an ESInet is referred to as "interim" service because it is considered a temporary solution until full delivery via the BES ESInet is implemented.

9-1-1 calls may currently be placed from one of three general categories of services.

- Wireline (or landline). These are 9-1-1 calls from traditional wired home or business phones.

- Wireless (or cellular). These are 9-1-1 calls from mobile phones, including smartphones. This category includes prepaid wireless telecommunications services.

- VoIP. These are 9-1-1 calls from phones that use the Internet for connecting the call. They may be either static (installed in a specific location), nomadic (meant to be portable to one Internet connection at a time), or mobile (hops from one Internet connection to another without terminating the call).

Multi-Line Telephone Systems (MLTS, also called Enterprise Communications Systems, or ECS), may use either wireline or (more commonly) VoIP call delivery. These are 9-1-1 calls from enterprise telephone systems in schools, office buildings, hospitals, factories, or anywhere else that makes use of multiple extensions branching from a single phone system. MLTS can also encompass several geographic locations branching from a single phone system.

An unknown number of calls may also be placed from satellite phones.

All 9-1-1 service in Colorado is considered Enhanced 9-1-1 (E9-1-1), which is distinguished by the use of selective routers for delivery of the 9-1-1 call to the appropriate PSAP based on a wireline or VoIP service address, mobile phone's cell tower antenna in use, or a VoIP current address or coordinates. Perhaps more notably, E9-1-1 allows for the delivery of caller location information with the 9-1-1 call.

In order for a wireless 9-1-1 call to be delivered with location information, the PSAP must be capable of receiving and using such information. Every primary PSAP in Colorado is capable of this, whether the information is Phase I cell tower location or Phase II device coordinates.

General Operations

Operations within Colorado's PSAPs are locally controlled. PSAPs are often operated as part of a local law enforcement agency, but are sometimes operated as independent agencies of a city or county government, as part of a fire agency, or as a separate legal entity of the state. While the term "PSAP" refers only to facilities that answer 9-1-1 calls from the public, every PSAP in Colorado is also a dispatch center, dispatching calls for service to first responders for one or more law enforcement agencies, fire protection service, emergency medical service, and other agencies. PSAPs also field a large number of non-emergency calls from the public, usually exceeding the number of 9-1-1 calls received.[89]

3. 9-1-1 Network Reliability and Resiliency

Terms of particular importance to this section:

- *Redundancy: Additional or alternate instances of network devices, equipment and communication mediums that are installed within network infrastructure as a method for ensuring network availability in case of a network device or path failure and unavailability. Example: Having two separate paths between two points in the network.*

- *Diversity: The physical separation of redundant network devices, equipment, and communication mediums necessary to reduce the likelihood of one event causing a failure in both redundant components. Example: Routing two redundant network links via geographically separated paths so that a single event, such as a flood or a cable cut, is unlikely to damage both links.*

- *Resiliency: The level of ability of a network to continue operating despite damage or failure to individual components. The level of resiliency a network possesses is to a large extent the result of its redundancy and diversity.*

- *Basic Emergency Service: The Commission-regulated service that includes the aggregation of 9-1-1 calls from OSPs and the routing and transmission of those calls to the demarcation point of a PSAP or local network operated by a 9-1-1 governing body. Location information associated with 9-1-1 calls is considered part of Basic Emergency Service.*

Commission Process for Improvement

In 2013 the Commission initiated an inquiry into 9-1-1 network performance following recent floods and fires[90]. As part of that proceeding CenturyLink filed a list of locations that lacked redundant routes with geographic or physical separation of the routes in the BES network. Areas without physical network diversity are at particular risk for outages since a single fiber cut or equipment failure in that part of the call delivery path will result in an outage.

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[89] Note: There is an industry trend to move away from the term "Public Safety Answering Point" or "PSAP" in favor of the term "Emergency Communications Center" or "ECC". For the purposes of this report, we continue to use the term PSAP since it is the term defined in statute and specifically refers to ECCs that receive 9-1-1 calls, whereas the term "ECC" can be more broad.

[90] See Proceeding 13I-1147T.

This proceeding resulted in an order requiring semi-annual updates from CenturyLink regarding various aspects of their progress toward developing physical diversity in the BES network where it is lacking, particularly as it serves the Estes Park PSAP.[91]

On January 9, 2019, in response to a Commission rule that has since been revised, CenturyLink filed a list of all areas of its BES network lacking redundancy and diversity.[92] On January 29, 2019, the Commission issued an interim decision directing CenturyLink to conduct an informal stakeholder workshop to review CenturyLink's plan and to report back every two months to the Commission.[93]

Per the Commission's rules at the time, the result of this process was to be a 9-1-1 Diversity Plan that could be approved by the Commission, associated with either a modification of the existing BES tariff charge or a new tariff service charge. Thus the local 9-1-1 governing bodies would pay for improvements to the BES network's redundancy, geographic diversity, and resiliency[94]. However, on December 29, 2020, Commission staff filed a letter recommending that the proceeding be closed to accommodate a rulemaking to change the Commission's rules about resilience and reliability of the 9-1-1 network. The reasoning was that with the passage of HB 20-1293 the Commission had the new state 9-1-1 Surcharge to help fund governing body costs for the improvements to the BES network, and Commission rules should account for that.[95]

The Commission agreed, ordered the proceeding to be closed, and directed Commission staff to begin preparing a Notice of Proposed Rulemaking on the topic of 9-1-1 network reliability.[96] On the advice of Commission counsel, the new rulemaking was postponed until after completion of the 2021 rulemaking on 9-1-1 funding and audit procedures, which established regulations for the new state 9-1-1 surcharge.

On March 9, 2022, the Commission issued a Notice of Proposed Rulemaking specifically to address BES network resiliency and reliability improvements.[97] Following the recommendations of Commission staff, the proposed rules sought to leverage the new state

9-1-1 Surcharge to create a funding mechanism for improvements to the reliability of the BES portion of 9-1-1 call flow. Following issuance of the Notice and receipt of extensive comments from stakeholders, the overseeing Administrative Law Judge directed Commission staff to coordinate workshops to develop consensus-based draft language amending the rules. On December 22, 2022, the Commission adopted the consensus-based rules,[98] and they became effective on March 31, 2023.

Although the changes to the rules were extensive, two primary changes related to BES

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[91] See Decision R14-0303.

[92] See Proceeding 19M-0026T.

[93] See Decision C19-0117-I.

[94] 4 *CCR* 723-2-2143(a)(III).

[95] See https://www.dora.state.co.us/pls/efi/EFI.Show_Filing?p_fil=G_771812&p_session_id= for a direct link to the letter.

[96] See Decision C21-0036.

[97] See Proceeding 22R-0122T.

[98] See Decision R22-0811.

network resiliency and reliability are currently being implemented. First, 4 CCR 723-2-2143(b) established a BES Improvement Plan process which requires the BESP to file an Improvement Plan with the Commission every two years. Each Plan shall list areas of the BES network that lack diversity, propose to improve certain sections of that network, include pricing and timeframes for the improvements, and propose an additional tariff rate to pay for those improvements. The Commission may approve the Plan in whole or in part, and may separately approve an additional rate to be added to the tariff to pay for those improvements. The Commission will then take that additional tariff rate into consideration when setting the annual state 9-1-1 Surcharge rate for the following year, so the improvement costs are not borne by the local 9-1-1 governing bodies without reimbursement.

On April 24, 2023, CenturyLink filed its initial BES Improvement Plan Application, which is currently under review by the Commission.[99] The tariff charge revenues for the three projects proposed by CenturyLink in the Application were to provide matching funds for federal broadband middle-mile grant projects which would have coincidentally improved BES network diversity. CenturyLink did not receive those grant awards, and instead filed an updated Plan in February 2024. All of CenturyLink's proposed projects in the updated Plan were approved, with work beginning in 2025. These projects include Ethernet equipment upgrades, last-mile diversity to the majority of PSAPs, and fiber builds/equipment upgrades to improve diversity to multiple PSAPs throughout the state.

CenturyLink is required to file its next BES Improvement Plan Application no later than 2026.

Second, new rule 2143(k) requires Commission staff to conduct informal investigations into any BES outage that meets certain criteria recommended by the Commission's 9-1-1 Advisory Task Force. The current criteria are:

- Multiple PSAPs affected.
- Details of the outage are unclear from the report.
- Outage over 4 hours in duration.
- Unusual pattern of impact.
- Apparent failure to notify PSAP in a timely manner.
- Repeated outages of a similar nature or in the same area over a short period of time.
- At the request of one or more affected PSAPs or 9-1-1 governing bodies.
- Any apparent violation of Commission rules.

Throughout 2022 and 2023, and into 2024, CenturyLink took the position that network outages don't qualify as BES outages if they impact the ability of 9-1-1 calls to an aggregation point of the BES network, treating such calls as being in the originating service domain instead of the basic emergency service domain. It has taken this position even if the same facility is *also* used to transport 9-1-1 calls from the aggregation point to the PSAP. In addition, CenturyLink has taken the position that if 9-1-1 calls can be routed to an alternate PSAP instead of the primary designated PSAP then an outage has not occurred.

Commission staff, on the other hand, consider both of these situations to be BES outages because both result in a primary designated PSAP not receiving 9-1-1 calls for its service area. As a result of this conflict of interpretation, very few outages were being reported by CenturyLink to Commission staff via the specified notification mechanisms. This, in turn, resulted in nearly every apparent BES outage that Commission staff learned of being

[99] See Proceeding 23A-0197T.

investigated through the new process established in Rule 2143(k), because one of the triggers for investigation is "any apparent violation of Commission rules."

In 2023, CenturyLink began copying Commission Staff on all potential outage notifications sent to all Colorado PSAPs. This reduced apparent rule violations regarding lack of notification, but increased Commission Staff awareness of incidents occurring around the state. Thus far, many staff-led BES outage investigations have been completed.[100]

Late in 2023, the Commission opened Rulemaking Proceeding 23R-0577T, Amendments to Emergency Service Outage Rules, in order to strengthen those rules and address CenturyLink's assertions that:

> 1. BES network outages don't qualify as BES outages if they impact the ability of 9-1-1 calls to reach the aggregation point of the BES network, treating them as being in the originating service domain, not the basic emergency service domain and,
>
> 2. if 9-1-1 calls can be routed to an alternate PSAP instead of the designated PSAP then an outage has not occurred.

The Commission adopted the following rule changes in the proceeding:

- Changed the term "BES Outage" to "PSAP service disruption";
- Clarified the definition of the term "Primary demarcation point";
- Requires the BESP to provide PSAPs with at least 24 hours' notice of potential service disruptions due to planned maintenance;
- Requires the BESP to deliver all calls to alternate PSAPs in the event of a service disruption, when possible;
- Requires the BESP to provide callback numbers for calls that were not delivered to the PSAP during a service disruption, without requiring a request from the PSAP for such information, within 2 hours of restoration of service;
- Strengthens the rules regarding the provision of billing credits in the event of a service disruption more than 4 hours in duration, or more than 12 hours in the event of a fiber cut;
- Clarifies rules governing Commission Staff's informal investigations

These rules benefit Colorado's 9-1-1 governing bodies and the public by requiring the BESP to provide the telephone numbers of undeliverable calls that occurred during service disruptions, to provide billing credits when the PSAP or governing body does not receive the service paid for due to disruption, and to provide advance notice of potential service disruptions due to planned maintenance, which helps PSAPs prepare contingency plans to minimize disruption to their stakeholders.

Finally, as a certified BESP actively providing service, CenturyLink is required by Commission rule 2143(e) to annually file a contingency plan, with the most recent being filed on April 30, 2025[101]. This is to ensure CenturyLink has on file a list of current contacts for all of the PSAPs as well as phone numbers for alternate routing of 9-1-1 calls when necessary. The BESP must also provide its most recent 9-1-1 reliability filing with the Federal Communications Commission. Some aspects of this report, including the FCC filing, are typically filed confidentially due to the security-sensitive nature of the information.

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[100] Completed investigations may be reviewed in Proceeding 23M-0145T.

[101] See Proceeding 23M-0236T.

Work of the 9-1-1 Advisory Task Force Outage Committee
Previously, the Outage Committee of the Commission's 9-1-1 Advisory Task Force conducted investigations into outages that met similar criteria to those now being used to prompt staff investigations. The Outage Committee investigations were informal and voluntary, but generally CenturyLink did participate in the meetings and cooperate with the investigations.

The Outage Committee may still conduct investigations, though they would largely be duplicative of the new outage investigations process Commission Staff outage investigations. Instead, the Outage Committee may choose to conduct investigations regarding outages that do not otherwise meet the criteria for a staff-led investigation.

The Outage Committee is also involved in the staff-led investigations, suggesting information to request, participating in meetings between CenturyLink, Commission staff, and the affected local 9-1-1 agencies, and providing input on ways to potentially reduce the likelihood of outages or mitigate their impacts.

4. Migration to Next Generation 9-1-1

What Is Next Generation 9-1-1?
Next Generation 9-1-1 (NG9-1-1) is a set of technologies and components which comprise a standards-based approach to Internet Protocol (IP)-based 9-1-1 call delivery for scalable flexibility, capacity, and security in the 9-1-1 system of a state or region. The National 911 Program Office has produced a good primer video for introducing NG9-1-1 and explaining its benefits.[102] Additionally, Commission Staff produced a video explaining NG9-1-1 and Colorado's status in implementation.[103]

NENA Baseline NG9-1-1 Description

Implementation of NG9-1-1 is a transitional process. The Baseline NG9-1-1 Description document "provide(s) a high-level description of the basic NENA standards-based set of capabilities required to be considered NENA NG9-1-1 during transition."[104] Comprising only one page, it provides a very high-level perspective and is not intended to include everything that could or should be part of an NG9-1-1 system. It is a starting point for understanding the core features, functions, and components of NG9-1-1. By determining which of those Colorado's 9-1-1 system currently meets, we can begin to see what work has yet to be done.

These are the criteria, along with some analysis of Colorado's relationship to them. Their order is altered from the Baseline document for better understanding.

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[102] https://www.911.gov/issues/ng911/video-benefits-of-next-generation-911/

[103] https://youtu.be/yYMkX5q1MKM?feature=shared

[104] National Emergency Number Association. (n.d.). Baseline NG9-1-1 Description. Retrieved April 30, 2021, from https://www.nena.org/page/NG911_Baseline

1. **An Emergency Services IP Network (ESInet).** As of this edition of the Report, Colorado's PSAPs have migrated from a legacy analog E9-1-1 network to an Emergency Services IP Network (ESInet). All PSAPs are receiving 9-1-1 calls in Session Initiated Protocol (SIP) format, though some make use of a PSAP Gateway Module (PGM), otherwise known as a Legacy PSAP Gateway (LPG). A PGM converts the SIP calls to legacy analog CAMA format for older PSAP call handling equipment to use. Although the NENA i3 NG9-1-1 standard indicates use of SIP format from the Originating Service Provider(OSP) to the PSAP's call handling equipment, the ESInet can be said to exist despite transitional elements for analog interconnections with legacy OSP networks and PSAP equipment.

2. **Provisioning of authoritative NG9-1-1 GIS location validation databases, for use by Originating Service Providers and location database providers to pre-validate communication device addresses via the Location Validation Function (LVF) for their Location Information Service (LIS) elements of NG9-1-1 (analogous to Master Street Address Guides, or MSAGs).** Authoritative statewide GIS location validation datasets do not yet exist in Colorado. Each local 9-1-1 governing body will be responsible for the provisioning of this data for its service area, to be integrated statewide by the NG9-1-1 service provider. The governing bodies or their designees will also have to resolve GIS-authority boundary conflicts with each other and the NG9-1-1 service provider. GIS dataset creation is primarily a function of the local governments, and the current states of those data vary considerably. In order to make the data usable by an LVF and other core NG9-1-1 services, Colorado will need to fill in the gaps where sufficient data does not exist and resolve GIS-authority boundary issues.

3. **Provisioning of Authoritative NG9-1-1 GIS 9-1-1 Call Routing Data**. The analysis of this question is similar to the answer to criteria #2. The local 9-1-1 governing bodies will be responsible for the provisioning of GIS PSAP service boundary data to be integrated statewide by the NG9-1-1 service provider. These boundaries are already maintained by some local governments, but others will have to be created to enable the statewide dataset for GIS-based call-routing. Further, the GIS data providers will have to work with each other and the NG9-1-1 service provider to resolve overlaps and gaps between the PSAP boundaries. As of this edition of the report, the Colorado 9-1-1 Resource Center is developing an RFP to have an initial statewide GIS layer of fully edge-matched PSAP boundaries developed.

4. **Support for legacy analog Originating Service Providers via gateways.** Colorado's current ESInet service supports this functionality, although it should be noted that in a true NENA i3 NG9-1-1 environment such gateways would eventually be retired after all OSPs change to SIP format.

5. **Geospatially controlled IP software call routing.** Operation of the Emergency Call Routing Function (ECRF) and the Emergency Services Routing Proxy (ESRP) depends in part on GIS-validated (LVF) caller locations (LIS) and PSAP service area boundaries. As

noted above, the GIS datasets for this may inherently be integrated by the NG9-1-1 service provider, but the local 9-1-1 governing bodies and their GIS partners will be responsible for providing the necessary GIS data. Gaps in the source data and boundary-matching issues will have to be resolved to enable these functions.

6. **GIS data creation to support 2 and 5 above, and associated management tools.** The requirement for GIS datasets to support NG9-1-1 functions necessitates the use of GIS tools and management software to ensure data quality, completeness, normalization, and matching. A common set of 9-1-1 oriented GIS data management tools is not currently available in Colorado, but making such a tool available to all of the state's 9-1-1 governing bodies is currently being discussed between the ESInet Users Group and Colorado's BESP, CenturyLink.

7. **The ability to control call routing based upon a Policy Routing Function (PRF) with standardized methods to define, build, and control Policy Rules.** Currently, the ESInet does not afford this capability to Colorado's PSAPs. However, one aspect of it has been enabled, which is the ability to roll over calls to more than one PSAP at the same time, rather than rolling calls over to one PSAP and potentially overwhelming it before calls roll over to a third PSAP. This feature is called volume-based routing.

8. **Additional data acquisition after call delivery, to facilitate call processing by call taker or other public safety entities.** NG9-1-1 service can enable delivery of many forms of additional data to the call takers and responders, beyond the primary caller information and address or geodetic location. Additional data about the caller, the location, and the call itself can assist call routing and handling, and can aid telecommunicator and responder responses to an incident.[105]

9. **Support for transfer of calls with accumulated call taker notes and added data, or an access key to such data, to any authorized entity interconnected by ESInets.** With some limited exceptions, Colorado PSAPs do not currently have this capability. To achieve this today the PSAP transferring the call and the PSAP receiving the call must use a CAD-to-CAD interface or be using the same CAD system through a distributed or hosted deployment. Theoretically, CAD systems that are designed to NENA i3 NG9-1-1 specifications should be able to transfer data already entered by the call taker along with the call, but to our knowledge this level of standardization does not yet exist.

10. **Ability to interconnect with other NG9-1-1 systems and to interwork with E9-1-1 systems.** Colorado's ESInet currently lacks the capability of transferring calls to neighboring states, regardless of whether they are NG9-1-1 systems (e.g., Kansas) or legacy E9-1-1 systems (e.g., Wyoming). However, this issue is currently being discussed between the ESInet Users Group and CenturyLink.

11. **Support for system monitoring, logging, and discrepancy reporting necessary to support troubleshooting and ongoing operation and maintenance.** The CenturyLink

[105] NENA NG9-1-1 Additional Data, NENA-STA-012.2.2017 (f/k/a 71-001)

tariff currently on file in Colorado provides ESInet service quality objectives which include service availability minimums, jitter of 20 ms or less, packet loss of 0.5% or less, mean opinion scores (MOS) of 4.0 or greater, latency of 42 ms or less, call delivery of 99.999%, and call delivery accuracy of 99.99% or greater. Service availability, jitter, packet loss, and MOS are measured ten times per hour, and statewide performance relative to these metrics are reported quarterly to the ESInet Users Group.

Based on this list and the associated analysis for each criterion, Colorado can be said to meet criteria #1, #4, and #11. Colorado does not meet #2, #3, #5, #6, #8, #9, and #10.

The FCC's Task Force on Optimal PSAP Architecture (TFOPA) developed an NG9-1-1 Maturity Model which helps illustrate the different states for various aspects or "domains" of NG9-1-1 deployment, governance, and funding.[106] The maturity levels range from lowest to highest as "legacy," "foundational," "transitional," "intermediate," and "end state." In its most recent annual report to the National 911 Office, Commission Staff estimated the state's NG9-1-1 maturity levels as the following for the various domains, using the definitions for each state provided by the National 911 Office, which were in turn based on the TFOPA report:

- Governance: Transitional
- Routing and Location: Legacy
- 9-1-1 GIS Data: Legacy
- NG9-1-1 Core Services: Transitional
- Network: Foundational
- PSAP Call Handling Systems and Applications: Legacy
- Security: Foundational
- Operations: Foundational
- Optional Interfaces: Foundational

Although there is a national standard for NG9-1-1, disagreement exists in the industry about what actually constitutes "full Next Generation 9-1-1." There may not be a specific point in time when we can specifically say "Today, we have implemented NG9-1-1." Instead, viewing NG9-1-1 as an evolutionary process applicable to the entire 9-1-1 call flow is more helpful.

FCC TFOPA Maturity Model

The maturity model enables states and regional 9-1-1 authorities to gauge the status of their 9-1-1 systems with an "NG9-1-1 Readiness Scorecard" tool and an associated "NG9-1-1 Self-Assessment Matrix".[107]

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[106] https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_WG2_Supplemental_Report-120216.pdf

[107] Task Force on Optimal PSAP Architecture. (2016). Working Group 2 Phase II Supplemental Report: NG9-1-1 Readiness Scorecard. Federal Communications Commission. https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_WG2_Supplemental_Report-120216.pdf

Next Generation 9-1-1 Readiness Scorecard						
Category	**NG9-1-1 Implementation Maturity State**					
	Legacy	**Foundational**	**Transitional**	**Intermediate**	**i3 End State - Jurisdictional**	**i3 End State - National**
GIS Data						
NG9-1-1 Dataset Creation Project Planned		X				
NG9-1-1 Dataset Creation Project in-Progress		X	Optional			
NG9-1-1 Dataset Complete				X	X	X
Data formatted for Location Verification Function (LVF)			Optional	Optional	X	X
Data formatted for Emergency Call Routing Function (ECRF)			Optional	X	X	X
Data formatted for Policy Routing Function (PRF)			Optional	X	X	X
Jurisdictional Boundaries exported to neighboring ESInets					Optional	X
NG Core Service Elements						
Legacy Selective Router Gateway (LSRG)			Optional	X	Optional	Optional
Location Verification Function (LVF)			Optional	Optional	X	X
Emergency Services Routing Proxy (ESRP)			Optional	X	X	X
Emergency Call Routing Function (ECRF)			Optional	X	X	X

Figure 4.1 - Excerpt from the TFOPA NG9-1-1 Readiness Scorecard

Each category of NG9-1-1 readiness has several tasks and states which can be assessed in progression. For example, if we say that an NG9-1-1 Dataset Creation Project has been planned but not completed, then that task could be considered to be at the “foundational” state.

The levels of readiness are defined in the TFOPA report as follows:

- Legacy State - 9-1-1 telephone service is being provided by a traditional incumbent local exchange carrier (ILEC) via circuit-switched voice and Automatic Location Identification (ALI) infrastructure.

- Foundational State - the groundwork and planning for NG9-1-1 implementation has been initiated. NG9-1-1 feasibility studies are being performed, Geographic Information System (GIS) data preparation has commenced, and IP networks may be implemented. NG9-1-1 core services are not yet operational, but their procurement is either planned or underway.
- Transitional State - services have migrated partially from the Legacy State and are provided via an Emergency Services IP Network (ESInet), but call routing is still based on ESNs. And a governance model has been established. This is the first state in which certain Next Generation Core Service elements may be implemented.
- Intermediate State - all i3 Core functions within the control of the 9-1-1 Authority have been implemented and all calls are routed per GIS boundaries and location information (i3 algorithms). Additionally, i3 PSAP multimedia call handling systems (terminating ESRPs) have been implemented. Infrastructure and applications are being refined to incorporate advanced call and data delivery interfaces. Business and performance elements are maturing and are reviewed in regular intervals to optimize operations. Governance agreements are in place and the model is functioning. Systems in the Intermediate State are said to be NG9-1-1 READY.
- Jurisdictional End State - the PSAPs are served by i3 standards-based systems and/or elements, from ingress through multimedia "call" handling. Originating Service Providers are providing direct SIP interfaces and location information during call set-up time. If more than one ESInet exists, they are interconnected and provide interoperability which is supported by established agreements, policies and procedures. Systems in the End State are NG9-1-1 Compliant.

The TFOPA report also includes a final category labeled “National End State”. Since we are applying this assessment to one state only, our best possible status is the Jurisdictional End State.

Colorado is in the **Transitional State**. All PSAPs have migrated to CenturyLink’s ESInet Service. Although IP-based, the service still uses legacy E9-1-1 ESNs to determine call routing. MSAGs are still being maintained and legacy selective routers still process calls where necessary.

The Intermediate State informs the next steps to advance Colorado’s NG9-1-1 implementation:

- The i3 Core functions within the span of control are operational
- All calls are routed per GIS boundaries and location information, using i3 core services
- An i3 PSAP multimedia call handling system has been established
- Infrastructure and applications are being refined to incorporate advanced call and data delivery interfaces
- Business and performance elements are maturing and are reviewed at regular intervals
- Governance agreements are in place and functioning

The industry-recognized standard for NG9-1-1 protocols is the "NENA i3" standard, an ANSI-approved technical standard developed by a large array of stakeholders through NENA.[108,109] APCO published their "Definitive Guide to Next Generation 9-1-1" in August 2022, which outlines additional considerations regarding implementation of NG9-1-1 and provides a draft scope of work if NG9-1-1 were to be purchased through a Request for Proposal process.[110]
It should be noted that local 9-1-1 governing bodies in Colorado purchase NG9-1-1 service through a Commission-regulated tariff, rather than a statewide RFP and contract.

NG911 and FirstNet

FirstNet, the common name for the National Public Safety Broadband Network (NPSBN), provided nationally by AT&T, is not the same thing as NG9-1-1. The purpose of the NPSBN is to provide a wireless data network for public safety agencies to communicate *with each other*, whereas one of the goals of NG9-1-1 is to provide a way for non-voice data to be sent *from the public* to 9-1-1 call centers. Together, these two systems would potentially allow the public to send non-voice data (pictures, video, medical data, etc.) to a PSAP which could forward such data to field responding units. Implementation of the NPSBN does not remove the need for NG9-1-1. They are two separate systems, and the functionality of both networks are needed to complete the additional-data chain from the public to the first responders.

History, Planning, Transition, and Implementation

On August 31, 2018, the Commission approved a jointly-proposed settlement between CenturyLink[111] and a number of local 9-1-1 governing bodies for transitioning the legacy 9-1-1 network to a fully IP-based ESInet. This settlement called for the creation of an ESInet Users Group to be formed as a committee of the Commission's existing 9-1-1 Advisory Task Force, to oversee the implementation and statewide deployment of the ESInet. A final version of the amended CenturyLink tariff at the Commission was filed on December 28, 2018[112], and was

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[108] https://www.nena.org/page/i3_Stage3

[109] Colorado 9-1-1 Advisory Task Force, "Recommended 9-1-1 Standards". Published May 11, 2022. https://docs.google.com/document/d/1z2U7ABOpiGocRN84kvhYkIWtZtxkW-qzF9k2y6Zm2N4

[110] https://www.apcointl.org/technology/next-generation-9-1-1/apcos-definitive-guide-to-next-generation-9-1-1/

[111] CenturyLink QC, doing business as Lumen Technologies, also sometimes filing as Qwest Communications.

[112] See Proceeding 18AL-0916T.

subsequently modified through additional filings on May 10, 2019[113] and March 17, 2023[114].

The Commission-approved tariff contained a schedule for each PSAP to migrate to the ESInet over the course of 13 months, starting in October of 2019 and completing in October of 2020. This schedule was revised on a rolling basis and was essentially complete by early 2022. The ESInet Users Group has been meeting regularly since 2019 and is instrumental in identifying concerns and issues of the local 9-1-1 governing body representatives that make up the voting membership. It will continue to help resolve ESInet service issues between CenturyLink and the 9-1-1 governing bodies or PSAPs. Commission staff also participate in the meetings. If issues cannot be resolved within the ESInet Users Group, parties may petition the Commission for resolution.

Migration of Colorado's PSAPs to the ESInet was only the beginning, not the end of NG9-1-1 implementation. The ESInet is the foundation upon which the core and advanced NG9-1-1 functions can operate, and with its implementation comes an opportunity for the stakeholder groups to begin planning what they want Colorado's NG9-1-1 system to be. Planning future development of NG9-1-1 service and negotiating the details and costs with CenturyLink is a current task.

Not long after ESInet implementation was complete the ESInet Users Group requested terms and pricing from CenturyLink for additional tariffed statewide ESInet services: delivery of text-to-9-1-1 calls, a 9-1-1 call data metrics system known as ECaTS, GIS-based 9-1-1 call routing, and 9-1-1 GIS data tools to assist 9-1-1 governing bodies with preparing local GIS data for use in call routing. After several workshop discussions a tariff amendment was filed by CenturyLink on March 17, 2023. With the subsequent Commission proceeding adjudicated, ECaTS service is now provided statewide for call metrics and analysis.

The Users Group also monitors ESInet quality of service metrics, including latency, jitter, packet loss,[115] and others to ensure compliance with the ranges specified in the tariff.

A critical component of the planning, transition, and implementation of the ESInet has been ensuring proper funding. As outlined in the tariff amendment approved in late 2018, significantly higher Basic Emergency Service (BES) rates went into effect for the local 9-1-1 governing bodies after their PSAPs migrated to the ESInet. The legacy BES E9-1-1 rates cost 9-1-1 governing bodies approximately $2.9 million per year in aggregate, whereas the costs for BES ESInet rates totaled approximately $5.9 million per year. This sudden need for additional

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[113] See Proceeding 19AL-0238T.

[114] See Proceeding 23AL-0133T.

[115] *Latency* is the time it takes data packets to traverse the network. Too much latency in IP-based telephony causes callers to speak over the top of each other. *Jitter* is the measure of inconsistency in the arrival of data packets between sender and receiver, which can cause a connection to be unstable and for data packets to be lost. *Packet loss* is the measure of how many packets of data are lost between sender and receiver. A high degree of packet loss in IP-base telephony can result in poor audio quality.

funding prompted 9-1-1 stakeholders, including the Legislative Committee of the Commission's 9-1-1 Advisory Task Force, to begin working with legislative sponsors to implement a solution.

The resulting passage of HB 20-1293 created a new statewide 9-1-1 funding mechanism to supplement existing local Emergency Telephone Charges in the form of a state 9-1-1 Surcharge. This enabled the Commission to reimburse the 9-1-1 governing bodies for their monthly recurring ESInet service costs. The 9-1-1 Surcharge can also be leveraged to offset costs of additional statewide features and services, such as the recently added ECaTS, and the remaining components necessary for full implementation of NG9-1-1.

Projected Timeline for Full Implementation

The ESInet Users Group adopted its new Strategic Plan June 2025.[116] Its primary goals are to implement NG9-1-1 core services, as well as improve the relationship and service received from CenturyLink. Some of the timing, however, is dependent on CenturyLink and its subcontractors, as well as the Originating Service Provider (OSP) telephone companies, to implement additional components necessary for achieving NENA i3 NG9-1-1 service.

Most states which have made significant progress toward full implementation of NG9-1-1 have a state-level purchasing mechanism via a Request for Proposals and awarding of contracts, allowing more direct control over the timeline. Colorado currently only has a local purchasing mechanism for 9-1-1 telephone services, through the Commission-approved tariff, although the creation of the 9-1-1 Services Enterprise in 2024 may provide an additional statewide purchasing avenue. Although the tariff model does have benefits over the contract model, it gives more control to the provider for changing or adding new services. The ESInet Users Group may propose a timeline for further NG9-1-1 implementation, but only CenturyLink can file tariff amendments to bring that to fruition.

5. Funding and Fiscal Outlook

Costs of Providing 9-1-1 Service

It is difficult to determine with accuracy the total cost of providing 9-1-1 service in Colorado. Some costs are borne directly by the local 9-1-1 governing bodies, whether directly or as a funding entity for 9-1-1 service. Other costs are borne by the entities that operate the PSAPs. Some of those costs may not even be attributed to the PSAP budget, particularly when a PSAP is housed within a larger facility operated by a county or municipal government.

Each year, Commission Staff issues a costs and revenues data request to all governing bodies. Note that § 29-11-102(4), C.R.S., requires governing bodies to respond to annual data requests provided by the Commission, but does not provide penalties for non-compliance. Current data will be provided in each annual State of 9-1-1 Report.

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116 https://docs.google.com/document/d/1tIiET0JM2Qpc8V0G2pIIh7VFZSEg6AirSoSQC006gBs/edit?tab=t.0#heading=h.gjdgxs

Funding Sources

9-1-1 service in Colorado is funded from several sources, including:

- The state 9-1-1 Surcharge, implemented in January of 2021 after the passage of HB 20-1293. It is set annually by the Commission, and imposed on wireline, wireless, and interconnected VoIP telephone services per line per month.

- Local Emergency Telephone Charges (ETC), imposed separately by the 58 9-1-1 governing bodies on wireline, wireless, and interconnected VoIP telephone services per line per month.[117]

- The state Prepaid Wireless 9-1-1 Charge, which is set annually by the Commission and applied per purchase of service minutes.

- Annual user fees paid by emergency response agencies to PSAPs for dispatching services.

- General funds of counties, municipalities, and Title 32 special districts.

The State 9-1-1 Surcharge

The state 9-1-1 Surcharge was first implemented in January of 2021. Statute directs the Commission to reasonably calculate and set the rate annually "to meet the needs of governing bodies to operate the 9-1-1 system."[118] The rate is capped at $0.50 per "9-1-1 access connection," meaning telephone line, per month.

Because local ETCs and prepaid wireless 9-1-1 charges also provide funding to meet the needs, the Commission has primarily used the state 9-1-1 Surcharge to reimburse the governing bodies for the cost of BES 9-1-1 call delivery to the PSAPs. The tariff fees the governing bodies pay for BES are charged per concurrent session (9-1-1 line to a PSAP). Therefore, the revenues of the state 9-1-1 Surcharge are distributed to the governing bodies based on how many BES concurrent sessions they are purchasing from CenturyLink.[119] The common basis of the concurrent session enables simple calculation of a state 9-1-1 Surcharge rate that will reimburse the governing bodies for those costs.

9-1-1 Services Enterprise Fund

SB24-139 created the 9-1-1 Services Enterprise Fund, which is charged with "providing benefits to telephone service users statewide by helping fund aspects of 9-1-1 emergency telephone service which are not part of tariffed basic emergency service (9-1-1 call routing and delivery). Funds are collected as part of the State 9-1-1 Surcharge (still subject to the $.50 cap) and directed to the Enterprise Fund, for the Board to spend at their discretion,

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[117] § 29-11-102(2)(a) and (b), C.R.S.

[118] § 29-11-102.3(1)(b), C.R.S.

[119] A "concurrent session" is a connection to the ESInet. The number of concurrent sessions that a PSAP has determines the number of simultaneous 9-1-1 calls that can be received by the PSAP.

according to purposes enabled by C.R.S. §29-11-104, et seq., and approved by the Board.[120]

Local Emergency Telephone Charges (ETC)

Governing bodies may impose an ETC rate sufficient for their service needs up to a threshold set annually by the Commission.[121] The effective date of a new rate must be either February 1st or June 1st, and the governing body must provide notice of the new rate to telecommunications service providers at least 60 days prior to the effective date.

Prior to 2021, the threshold for local ETC rates requiring approval by the Commission was statutorily set at $0.70. With the passage of HB 20-1293, the Commission now sets the rate annually, taking into account "inflation and the needs of the governing bodies."[122] The threshold is currently $2.12 per line per month, which is 5¢ higher than the ETC average, as illustrated by *Figure 5.1* in the annual State of 9-1-1 report. As a result, governing bodies have more freedom to determine the appropriate ETC rate for their needs, enabling increased local funding to pay for PSAP-related expenses such as equipment, personnel, and training.

As implied above, governing bodies may file an application with the Commission for permission to impose an ETC rate that is higher than the threshold. However, this enables significant disparities in ETC rates across the state, with rates ranging from $0.70 to $4.00. The statute provides the Commission with very little guidance regarding what criteria should be used when reviewing an application for an ETC rate in excess of the threshold. Traditionally, the Commission has used three tests to evaluate an ETC rate application:

1. Whether the proposed expenses for the use of the ETC revenues are allowed pursuant to § 29-11-104, C.R.S.;
2. Whether the proposed expenses are sufficiently documented;
3. Whether budget projections, based on the eligible proposed expenses, demonstrate the need for the requested increase.

With changes to the statute due to the passage of HB 20-1293, the Commission is also now permitted to take into account efficiency of operations.[123] Comparing the efficiency of an applicant's PSAP operations against a statewide baseline requires an accurate baseline, which is difficult to establish without full participation in the Commission's statewide data collection efforts. Nonetheless, the Commission may exercise this additional authority in the future when considering ETC rates which would be significant outliers from the norm.

Prepaid Wireless 9-1-1 Charge

Prior to the implementation of HB 20-1293 the Prepaid Wireless 9-1-1 Charge was set in statute at 1.4% of the value of the prepaid wireless telecommunications service being sold, which resulted in approximately $200,000 collected per month in 2020. Beginning in January 2021 the charge was changed to a flat rate of $1.38 per transaction, which if paid on twelve purchases annually would be similar to the annual total of 9-1-1 charges on subscription telephone services. No data existed regarding how many prepaid wireless telecommunications transactions were taking place, so it was impossible to predict the revenue to be generated.

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[120] See the 9-1-1 Services Enterprise Board website for current information: https://puc.colorado.gov/911-services-enterprise-board

[121] See § 29-11-102(2)(b), C.R.S.

[122] See § 29-11-102(2)(f)(II), C.R.S.

[123] See § 29-11-102(6), C.R.S.

Revenues of this charge significantly increased after the change to the flat rate. These funds are currently distributed to the 9-1-1 governing bodies based on wireless call volumes at PSAPs.

Statutes now require the Commission to adjust the Prepaid Wireless 9-1-1 Charge rate annually using a formula that is the sum of the average local ETC rate plus the state 9-1-1 Surcharge rate for the same year.[124] This resulted in a 2022 rate of $1.63, a 2023 rate of $1.71, a 2024 rate of $1.81, and a 2025 rate of $2.09.

Local Municipal and County General Funds

Commission staff is unable to determine from the data provided by the governing bodies how much of the total cost of providing local government 9-1-1 services, which include BES, Emergency Telephone Service, and Emergency Notification Service, was paid either through direct county and municipal appropriations or through agency user fees paid to the PSAPs for dispatching services. However, in most if not all cases PSAP costs are at least partially funded with local funds that are not derived from 9-1-1 charges.

In some limited cases local sales and property taxes have also been approved for funding public safety communications, including PSAP services. Otherwise, the remaining costs of operating Colorado's PSAPs are paid out of local government budgets. These include personnel wages and benefits, and services for human resources, payroll, legal, facilities, IT, and other administrative needs. It is impossible to calculate the costs of these, and if included in the overall cost they would raise the total significantly.

Other Funding Sources

There are currently no federal or state grant programs specifically for 9-1-1 related expenses. See current State of 9-1-1 Report for current legislative initiatives.

6. Federal Activities and National Trends

Federal Activities

National 911 Program

The National 911 Program is housed within the National Highway Traffic Safety Administration (NHTSA) Office of Emergency Medical Services, and it is currently undertaking several activities. However, it should be noted that most activities have ceased while the program awaits reauthorization of funding.

- 9-1-1 Datapath: An initiative to create a national 9-1-1 data system that PSAPs could use for standardized classification of calls. It will allow data to be compared nationally regarding PSAP call volumes, types of calls received, types of calls for which first

[124] See § 29-11-102.5(2)(c), C.R.S.

responders are dispatched, etc.

- CAD Assessment Project: Computer Aided Dispatch (CAD) systems, used to track calls for service and field responder activities, are used in almost all PSAPs but their functionality varies widely from vendor to vendor and even among different product lines. This nationwide assessment intends to summarize the current status of CAD systems and challenges for establishing interoperable data-sharing capability between all of them.
- COVID-19 & Other Emerging Diseases: The Program is collecting and making available resources for local 9-1-1 entities.
- Federal 9-1-1 Funding: Primarily refers to the federal NG9-1-1 grant program which has concluded, but this page lists other federal funding resources that could potentially be accessed by local 9-1-1 agencies.
- GIS Assessment Project: Intends to determine the status of Geographic Information Systems data in use by 9-1-1 agencies across the nation, identify the budget, resources, and organizations required to address challenges in current GIS initiatives, and develop strategies for addressing obstacles.
- Next Generation 9-1-1 for Public Safety Leaders: An initiative for educating public safety professionals about the benefits of Next Generation 9-1-1. Its web page contains a number of useful educational videos and other material created or collected for the purpose.
- NG9-1-1 Interoperability: This initiative involves generally supporting efforts of other organizations to ensure interoperability of NG9-1-1 components and systems and other public safety networks. It includes the efforts of the NG9-1-1 Interoperability Task Force to integrate NG9-1-1 and the National Public Safety Broadband Network (commonly referred to as FirstNet), and developing lessons learned through real-world implementations of NG9-1-1 systems and technology.
- NG9-1-1 National Roadmap: A publication which builds on work previously performed by the Federal Communications Commission's Task Force on Optimal Public Safety Answering Point (PSAP) Architecture for interoperability between state and regional NG9-1-1 systems. Commission staff participated in the development of this material.
- Next Generation 9-1-1 Self-Assessment Tool: It can be used by local and state 9-1-1 officials, including PSAP and local governing body leaders, to assess their readiness for NG9-1-1.
- NG9-1-1/ERBN Interconnection: A collaboration with public and private representatives to address the connections between Next Generation 9-1-1 systems and public safety broadband networks such as FirstNet.
- Public Safety Telecommunicator Job Reclassification: An effort to encourage local, state, and federal agencies (such as the Bureau of Labor Statistics) to recognize 9-1-1 telecommunicators as public safety personnel rather than classifying them as clerical workers.

Federal Legislation

Federal legislation related to 9-1-1 service currently under consideration include:

- H.R. 637 - The 911 SAVES Act. This bill, reintroduced in the 116th Congress after several prior attempts, would direct the Office of Management and Budget to reclassify public safety telecommunicators as first responders rather than clerical workers. Many states, including Colorado, have recognized 9-1-1 call takers and dispatchers as first responders, but the federal occupational classifications still fail to recognize this. There has been no movement on this bill since it was introduced in January.

- H.R. 540 - The 911 SAVES Act of 2025. This similarly-named bill would direct the Office of Management and Budget to *consider* reclassifying public safety telecommunicators as first responders, not going as far as H.R. 637. This bill has also had no activity since it was introduced in January.

- H.R. 3658 - 911 Community Crisis Responders Act of 2025. This bill, among other things, would provide funding to 9-1-1 systems or centers to facilitate the integration of unarmed crisis response teams for non-violent mental health related calls into the spectrum of response for 9-1-1 calls.

- H.R. 2937 - The PROTECT 911 Act. This bill would direct the Secretary of Health and Human Services to develop resources and services to improve the detection, prevention, and treatment of mental health issues among public safety telecommunicators. There has been no movement on this bill since it was introduced in April.

- There was a concerted effort of the national 9–1-1 organizations to include in H.R. 1 a reauthorization of the Federal Communications Commission's previously held authority to auction off unused radio spectrum and to use the revenue from the sale of that spectrum to fund a federal grant program to assist states with further implementation of Next Generation 9-1-1, up to $15 billion. These efforts failed to make it into the bill.

7. Gaps, Vulnerabilities, and Needs

These items will remain in this document until addressed or mitigated. For full discussion, see current year's State of 9-1-1 Report

Challenges to Be Addressed

Challenges with Customer Service from CenturyLink

No Public Safety Answering Point Minimum Training Standards

No Clear Path Toward Consistent Statewide Cybersecurity Defense at PSAPs

Appendix B: Glossary

These definitions have been adapted from multiple sources, including *4 CCR 723-2-2131*, § 29-11-101, C.R.S., and the *NENA Knowledge Base Glossary*.[125] In a few cases, definitions were written specifically for this report.

9-1-1 - A three-digit abbreviated dialing code used to report an emergency situation requiring a response by a public agency such as a fire department or police department.

9-1-1 Access Connection - Any communications service including wireline, wireless cellular, interconnected voice-over-internet-protocol, or satellite in which connections are enabled, configured, or capable of making 9-1-1 calls.

9-1-1 Call - A request for emergency assistance from the public by dialing 9-1-1 or addressing the ESInet regardless of the technology used.

9-1-1 Governing Body - See *Governing Body*.

9-1-1 Service - The service by which a 9-1-1 call is routed and transported from the end user to the governing body or PSAP serving the caller's location. 9-1-1 service also includes location information routed to the PSAP.

9-1-1 Surcharge Fee - The statewide 9-1-1 Surcharge established by § 29-1-102.3, C.R.S.

Automatic Location Identification (ALI) - The automatic provision to a PSAP for display, on equipment at the PSAP, of the telephone number and location of the caller.

Automatic Number Identification (ANI) - The automatic provision to a PSAP for display of the caller's telephone number at the PSAP.

Basic Emergency Service (BES) - The aggregation and transportation of a 9-1-1 call directly to a demarcation point with a governing body or PSAP, regardless of the technology

[125] https://kb.nena.org/wiki/Category:Glossary

used to provide the service. The aggregation of calls means the collection of 9-1-1 calls from one or more OSPs or IASPs for the purpose of selectively routing and transporting 9-1-1 calls directly to a demarcation point with a governing body or PSAP. The offering or providing of location information or selective routing directly to a governing body or PSAP is also a basic emergency service.

(Note: This is a modification of the Commission's definition of BES simplified for the purpose of this report. See *4 CCR 723-2-2131(i)* or § 29-11-101(7), C.R.S. for the full definition.)

Basic Emergency Service Network (BES network) - the portion of the 9-1-1 call path that begins at the demarcation point between an OSP or IASP and a BESP and ends at the demarcation point between a BESP and a governing body or PSAP to provide basic emergency Service.

Basic Emergency Service Provider (BESP) - Any person certificated by the Commission to provide basic emergency service.

Demarcation Point - The physical point where the responsibility of a portion of a network changes from one party to another.

Emergency Communications Center (ECC) - a facility designated to receive and process requests for emergency assistance, which may include 9-1-1 calls, determine the appropriate emergency response based on available resources, and coordinate the emergency response according to a specific operational policy.

Note: The term "ECC" does not have the same meaning as "PSAP," but the two terms are increasingly being used interchangeably.

Emergency Communications Specialist (ECS) - See *Public Safety Telecommunicator*.

Emergency Services IP Network (ESInet) - A managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core services can be deployed, including, but not restricted to, those necessary for providing NG911 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks).

Emergency Telephone Charge (ETC) - a charge established by a governing body pursuant to § 29-11-102(2)(a), C.R.S. to pay for the expenses authorized in § 29-11-104, C.R.S.

Enhanced 9-1-1 (E9-1-1) - a telephone system which includes network switching, database and Public Safety Answering Point premise elements capable of providing automatic location identification data, selective routing, selective transfer, fixed transfer, and a call back number.

FirstNet - The common name used to refer to the National Public Safety Broadband Network (NPSBN), a national network to provide prioritized wireless data coverage for public safety

agencies. This network is operated by AT&T under the oversight of the First Responder Network Authority, which is housed within the National Telecommunications and Information Administration.

Governing Body - The organization responsible for establishing, collecting, and disbursing the Emergency Telephone Charge in a specific geographic area, pursuant to §§ 29-11-102, 103,
and 104, C.R.S.
Intermediary Aggregation Service Provider (IASP) - A person that aggregates and transports 9-1-1 calls for one or more OSPs for delivery to a demarcation point with a BESP.

Internet Protocol (IP) - The method by which data is sent from one computer to another on the Internet or other networks.

Legacy 9-1-1 - The original switch-based 9-1-1 system design, still largely in use throughout the United States. This design originally used analog CAMA (Centralized Automated Message Accounting) trunks for delivery of 9-1-1 calls, which are capable of delivering only voice and phone numbers to the PSAP. Today, "legacy 9-1-1" systems may include some IP technology and newer types of trunks known as SS7, but are still operated primarily using analog call delivery and tabular databases for routing. Legacy 9-1-1 systems are gradually being replaced with Next Generation 9-1-1 systems, which are fully IP-based and built around open standards developed through the National Emergency Number Association (NENA) and other standards development organizations.

Multi-Line Telephone System (MLTS) - A system comprised of common control units, telephones, and control hardware and software providing local telephone service to multiple customers in businesses, apartments, townhouses, condominiums, schools, dormitories, hotels, motels, resorts, extended care facilities, or similar entities, facilities, or structures.

Next Generation 9-1-1 (NG9-1-1) - A secure, IP-based, open-standards system comprised of hardware, software, data, and operational policies and procedures that:

A. Provides standardized interfaces from emergency call and message services to support emergency communications;

B. Processes all types of emergency calls, including voice, text, data, and multimedia information;

C. Acquires and integrates additional emergency call data useful to call routing and handling;

D. Delivers the emergency calls, messages, and data to the appropriate public safety answering point and other appropriate emergency entities based on the location of the caller; and

E. Supports data, video, and other communications needs for coordinated incident response and management.

Originating Service Provider (OSP) - A local exchange carrier, wireless carrier, Voice-over-Internet-Protocol service provider, or other provider of functionally equivalent services supplying the ability to place 9-1-1 calls.

Public Safety Answering Point (PSAP) - A facility equipped and staffed to receive and process 9-1-1 calls from a BESP.

- **Primary PSAP:** A PSAP to which 9-1-1 calls are routed directly from the 9-1-1 Control Office.
- **Secondary PSAP:** A PSAP to which 9-1-1 calls are transferred from a Primary PSAP.

Public Safety Telecommunicator (PST) or **Telecommunicator** - an emergency response coordination professional trained to receive, assess, and prioritize emergency requests for assistance, including, but not limited to:

- Determining the location of the emergency being reported
- Determining the appropriate law enforcement, fire, emergency medical, or combination of those emergency services to respond to the emergency
- Coordinating the implementation of that emergency response to the location of the emergency
- Processing requests for assistance from emergency responders.

Sometimes referred to as an "Emergency Communications Specialist" or similar title, and includes personnel who take 9-1-1 calls from the public, dispatched 9-1-1 calls for service to field responders, or both.

Selective Routing: The routing of a 9-1-1 call to the demarcation point with a governing body or PSAP based upon the location information or other factors as agreed upon by the governing body or PSAP. (Note: A "selective router" refers to a specific type of equipment in legacy 9-1-1 networks, but in this document the term selective routing is used more broadly to mean the routing of 9-1-1 calls to a specific PSAP based on either legacy methods such as tabular database or based on NG911 geospatial call routing routines.)

Teletypewriter (TTY) - A device that allows people who are deaf, hard of hearing, or speech-impaired to use the telephone to communicate. The device connects to a telephone and allows users to type messages which are received character-by-character on the receiving end. A TTY is required at both ends of the conversation in order to communicate. TTY devices, although still in use today, are rapidly becoming replaced by a variety of other types of devices. Also referred to as a "Telecommunications Device for the Deaf (TDD)."

Text-to-9-1-1 - *Also* Text-to-911 and SMS-to-911. A service that allows users of 9-1-1 to send

a text message directly to "911" from their mobile device and allows that text message to be relayed to the appropriate PSAP. There are interim methods of text-to-9-1-1 service that relay text-to-9-1-1 messages directly to a PSAP while bypassing the existing 9-1-1 network. If a Next Generation 9-1-1 system is available, text-to-9-1-1 messages may be relayed through the ESInet.

Voice-over-Internet-Protocol (VoIP) - a service that:

- enables real-time, two-way voice communications originating from or terminating at a user's in internet protocol or a successor protocol;
- utilizes a broadband connection from the user's location; and
- permits a user to generally receive calls that originate on the public switched network and to terminate calls to the public switched telephone network.

Appendix C: Participating Stakeholders

Pursuant to § 40-2-131(2), C.R.S., this report was developed in consultation with representatives of public safety answering points, 9-1-1 governing bodies, and state-wide organizations that represent public safety agencies.

This report was provided in draft form to the following organizations with a request for comment:

- The Commission's 9-1-1 Advisory Task Force
- The Colorado Chapter of the National Emergency Number Association and the Association of Public Safety Communications Officials, Intl.
- County Sheriffs of Colorado
- Colorado Association of Chiefs of Police
- Colorado State Fire Chiefs
- Emergency Medical Services Association of Colorado
- Colorado Emergency Management Association
- Colorado Counties Incorporated
- Colorado Municipal League

Additionally, a copy was provided to the following state agencies and bodies with a request for comment:

- The Colorado Department of Public Safety
- The Colorado Department of Homeland Security and Emergency Management
- The Homeland Security Advisory Committee's Public Safety Communications Subcommittee

Commission Staff involved in the development and updating of this report consisted of:

- Daryl Branson, PUC telecom program section chief
- Jennifer Kirkland, state 9-1-1 program manager
- Holly Bise, state TRS program manager
- Jolene Sena, telecom surcharge administrator

Appendix D: Additional Resources

The Commission's 9-1-1 Program Webpage
https://sites.google.com/state.co.us/colorado911program/home?authuser=1

The Commission's 9-1-1 Advisory Task Force Webpage
https://sites.google.com/state.co.us/9-1-1-advisory-task-force/home?authuser=1

The Colorado 9-1-1 Resource Center
www.co911rc.org

The Colorado Chapter of NENA and APCO
www.conenaapco.org

The Colorado Council of Authorities
www.ccoa911.org

The National Emergency Number Association
www.nena.org

The Association of Public Safety Communications Officials, Intl.
www.apcointl.org

The National Association of State 911 Administrators
www.nasna911.org

The National 911 Program
www.911.gov

The FCC's Task Force on Optimal PSAP Architecture

https://www.fcc.gov/about-fcc/advisory-committees/general/task-force-optimal-public-safety-answering-point

The FCC's Communications, Security, Reliability and Interoperability Council
https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability-council

The FCC's Ending 9-1-1 Fee Diversion Now Strike Force
https://www.fcc.gov/911strikeforce

The National Public Safety Telecommunications Council
http://www.npstc.org/

The Next Generation 9-1-1 Interoperability Task Force
https://ng911interop.org/

Transform 911
https://www.transform911.org/

Denise Amber Lee Foundation
https://deniseamberlee.org/

Appendix E: 9-1-1 Frequently Asked Questions

Certain questions are often asked by members of the public about how 9-1-1 service works, or about perceived problems concerning 9-1-1 service. This section attempts to answer some of those questions, and may help legislators better understand issues of concern to their constituents.

"If my food delivery or rideshare app can find me, why can't 9-1-1?" or "Since my cell phone location is sent to 9-1-1 when I call, why do I have to tell the call taker my address?"

Location services for wireless 9-1-1 calls were developed at a time when the handsets had no location awareness. They relied first on network-based location triangulation, followed later by GPS location calculation. Today, smartphones have several sensors that can be used in combination to determine a much more accurate location for the caller. But because the 9-1-1 system wasn't originally designed to take advantage of handset-based location information, there hasn't been an easy way to deliver this data to the dispatch center. As a result, the location information typically delivered to the dispatch center is sometimes less accurate than handset-based location information that is available to non-911 applications and commercial services. Sometimes it is not available to 9-1-1 at all.

Currently, wireless carriers, handset manufacturers, and even smartphone operating system developers are working to fix this. For example, both Apple and Google have partnerships with a firm called RapidSOS to provide enhanced handset-based location data to dispatch centers. The base level of this service is offered free of charge, though some equipment and software vendors may charge for integrating the service into 9-1-1 call handling equipment.

Recently, national wireless carriers have also begun providing Z-Axis (elevation above sea level) coordinates with the location information for wireless 9-1-1 calls, in accordance with requirements imposed by the Federal Communications Commission. Although Z-Axis coordinates are of limited value now, they are the first step toward being able to pinpoint not only where on Earth a 9-1-1 call is coming from but what floor of a building the caller is on as well.

Generally speaking, 9-1-1 location technology has improved greatly over the years but it may never be 100% accurate or reliable. It is extremely useful when there is no other way to obtain the location of the emergency, such as when the caller can't speak or they don't know where they are. However, whenever possible the best practice is for the telecommunicator to ask the caller for the location of the emergency. In most cases, this will be the very first thing asked of a 9-1-1 caller.

"Can I call 9-1-1 on a cell phone with no active service plan or prepaid minutes?"

The short answer is yes. Any wireless phone with a signal is able to dial 9-1-1. The Federal Communications Commission, which has regulatory authority over wireless telecommunications services, requires that the 9-1-1 call be delivered to the appropriate 9-1-1 telephone service provider. However, cell phones without a service contract or prepaid minutes can have limitations. They can call 9-1-1 but the dispatch center will not automatically receive callback number information like normal. This will prevent the call taker from following up if the call is disconnected before the phone number can be provided verbally. 9-1-1 calls from such phones are also frequently delivered without location information, which could prevent an emergency response if the connection is lost before the location is shared verbally.

"Why does the call-taker ask so many questions?"

9-1-1 call takers (also called telecommunicators or emergency communications specialists) have an important responsibility to gather all of the information necessary for emergency services to respond appropriately and quickly. This also includes keeping the responders safe, which requires having a comprehensive understanding of the situation at the location of the emergency.

Many dispatch centers in Colorado also provide pre-arrival medical instructions and emergency medical dispatch (EMD) services. These are medical protocol systems developed by medical experts and often overseen by local medical professionals. Their purpose is to help stabilize a patient's condition until emergency medical services arrive, but doing so requires a lot of communication between the call taker and the caller. The best thing the caller can do is answer the telecommunicator's questions and follow their instructions to the best of their ability.

Typically, emergency medical services are dispatched early in the call and then EMD is performed while responders are en route, so there is little to no delay due to EMD questions.

"What happens if I text to 9-1-1 in an area which doesn't provide that service?"

If you attempt to send a text message to 9-1-1 in an area that does not have the service you will receive a "bounceback" message stating it isn't available and to instead make a phone call to 9-1-1. This may also occur if you're roaming on another service provider's network.

“Can someone who does not speak English call 9-1-1?”

Most dispatch centers contract with third party interpreter services to provide language translation. If one is available the call taker can bring on an interpreter for a 3-way call. However, not all dispatch centers use such services.

“What is the difference between Next Generation 9-1-1 and FirstNet?”

Next Generation 9-1-1 (NG9-1-1) is the standards-based delivery of 9-1-1 calls and other information to a dispatch center via modern Internet Protocol (IP) networks and services. Upgrading the existing legacy E9-1-1 service to Next Generation 9-1-1 service has many benefits, including making the system more resilient and flexible, allowing for dynamic rerouting 9-1-1 calls when necessary, and opening the network to accept other types of data such as medical information, automatic crash notification and metrics, pictures, videos, etc. NG9-1-1 connects the citizen with the dispatch center.

FirstNet, the commonly used name for the National Public Safety Broadband Network (NPSBN), is a wireless broadband network for public safety agencies that will allow responders in the field to share data and media such as pictures, building schematics, and more. FirstNet connects emergency service personnel to each other, including those at the dispatch center and the various field responders.

The best way to describe Next Generation 9-1-1 and FirstNet together is that both are needed to transmit and deliver data and multimedia all the way from citizens to field responders.