

**FCC FACT SHEET**<sup>1</sup>

Facilitating Implementation of Next Generation 911 Services (NG911)  
Notice of Proposed Rulemaking – PS Docket No. 21-479

**Background:** Every year, people in need of emergency assistance make more than 200 million calls to 911 across the United States. Each of these calls travels on dedicated 911 networks to reach a telecommunicator that can dispatch aid. With the transition to Next Generation 911 (NG911), state and local 911 authorities are replacing legacy circuit-switched 911 networks with Internet Protocol (IP)-based networks and applications that will support new 911 capabilities, including text, video, and data, as well as improved interoperability and system resilience. Completing the NG911 transition will also require originating service providers to format 911 calls to be compatible with NG911 and to deliver the calls to new destination points established by 911 authorities. As state and local 911 authorities have begun to invest significantly in NG911, some have reported that originating service providers are refusing to connect to these destination points or are otherwise delaying the transition process, which imposes additional costs and delays on 911 authorities. In 2021, the National Association of State 911 Administrators (NASNA) filed a petition urging the Commission to take action to resolve uncertainty and disputes between originating service providers and 911 authorities regarding the NG911 transition. In December 2022, the Commission addressed the NASNA petition in part by proposing to require Commercial Mobile Radio Service (CMRS) providers to deliver 911 calls and texts in IP format upon request of NG911-capable 911 authorities. This Notice of Proposed Rulemaking would propose similar requirements for delivery of 911 calls by wireline, interconnected Voice over Internet protocol (VoIP), and Internet-based Telecommunications Relay Service (TRS) providers, and would address allocation of costs for transmitting all IP-based 911 calls.

**What the Notice of Proposed Rulemaking Would Do**

- Propose to require that, upon valid request of 911 authorities who have established the capability to accept NG911-compatible, IP-based communications:
  - Wireline, interconnected VoIP, and Internet-based TRS providers must complete all translation and routing to deliver 911 calls, including associated location information, in IP-based format, and
  - Wireline, CMRS, interconnected VoIP, and Internet-based TRS providers must transmit all 911 calls to destination point(s) designated by a 911 authority.
- Propose to require that, in the absence of agreement by states or localities on alternative cost recovery mechanisms, wireline, CMRS, interconnected VoIP, and Internet-based TRS providers must cover the costs of transmitting 911 calls in IP-based format to the point(s) designated by a 911 authority.

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<sup>1</sup> This document is being released as part of a “permit-but-disclose” proceeding. Any presentations or views on the subject expressed to the Commission or its staff, including by email, must be filed in PS Docket No. 21-479, which may be accessed via the Electronic Comment Filing System (<https://www.fcc.gov/ecfs/search/search-filings>). The FCC’s *ex parte* rules apply and presentations are subject to “permit-but-disclose” *ex parte* rules. *See, e.g.*, 47 CFR §§ 1.1206, 1.1200(a). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission’s meeting. *See* 47 CFR §§ 1.1200(a), 1.1203.

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

In the Matter of )
Facilitating Implementation of Next Generation ) PS Docket No. 21-479
911 Services (NG911) )

NOTICE OF PROPOSED RULEMAKING\*

Adopted: "Insert Adopted Date" Released: "Insert Release Date"

Comment Date: (30 days after date of publication in the Federal Register)
Reply Comment Date: (60 days after date of publication in the Federal Register)

BY THE COMMISSION:

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\* This document has been circulated for tentative consideration by the Commission at its June 8, 2023 open meeting. The issues referenced in this document and the Commission’s ultimate resolution of those issues remain under consideration and subject to change. This document does not constitute any official action by the Commission. However, the Chairwoman has determined that, in the interest of promoting the public’s ability to understand the nature and scope of issues under consideration, the public interest would be served by making this document publicly available. The Commission’s ex parte rules apply and presentations are subject to “permit-but-disclose” ex parte rules. See, e.g., 47 C.F.R. §§ 1.1206, 1.1200(a). Participants in this proceeding should familiarize themselves with the Commission’s ex parte rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission’s meeting. See 47 CFR §§ 1.1200(a), 1.1203.

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## I. INTRODUCTION

1. In this Notice of Proposed Rulemaking, we propose to take steps that will advance the nationwide transition to Next Generation 911 (NG911).<sup>1</sup> Like communications networks generally, dedicated 911 networks are evolving from Time Division Multiplex (TDM)-based architectures to Internet Protocol (IP)-based architectures. With the transition to NG911, 911 authorities will replace the circuit-switched architecture of legacy 911 networks with IP-based technologies and applications, which provide new capabilities and improved interoperability and system resilience. Most states have invested significantly in NG911, but some report that they are experiencing delays in providers connecting to these IP-based networks. As a result of these delays, state and local 911 authorities incur prolonged costs because of the need to maintain both legacy and IP networks during the transition. Managing 911 traffic on both legacy and IP networks may also result in increased vulnerability and risk of 911 outages.

2. In this proceeding, we propose to expedite the NG911 transition by adopting certain requirements that would apply to wireline, Commercial Mobile Radio Service (CMRS), interconnected Voice over Internet Protocol (VoIP), and Internet-based Telecommunications Relay Service (TRS) providers as state and local 911 authorities transition to IP-based networks and develop the capability to support NG911 elements and functions.

- First, we propose to require wireline, interconnected VoIP, and Internet-based TRS providers to complete all translation and routing to deliver 911 calls, including associated location information, in the requested IP-based format to an Emergency Services IP network (ESInet) or other designated point(s) that allow emergency calls to be answered upon request of 911 authorities who have certified the capability to accept IP-based 911 communications. Wireline and interconnected VoIP providers would be subject to this requirement six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. Internet-based TRS providers would be subject to this requirement twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later. This proposal is similar to that proposed for CMRS and covered text providers in our recent proceeding on wireless location-based routing.<sup>2</sup>
- Second, as state and local 911 authorities transition to IP-based networks, we propose to require wireline, interconnected VoIP, CMRS, and Internet-based TRS providers to transmit all 911 calls to destination point(s) in those networks designated by a 911 authority, including to a public safety answering point (PSAP), designated statewide default answering point, local emergency authority, ESInet, or other point(s) designated by 911 authorities that allow

<sup>1</sup> For purposes of this *Notice of Proposed Rulemaking*, we use the term Next Generation 911 (NG911) to refer generally to the digital Internet Protocol (IP)-based 911 systems that are replacing analog time division multiplex (TDM) 911 infrastructure. We also seek comment on defining NG911 for purposes of our proposed rules in section III.A.4 below.

<sup>2</sup> See *Location-Based Routing for Wireless 911 Calls*, Notice of Proposed Rulemaking, PS Docket No. 18-64, FCC 22-96, 2022 WL 17958801, at \*2, para. 4 (Dec. 22, 2022) (*Location-Based Routing NPRM*). The Commission defines the term “covered text provider” as including “all CMRS providers as well as all providers of interconnected text messaging services that enable consumers to send text messages to and receive text messages from all or substantially all text-capable U.S. telephone numbers, including through the use of applications downloaded or otherwise installed on mobile phones.” 47 CFR § 9.10(q)(1).

emergency calls to be answered, upon request of 911 authorities who have certified the capability to accept IP-based 911 communications.

- Third, we propose that in the absence of agreements by states or localities on alternative cost recovery mechanisms, wireline, interconnected VoIP, CMRS, and Internet-based TRS providers must cover the costs of transmitting 911 calls to the point(s) designated by a 911 authority, including any costs associated with completing the translation and routing necessary to deliver such calls and associated location information to the designated destination point(s) in the requested IP-based format. Under this proposal, states and localities would remain free to establish alternative cost allocation arrangements with providers. However, in the absence of such arrangements, providers would be presumptively responsible for the costs associated with delivering traffic to the destination point(s) identified by the appropriate 911 authority.

3. Together, these proposals are intended to expedite the NG911 transition and help ensure that the nation's 911 system functions effectively and with the most advanced capabilities available. In addition, they respond to the petition filed in 2021 by the National Association of State 911 Administrators (NASNA)<sup>3</sup> urging the Commission to take actions to resolve uncertainty and disputes between originating service providers (OSPs)<sup>4</sup> and state 911 authorities regarding the NG911 transition. We seek to create a consistent framework for ensuring that providers (including wireline, CMRS, interconnected VoIP, and Internet-based TRS providers) take the necessary steps to implement the transition to NG911 capability in coordination with state and local 911 authorities. We also seek to align the NG911 transition rules for wireline, interconnected VoIP, and Internet-based TRS providers with similar requirements we have proposed for CMRS and covered text providers in the *Location-Based Routing NPRM*, thereby promoting consistency across service platforms. Finally, our demarcation point and cost allocation proposals seek to address what NASNA described in its Petition as “the critical component, and biggest regulatory roadblock, to transitioning to NG911 services.”<sup>5</sup> We seek comment on the tentative conclusions, proposals, and analyses set forth in this *Notice of Proposed Rulemaking*, as well as on any alternative approaches.

## II. BACKGROUND

4. 911 service is a vital part of our nation's emergency response and disaster preparedness system. Since the first 911 call was placed in 1968,<sup>6</sup> the American public increasingly has come to depend on 911 service. The National Emergency Number Association (NENA) estimates that some form of 911 service is available to over 98 percent of the population and to over 97 percent of the counties in the United States,<sup>7</sup> and data collected in our annual 911 fee report indicate that over 220 million calls are

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<sup>3</sup> Petition for Rulemaking; Alternatively, Petition for Notice of Inquiry, CC Docket No. 94-102, PS Docket Nos. 18-64, 18-261, 11-153, and 10-255 (filed Oct. 19, 2021), <https://www.fcc.gov/ecfs/document/1019188969473/1> (NASNA Petition).

<sup>4</sup> NASNA and other commenters on NASNA's Petition use the term “originating service providers” to refer to all service providers that originate 911 calls and are subject to part 9 of our rules, including wireline, wireless, and interconnected Voice over Internet Protocol (VoIP) providers. *See, e.g.*, NASNA Petition at 2. For purposes of this *Notice of Proposed Rulemaking*, we use the term “originating service providers” (OSPs) to refer collectively to wireline, wireless, and interconnected VoIP providers, but not to other service providers covered by part 9 (e.g., telecommunications relay and mobile satellite services).

<sup>5</sup> NASNA Petition at 6.

<sup>6</sup> Federal Communications Commission (FCC), *911 and E911 Services*, <https://www.fcc.gov/general/9-1-1-and-e9-1-1-services> (last visited May 16, 2023).

<sup>7</sup> National Emergency Number Association (NENA), *9-1-1 Statistics*, <https://www.nena.org/page/911Statistics> (last visited May 16, 2023).

made to 911 in the United States each year.<sup>8</sup> The availability of this critical service is due largely to the dedicated efforts of state, local, and Tribal authorities and providers, who have used the 911 abbreviated dialing code to provide access to increasingly advanced and effective emergency service capabilities.<sup>9</sup> Indeed, absent funding for and appropriate action by states, Tribes, and local jurisdictions, there can be no effective 911 service.

#### A. 911 Implementation

5. *The Universal Emergency Number.* In 1999, Congress amended section 251(e) of the Communications Act of 1934, as amended (the Act), and directed the Commission to designate “911” as the nationwide abbreviated dialing code for contacting wireline and wireless voice services for public safety and emergency services.<sup>10</sup> In 2000, the Commission designated 911 as the national emergency telephone number to be used for reporting emergencies and requesting emergency assistance.<sup>11</sup> In 2001, the Commission established a period for wireline and wireless carriers to transition to routing 911 calls to a PSAP in areas where one had been designated or, in areas where a PSAP had not yet been designated, either to an existing statewide default point or to an appropriate local emergency authority.<sup>12</sup>

6. *Legacy 911 Call Routing.* For legacy E911 systems, 911 calls are routed through the use of a wireline network element—called a selective router—to a geographically appropriate PSAP based on the caller’s location.<sup>13</sup> The selective router serves as the entry point for 911 calls from competitive and incumbent LEC central offices over dedicated trunks,<sup>14</sup> as well as 911 calls from wireless<sup>15</sup> and

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<sup>8</sup> FCC, Fourteenth Annual Report to Congress on State Collection and Distribution of 911 and Enhanced 911 Fees and Charges at 15, tbl. 3 (2022), <https://www.fcc.gov/file/24628/download> (Fourteenth Annual 911 Fee Report).

<sup>9</sup> See *Implementation of 911 Act; The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, WT Docket No. 00-110, CC Docket No. 92-105, Fourth Report and Order and Third Notice of Proposed Rulemaking, and Notice of Proposed Rulemaking, 15 FCC Rcd 17079, 17084, para. 9 (2000) (*911 Implementation Notice*).

<sup>10</sup> Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, § 3(a), 113 Stat. 1286, 1287 (911 Act) (codified at 47 U.S.C. § 251(e)(3)). The purpose of the 911 Act is to enhance public safety by encouraging and facilitating the prompt deployment of a nationwide, seamless communications infrastructure for emergency services that includes wireless communications. *911 Implementation Notice*, 15 FCC Rcd at 17081, para. 1 (citing 911 Act § 2(b)). The 911 Act further directs the Commission to encourage and support the states in developing comprehensive emergency communications throughout the United States so that all jurisdictions offer seamless networks for prompt emergency service. *Id.*

<sup>11</sup> *911 Implementation Notice*, 15 FCC Rcd at 17084-85, para. 11.

<sup>12</sup> See *Implementation of 911 Act; The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, WT Docket No. 00-110, CC Docket No. 92-105, Fifth Report and Order, First Report and Order, and Memorandum Opinion and Order on Reconsideration, 16 FCC Rcd 22264, 22293-95, App. B (2001). The Commission codified in former section 64.3001 the obligation of telecommunications carriers to transmit all 911 calls to a PSAP, to a designated statewide default answering point, or to an appropriate local emergency authority. *Id.* In addition, the Commission codified in former section 64.3002 the periods for transition to 911 as the universal emergency telephone number. *Id.* The Commission subsequently renumbered sections 64.3001 and 64.3002 as current sections 9.4 and 9.5, respectively. *Implementing Kari’s Law and Section 506 of RAY BAUM’S Act; Inquiry Concerning 911 Access, Routing, and Location in Enterprise Communications Systems; Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission’s Rules*, PS Docket Nos. 18-261 and 17-239, GN Docket No. 11-117, Report and Order, 34 FCC Rcd 6607, 6742, App. B (2019) (*Kari’s Law/RAY BAUM’S Act Order*), corrected by Erratum, DA 19-1217 (PSHSB Dec. 2, 2019), also corrected by Second Erratum, 87 Fed. Reg. 60104 (Oct. 4, 2022); see 47 CFR §§ 9.4 and 9.5.

<sup>13</sup> See *IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers*, WC Docket Nos. 04-36 and 05-196, First Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 10245, 10251, 10252, paras. 13, 15 (2005) (*VoIP 911 Order*), *aff’d sub nom. Nuvio Corp. v. FCC*, 473 F.3d 302 (D.C. Cir. 2006).

<sup>14</sup> *Id.* at 10252, para. 15.

<sup>15</sup> See *id.* at 10252-53, para. 17.

interconnected VoIP providers.<sup>16</sup> In legacy architecture, PSAPs are connected to telephone switches in the selective router by dedicated trunk lines.<sup>17</sup> Historically, the selective router and connecting trunk lines have been implemented, operated, and maintained by a subset of incumbent Local Exchange Carriers (LECs) and largely paid for by state or local 911 authorities through state tariffs or contracts.<sup>18</sup> Network implementation has varied from carrier to carrier and jurisdiction to jurisdiction, but legacy E911 has typically been based on traditional circuit-switched architecture and implemented with legacy components that place significant limitations on the functions that can be performed over the network.<sup>19</sup>

7. *Legacy Demarcation Point.* Although the Commission has not previously set a cost demarcation point for wireline, interconnected VoIP, and Internet-based TRS providers in the E911 environment, the Commission has set a demarcation point for purposes of the wireless transition to E911. Early in the implementation of E911 Phase I by wireless carriers, King County, Washington sought clarification of the demarcation point for costs in Phase I implementation.<sup>20</sup> In 2001, the Wireless Telecommunications Bureau (WTB) issued a decision (*King County Letter*) identifying the input to the 911 selective router maintained by the incumbent LEC as the “proper demarcation point” for allocating wireless E911 Phase I information delivery responsibilities and costs in instances when CMRS providers and 911 authorities could not agree on an appropriate demarcation point.<sup>21</sup> In 2002, the Commission issued an Order on Reconsideration (*King County Order on Reconsideration*) affirming WTB’s decision and extending the demarcation point to include the delivery of wireless E911 Phase II information.<sup>22</sup> The Commission affirmed that for a wireless carrier to satisfy its obligation to provide Phase I information to the PSAP under section 20.18(d) (now section 9.10(d)), the wireless carrier must deliver and bear the costs to deliver E911 Phase I information to the equipment in the existing 911 system that “analyzes and distributes it,” i.e., the 911 selective router.<sup>23</sup> The Commission also affirmed that PSAPs were required to bear Phase I costs for delivery beyond the 911 selective router.<sup>24</sup> Together, these decisions provided guidance to facilitate implementation of E911 in TDM networks. However, the Commission has not previously sought to address demarcation in the NG911 environment.

8. *Voice Over Internet Protocol.* With regard to interconnected VoIP, the Commission has recognized that consumers expected certain types of emerging voice technology to have the same ability to reach emergency services when dialing 911 as their traditional wireline and wireless services.<sup>25</sup> This

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<sup>16</sup> See *id.* at 10269, paras. 40-41.

<sup>17</sup> See *id.* at 10250-51, para. 12.

<sup>18</sup> *Id.* at 10251, para. 14.

<sup>19</sup> *Id.* at 10252, para. 14.

<sup>20</sup> Letter from Marlys R. Davis, E911 Program Manager, King County E-911 Program Office, Department of Information and Administrative Services, to Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission (May 25, 2000).

<sup>21</sup> Letter from Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, FCC, to Marlys R. Davis, E911 Program Manager, King County E-911 Program Office, Department of Information and Administrative Services, King County, Washington, 2001 WL 491934, at \*1 (WTB May 7, 2001) (*King County Letter*) (clarifying that “wireless carriers are responsible for the costs of all hardware and software components and functionalities that precede the 911 Selective Router” and that “PSAPs . . . must bear the costs of maintaining and/or upgrading the E911 components and functionalities beyond the input to the 911 Selective Router”).

<sup>22</sup> *Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Request of King County, Washington*, CC Docket No. 94-102, Order on Reconsideration, 17 FCC Rcd 14789, 14789, 14793, paras. 1, 9-10 (2002) (*King County Order on Reconsideration*) (affirming the *King County Letter* on reconsideration and extending WTB’s analysis to Phase II service).

<sup>23</sup> *King County Order on Reconsideration*, 17 FCC Rcd at 14790, 14792-93, paras. 4, 7-8.

<sup>24</sup> See *id.* at 14790-91, 14792-93, paras. 4, 7-8.

<sup>25</sup> See, e.g., *VoIP 911 Order*, 20 FCC Rcd at 10247-48, paras. 4-5.

recognition resulted in the 2005 *VoIP 911 Order*, in which the Commission imposed 911 service obligations on providers of interconnected VoIP.<sup>26</sup> The Commission declined to establish an E911 demarcation point for interconnected VoIP service, but it stated that “[t]o the extent that it becomes a concern, we believe that the demarcation point that the Commission established for wireless E911 cost allocation would be equally appropriate for VoIP.”<sup>27</sup>

9. *911 Parity*. By 2008, Congress recognized that the nation’s 911 system was “evolving from its origins in a circuit-switched world to an IP-based network”<sup>28</sup> and that for VoIP providers to fulfill their 911 service obligations to subscribers, they must have access to the same emergency services capabilities and infrastructure as other voice providers.<sup>29</sup> Congress passed the New and Emerging Technologies Improvement Act of 2008 (NET 911 Act) to facilitate the rapid deployment of VoIP 911 services and to, among other things, encourage the transition to a national IP-enabled emergency network.<sup>30</sup> The NET 911 Act extended critical 911 service-related rights, protections, and obligations to VoIP service providers,<sup>31</sup> and mandated parity for VoIP providers vis-à-vis other voice providers subject to 911 obligations with respect to the rates, terms, and conditions applicable to exercising their rights and obligations to provision VoIP 911 service.<sup>32</sup>

## B. Transition to Next Generation 911

10. Like communications networks generally, 911 networks are evolving from TDM-based architectures to IP-based architectures. With the transition to NG911, the circuit-switched architecture of legacy 911 will eventually be entirely replaced by IP-based technologies and applications that provide all of the same functions as the legacy 911 system, as well as new capabilities. In its end state, NG911 will facilitate interoperability and system resilience, improve connections between 911 call centers, and support the transmission of text, photos, videos, and data.<sup>33</sup>

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<sup>26</sup> *Id.* at 10246, 10256, paras. 1, 22; *see also* 47 CFR §§ 9.3 (defining *interconnected VoIP service*), 9.11-.12 (giving interconnected VoIP providers duties and rights with respect to provision of 911 service). The Commission later clarified that the 911 VoIP requirements extended to “outbound only” interconnected VoIP providers, that is, VoIP providers that permit users to initiate calls that terminate to the PSTN even if they do not also allow users to receive calls from the PSTN. *Kari’s Law/RAY BAUM’S Act Order*, 34 FCC Rcd at 6670-71, 6675, paras. 174, 183. While section 615b uses the term “IP-enabled voice service,” it defines this term as having the same meaning as “interconnected VoIP” in section 9.3 of the Commission’s rules. 47 U.S.C. § 615b(8). We refer to both of these terms in this *Notice of Proposed Rulemaking* as “interconnected VoIP service” (and to providers of such a service as “interconnected VoIP providers”) and in doing so intend to encompass all VoIP services subject to 911 obligations under part 9 of our rules, including providers of Internet Protocol Captioned Telephone Service (IP CTS), who are also the providers of the associated interconnected VoIP service. IP CTS is a form of Telecommunications Relay Service (TRS) “that permits an individual with a hearing or a speech disability to communicate in text using an internet Protocol-enabled device via the internet, rather than using a text telephone (TTY) and the public switched telephone network.” 47 CFR § 64.601(a)(24). We also include other providers of Internet-based TRS, video relay service (VRS), and Internet Protocol Relay Service (IP Relay).

<sup>27</sup> *VoIP 911 Order*, 20 FCC Rcd at 10274, para. 53 n.164.

<sup>28</sup> *Implementation of the NET 911 Improvement Act of 2008*, Report and Order, WC Docket No. 08-171, 23 FCC Rcd 15884, 15893, para. 22 (*citing* New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. 110-283, Preamble, §102, 122 Stat. 2620 (2008) (NET 911 Act)).

<sup>29</sup> *See* H.R. Rep. No. 110-442, at 6-7 (2007).

<sup>30</sup> NET 911 Act, Preamble.

<sup>31</sup> *Id.* §§ 101, 201(a).

<sup>32</sup> *Id.* § 101(2) (codified at 47 U.S.C. § 615a-1(b)).

<sup>33</sup> *See, e.g.*, City of New York Office of Technology & Innovation, 2022 Annual Report on Implementation of Next Generation 9-1-1 in NYC at 4 (2022), <https://www.nyc.gov/assets/oti/downloads/pdf/reports/annual-report-next-generation-911-2022.pdf> (listing the primary technical benefits of NG911); *see also* NENA, Why NG9-1-1 at 1-2



11. Congress has recognized the Commission's role in facilitating the transition to NG911. As part of the 2010 National Broadband Plan, the Commission recommended that Congress consider developing a new "legal and regulatory framework for development of NG911 and the transition from legacy 911 to NG911 networks."<sup>34</sup> Also in 2010, Congress enacted the Twenty-First Century Communications and Video Accessibility Act (CVAA), which authorized the Commission to implement regulations necessary to achieve reliable and interoperable communication that ensures access to an Internet Protocol-enabled emergency network by individuals with disabilities, where achievable and technically feasible.<sup>35</sup> In 2012, Congress enacted the Next Generation 9-1-1 Advancement Act of 2012 as part of the Middle Class Tax Relief and Job Creation Act of 2012 (NG911 Act), asking the Commission to prepare and submit a report to Congress on recommendations for the legal and statutory framework for NG911 services.<sup>36</sup> In 2013, the Commission submitted that report, recommending among other things that Congress 1) facilitate the exercise of existing authority over NG911 by certain federal agencies (including the Commission), and 2) consider enacting legislation that would ensure there is no gap between federal and state authority over NG911.<sup>37</sup> The Commission stated that "[t]he Commission already has sufficient authority to regulate the 911 and NG911 activity of, inter alia, wireline and wireless carriers, interconnected VoIP providers, and other IP-based service providers."<sup>38</sup>

12. The technological and regulatory landscape underlying 911 has evolved significantly since 2013. The Commission has adopted requirements for text-to-911, real-time text, wireless indoor location accuracy, and dispatchable location.<sup>39</sup> In addition, the Commission has updated 911 outage and reliability rules, including recognizing the role of covered 911 entities.<sup>40</sup> With respect to technology, E911 Phase II is now widely implemented,<sup>41</sup> and many state and local jurisdictions have deployed ESInets and taken

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(2009), [https://cdn.ymaws.com/www.nena.org/resource/resmgr/ng9-1-1\\_project/whyng911.pdf](https://cdn.ymaws.com/www.nena.org/resource/resmgr/ng9-1-1_project/whyng911.pdf) (identifying the purposes of NG911).

<sup>34</sup> FCC, Connecting America: The National Broadband Plan, Recommendation 16.14 at 326 (2010), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-296935A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf) (last visited May 16, 2023) (National Broadband Plan)

<sup>35</sup> Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 124 Stat 2751 § 106(g) (2010) (CVAA) (codified at 47 U.S.C. § 615c(g)).

<sup>36</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96 (2012), Title VI, Subtitle E, Next Generation 9-1-1 Advancement Act (NG911 Act) § 6509.

<sup>37</sup> FCC, Legal and Regulatory Framework for Next Generation 911 Services, Section 4.1.2.2 at 28-29 (2013), [https://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2013/db0227/DOC-319165A1.pdf](https://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0227/DOC-319165A1.pdf) (last visited May 16, 2023) (2013 NG911 Framework Report).

<sup>38</sup> 2013 NG911 Framework Report, Section 4.1.2.2 at 28.

<sup>39</sup> E.g., *Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications; Framework for Next Generation 911 Deployment*, PS Docket Nos. 11-153 and 10-255, Second Report and Order and Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 9846 (2014); *Transition from TTY to Real-Time Text Technology; Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to Real-Time Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology*, CG Docket No. 16-145, GN Docket No. 15-178, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 13568 (2016); *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Fourth Report and Order, 30 FCC Rcd 1259 (2015); *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Fifth Report and Order and Fifth Further Notice of Proposed Rulemaking, 34 FCC Rcd 11592 (2019); *Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Sixth Report and Order and Order on Reconsideration, 35 FCC Rcd 7752 (2020); *Kari's Law/RAY BAUM'S Act Order*, 34 FCC Rcd 6607.

<sup>40</sup> E.g., *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; Improving 911 Reliability; New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, PS Docket Nos. 15-80, 13-75 and 04-35, Second Report and Order, FCC 22-88, 2022 WL 17100963 (Nov. 18, 2022).

<sup>41</sup> NENA, *9-1-1 Statistics*, <https://www.nena.org/page/911Statistics> (last visited May 16, 2023).



other transitional steps towards NG911.<sup>42</sup> Although the NG911 transition remains ongoing and there are no fully enabled NG911 systems yet operating,<sup>43</sup> the technical architecture of NG911 systems has been developed in detail and is well-established.<sup>44</sup>

13. *NASNA Petition.* On October 19, 2021, NASNA filed a petition asking the Commission to initiate a rulemaking or notice of inquiry to facilitate the transition to NG911 (NASNA Petition).<sup>45</sup> Specifically, NASNA asked the Commission to assert authority over the delivery of 911 communications by OSPs to ESInets and to amend the rules as needed to advance the transition to NG911.<sup>46</sup> As part of its petition, NASNA urged the Commission to set a default demarcation point in the NG911 environment analogous to its *King County* ruling in the E911 environment.<sup>47</sup> NASNA also asked the Commission to set deadlines for OSPs to begin delivering 911 traffic in NG911 format when the relevant state or local 911 authority achieves NG911 readiness, and to establish a registry through which 911 authorities would notify OSPs of their NG911 readiness status.<sup>48</sup> The Public Safety and Homeland Security Bureau (PSHSB or Bureau) placed the Petition on public notice on December 17, 2021, and received twenty-two comments, eight replies, and seven *ex partes*.<sup>49</sup>

14. *Wireless Location-Based Routing.* In December 2022, we issued the *Location-Based Routing NPRM* proposing to require CMRS and covered text providers to implement location-based routing for 911 calls and texts nationwide.<sup>50</sup> As part of that proceeding, we proposed to require CMRS and covered text providers to deliver 911 calls, texts, and associated routing information in IP format upon request of 911 authorities who have established the capability to accept NG911-compatible IP-based 911 communications.<sup>51</sup> In addition, we proposed rules to establish time frames for CMRS and covered text providers to deliver IP-based traffic.<sup>52</sup> Further, we sought comment on whether to make available a registry or database that would allow state and local 911 authorities to notify CMRS and covered text

<sup>42</sup> According to the most recent National 911 Annual Report, 2,287 PSAPs reported using an ESInet across 47 states in 2021, nearly a 5% increase from the 2020 data. National 911 Program, National 911 Annual Report, 2021 Data at 8, 60, 64 (2023), [https://www.911.gov/assets/2021-911-Profile-Database-Report\\_FINAL.pdf](https://www.911.gov/assets/2021-911-Profile-Database-Report_FINAL.pdf) (National 911 Annual Report).

<sup>43</sup> Association of Public-Safety Communications Officials-International, Inc. (APCO) Comments at 1-2 (rec. Jan. 19, 2022) (APCO Comments) (“ECCs should be able to receive, process, and share appropriate information with responders in the field and with other ECCs in a secure and fully interoperable fashion [but] no part of the country can be described as having achieved this vision of NG9-1-1 with end-to-end broadband communications for ECCs.”); see also APCO, APCO International’s Definitive Guide to Next Generation 9-1-1 at 9 (2022), [https://www.apcointl.org/ext/pages/APCOng911Guide/APCO\\_NG911\\_Report\\_Final.pdf](https://www.apcointl.org/ext/pages/APCOng911Guide/APCO_NG911_Report_Final.pdf) (noting that comprehensive, end-to-end NG911 “does not yet exist anywhere in the country”).

<sup>44</sup> See Task Force on Optimal PSAP Architecture (TFOPA), Adopted Final Report (2016), [https://transition.fcc.gov/pshs/911/TFOPA/TFOPA\\_FINALReport\\_012916.pdf](https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_FINALReport_012916.pdf) (TFOPA Final Report).

<sup>45</sup> NASNA Petition at 1.

<sup>46</sup> *Id.* at 2, 4-5.

<sup>47</sup> *Id.* at 2-3, 5-7.

<sup>48</sup> *Id.* at 3, 7-8.

<sup>49</sup> *Public Safety and Homeland Security Bureau Seeks Comment on Petition for Rulemaking Filed by the National Association of State 911 Administrators*, CC Docket No. 94-102 and PS Docket Nos. 21-479, 18-261, 18-64, 11-153, and 10-255, Public Notice, 36 FCC Rcd 17805 (PSHSB 2021), <https://www.fcc.gov/document/pshsb-seeks-comment-nasna-petition-rulemaking> (*Public Notice*). Comments, replies, and *ex partes* in this proceeding may be viewed in the Commission’s Electronic Comment Filing System (ECFS): [https://www.fcc.gov/ecfs/search/search-filings/results?q=\(proceedings.name:\(%2221-479%22\)\)](https://www.fcc.gov/ecfs/search/search-filings/results?q=(proceedings.name:(%2221-479%22))).

<sup>50</sup> *Location-Based Routing NPRM* at \*1, para. 1 & n.1.

<sup>51</sup> *Id.* at \*2, \*15, paras. 4, 46.

<sup>52</sup> *Id.* at \*16, para. 50.

providers of the 911 authorities' readiness to accept IP-based communications.<sup>53</sup> These proposals, if adopted, would effectively implement a key element of NASNA's petition with respect to transition to NG911 for wireless 911 calls and texts, which represent an estimated 80 percent<sup>54</sup> of 911 traffic in many areas.<sup>55</sup>

### III. DISCUSSION

15. To achieve the transition to NG911, state and local 911 authorities must implement IP-based technologies and applications that will provide all of the same functions as the legacy E911 system as well as new capabilities. NG911 relies on IP-based architecture to provide an expanded array of emergency communications services that encompass both the core functionalities of legacy E911 and additional functionalities that take advantage of the enhanced capabilities of IP-based devices and networks.<sup>56</sup> In addition to handling 911 calls from wireline, CMRS, interconnected VoIP, and Internet-based TRS providers, NG911 networks can receive text, data, and video communications from any communications device via IP-based networks.<sup>57</sup> They can also be configured to receive machine-generated data from telematics applications (e.g., automatic collision notification systems in vehicles), medical alert systems, and sensors and alarms of various types.<sup>58</sup> NG911 architecture also supports enhanced flexibility and resiliency in network design, because it does not require system components to be in close geographic proximity to each PSAP and because it provides multiple alternatives for rerouting emergency communications to avoid congestion or outages.<sup>59</sup>

16. The transition to NG911 involves fundamental changes in the technology that 911 authorities use to receive and process 911 calls, and calls for equally fundamental changes in the way that wireline, CMRS, interconnected VoIP, and Internet-based TRS providers deliver such calls to PSAPs. First, in NG911 architecture, PSAPs receive incoming calls by means of ESInets, which are IP-based networks that replace the selective routers and telephone trunk lines used in legacy 911.<sup>60</sup> Second, NG911 is configured to receive and process 911 calls in a specific IP-based format, with all information needed to route the call and locate the caller embedded in IP data packets that control call initiation and set-up.<sup>61</sup> This means that as part of the transition to NG911, wireline, CMRS, interconnected VoIP, and Internet-based TRS providers will need to configure 911 calls in IP format that is compatible with NG911

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<sup>53</sup> *Id.* at \*17, para. 52.

<sup>54</sup> NENA, *9-1-1 Statistics*, <https://www.nena.org/page/911Statistics> (last visited May 16, 2023).

<sup>55</sup> The *Location-Based Routing NPRM* did not propose rules for wireline, interconnected VoIP, and Internet-based TRS providers. In the instant *Notice*, we reference some comments received in response to the *Location-Based Routing NPRM* with respect to CMRS providers that could be relevant to our proposals for wireline, interconnected VoIP, and Internet-based TRS providers here. However, we intend to address the specific proposals made in the *Location-Based Routing NPRM*, including IP delivery of 911 calls and texts for CMRS and covered text providers, as part of that proceeding.

<sup>56</sup> *Framework for Next Generation 911 Deployment*, PS Docket No. 10-255, Notice of Inquiry, 25 FCC Rcd 17869, 17877, para. 18 (2010) (*NG911 NOI*).

<sup>57</sup> 2013 NG911 Report, Section 3.1.2 at 10.

<sup>58</sup> *Id.*

<sup>59</sup> *Id.* at 11.

<sup>60</sup> *NG911 NOI*, 25 FCC Rcd at 17878, para. 20. ESInets may be established at the statewide or regional level to serve multiple PSAPs. *Id.* at 17878, para. 20 n.52.

<sup>61</sup> Task Force on Optimal PSAP Architecture (TFOPA), Adopted Final Report at 38, fig. 4-1 (2016), <https://www.fcc.gov/document/fcc-releases-tfopa-final-report> (TFOPA Final Report); NENA, NENA i3 Standard for Next Generation 9-1-1 at 37-41 (Oct. 7, 2021), [https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/nena-sta-010.3b-2021\\_i3\\_stan.pdf](https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/nena-sta-010.3b-2021_i3_stan.pdf) (NENA i3 Standard for NG911) (describing the SIP methods required for an NG911 call); Verizon Comments at 2.

call processing specifications and deliver the calls to new destination points in the IP-based networks established by 911 authorities.

17. Because these changes to 911 call formatting and delivery will take time and may not be implemented uniformly by all service providers, NG911 architecture provides for transitional network components to enable delivery of legacy 911 calls to ESInets during the transition.<sup>62</sup> These include legacy network gateways,<sup>63</sup> which convert TDM 911 calls to IP, and ESInet entry points that accept IP-based 911 calls that do not include all of the call processing information required for end-state NG911. These transitional components are important to ensuring continued delivery of legacy 911 calls until the NG911 transition is complete, at which point the transitional components can and will be decommissioned. However, maintaining legacy gateways and other transitional components adds to the cost of the NG911 transition, and these costs may be compounded significantly when the transition is impeded or delayed.

18. Most states have already made significant commitments to implementing NG911.<sup>64</sup> Forty-one states and jurisdictions reported to the FCC in 2022 that they had ESInets operating in 2021.<sup>65</sup> Despite investments in these new capabilities, commenters allege that some providers are delaying or refusing to connect to new NG911 networks.<sup>66</sup> Disputes with providers include issues of both cost allocation and the points to which carriers must deliver 911 traffic.<sup>67</sup> The general availability of state-level cost recovery for legacy wireline traffic appears to be an additional complicating factor.<sup>68</sup> These disputes are widespread and impact 911 networks in several states across the nation.<sup>69</sup> As a result, commenters allege that 911 authorities have incurred substantial costs to support legacy networks—including state-provided cost recovery for legacy 911 services and the maintenance of legacy gateways and selective routers—simultaneously with bearing the costs to deploy and support new NG911

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<sup>62</sup> See *id.* at 17878, para. 20.

<sup>63</sup> TFOPA defines a “legacy network gateway” as “[a]n NG9-1-1 Functional Element that provides an interface between an un-upgraded legacy origination network and the [Next Generation 9-1-1 Core Services].” TFOPA, Working Group 2 Phase II Supplemental Report: NG9-1-1 Readiness Scorecard at 100 (2016), [https://transition.fcc.gov/pshs/911/TFOPA/TFOPA\\_WG2\\_Supplemental\\_Report-120216.pdf](https://transition.fcc.gov/pshs/911/TFOPA/TFOPA_WG2_Supplemental_Report-120216.pdf) (TFOPA NG9-1-1 Readiness Scorecard).

<sup>64</sup> Forty-three states, the District of Columbia, Guam, and Puerto Rico reported expenditures on NG911 programs in calendar year 2021. Fourteenth Annual Fee Report at 3. The total amount of reported NG911 expenditures in 2021 was \$419,801,018.67. *Id.*

<sup>65</sup> Fourteenth Annual 911 Fee Report at 3. For calendar year 2021, twenty-four states and jurisdictions reported having statewide ESInets; nineteen reported having regional ESInets within the state; and eleven reported local-level ESInets. Fourteenth Annual 911 Fee Report at 3. It is possible that these numbers increased since states and jurisdictions submitted information to the Bureau. See National 911 Annual Report at 8 (noting that in 2021, 47 states reported deployment of an ESInet).

<sup>66</sup> Minnesota Department of Public Safety Comments at 1 (rec. Jan. 19, 2022) (Minnesota Dept. of Public Safety Comments); Pennsylvania Emergency Management Agency Comments at 4-5 (rec. Jan. 19, 2022) (Pennsylvania Emergency Mgmt. Agency Comments).

<sup>67</sup> See, e.g., Pennsylvania Emergency Mgmt. Agency Comments at 4 (“One ILEC is requesting that Pennsylvania build the network all the way out to their switch(es) and that [Pennsylvania Emergency Mgmt. Agency], or Pennsylvania’s NG911 system service provider assume all costs associated with this effort.”).

<sup>68</sup> See, e.g., Minnesota Dept. of Public Safety Comments at 1 (noting that OSPs who receive cost recovery have been unwilling to interconnect to the 911 ingress points identified by the state).

<sup>69</sup> Comtech Telecommunications Corp. (Comtech) Comments at 7 (rec. Jan. 19, 2022) (Comtech Comments) (“Comtech has been pulled into nearly identical POI disputes with OSPs in every state and region in which it has participated in NG911 deployments, which consistently result in deployment delays and increased costs for 911 Authorities to carry disputing OSPs’ customers’ 911 traffic to the NG911 system.”).

networks.<sup>70</sup> These ongoing costs impact the ability of states and localities to implement the transition to NG911 in a timely and cost efficient manner.<sup>71</sup> Commenters on the NASNA Petition indicate that, as part of the transition to NG911, it is important to decommission legacy routers and transition to IP-based infrastructure.<sup>72</sup>

19. In this *Notice of Proposed Rulemaking*, we propose to add a new subpart J to our part 9 rules that would define the requirements that apply to wireline, CMRS, interconnected VoIP, and Internet-based TRS providers as state and local 911 authorities transition to NG911. We discuss the specific elements of these proposals below.

### 1. Delivery in IP-Based Format

20. *IP Service Delivery*. In its Petition, NASNA urges us to assist with the transition to NG911 by, among other things, amending the Commission's rules to "specifically address NG911, including the standardized requirements associated with NG911 (e.g., Session Initiation Protocol [SIP] format and provide location information attached to the SIP header of the call using Presence Information Data Format Location Object [PIDF-LO])."<sup>73</sup> Comments in response to the NASNA Petition show broad support for the Commission to take action to assist with the transition to NG911.<sup>74</sup> Some commenters contend that without a clear regulatory framework, 911 authorities in various stages of NG911 deployment will incur increased costs related to legacy cost recovery and the maintenance of legacy gateways and selective routers.<sup>75</sup> Commenters also note that continued delay in transitioning to NG911 means that public safety entities may not fully realize the benefit of their investments in NG911 and that consumers may be unable to access the improved capabilities of NG911 services.<sup>76</sup>

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<sup>70</sup> Travis Jensen Reply at 1 (rec. Jan. 21, 2022) (filed on behalf of Arizona Department of Administration 9-1-1 Program Office) (Arizona Dept. of Administration Reply) (The Arizona Dept. of Administration is "currently facing challenges with the legacy 9-1-1 services and originating service providers (OSPs) that will cause additional unforeseen costs."); Letter from A. Keith Godwin, 9-1-1/Communications Section Chief, Alachua County (FL) 911/Communications (Alachua County) to FCC, PS Docket No. 21-479, at 1 (filed Feb. 9, 2022) (Alachua County *Ex Parte*) ("Florida has twenty-nine rural counties and some may never fully transition to NG-911 services if a county must continue to pay a LEC for legacy services while simultaneously paying for NG-911 services."); Pennsylvania Emergency Mgmt. Agency Comments at 4 ("[Pennsylvania Emergency Mgmt. Agency] is currently experiencing difficulties in this process that may impact Pennsylvania's transition to NG911 service and extend the period of time 911 authorities are paying for both legacy and NG911 services at the same time."); Comtech Reply at 5-6 (rec. Feb. 3, 2022) (Comtech Reply) ("PSAPs and 911 Authorities are forced to continue paying for existing Legacy 911 services . . . until all OSPs have migrated callers off the Legacy 911 Network.");

<sup>71</sup> Pennsylvania Emergency Mgmt. Agency Comments at 4; Arizona Dept. of Administration Reply at 1 (stating that migrating OSPs is "becoming a significant impediment to the NG911 transition in Arizona"); Alachua County *Ex Parte* at 1.

<sup>72</sup> Iowa Department of Homeland Security and Emergency Management Comments at 2 (rec. Jan. 18, 2022) (Iowa Dept. of Homeland Security and Emergency Mgmt. Comments); Minnesota Dept. of Public Safety Comments at 1.

<sup>73</sup> NASNA Petition at 4-5.

<sup>74</sup> NENA: The 9-1-1 Association Comments at 1 (rec. Jan. 19, 2022) (NENA Comments); NTCA – The Rural Broadband Association Comments at 2 (rec. Jan. 19, 2022) (NTCA Comments); South Carolina Telephone Coalition Comments at 5 (rec. Jan. 19, 2022) (South Carolina Telephone Coalition Comments); Boulder Regional Emergency Telephone Service Authority Comments at 1 (rec. Jan. 19, 2022) (BRETSA Comments); Nebraska Public Service Commission Comments at 2 (rec. Jan. 19, 2022) (Nebraska Public Service Comm. Comments); APCO Comments at 1; Arizona Dept. of Administration Reply at 1-2; Pennsylvania Emergency Mgmt. Agency Comments at 2; Colorado Public Utilities Commission Comments at 3 (rec. Jan. 14, 2022) (Colorado Public Utilities Comm. Comments); Comtech Comments at 2, 4, 6-7.

<sup>75</sup> NENA Reply at 1-2 (rec. Feb. 3, 2022) (NENA Reply); Arizona Dept. of Administration Reply at 1; Pennsylvania Emergency Mgmt. Agency Comments at 4; Comtech Comments at 4-5.

<sup>76</sup> See APCO Comments at 7.

21. Today, we propose to require wireline, interconnected VoIP, and Internet-based TRS providers to deliver IP-based 911 traffic under a similar framework to that proposed for CMRS and covered text providers in the *Location-Based Routing NPRM*. Specifically, we propose to require wireline, interconnected VoIP, and Internet-based TRS providers to complete all translation necessary to deliver 911 calls, including associated location information, in the requested IP-based format to an ESInet or other designated point(s) that allow emergency calls to be answered upon request of 911 authorities who have established the capability to accept NG911-compatible, IP-based 911 communications. We seek comment on this proposal.

22. We believe that this proposal would help jurisdictions that are seeking to implement NG911 because requiring wireline, interconnected VoIP, and Internet-based TRS providers to deliver IP-formatted calls and accompanying call set-up and location information would alleviate the burden on state and local 911 authorities of maintaining transitional gateways and other network elements to process and convert legacy calls.<sup>77</sup> The Task Force on Optimal PSAP Architecture (TFOPA), a federal advisory committee, concluded in 2016 that a significant impediment to NG911 service was that originating service providers were not prepared to deliver 911 calls via IP technology with location information to NG911 service providers.<sup>78</sup> Some 911 authorities contend that the use of legacy technology by carriers continues to impede state and local jurisdictions as they attempt to transition to NG911.<sup>79</sup> Although some carriers are already delivering IP-based traffic voluntarily to NG911-capable PSAPs, so long as any providers continue to deliver 911 calls and routing information in legacy format, 911 authorities must fund and operate transitional technology to receive, translate, and process such calls within the NG911 system. We seek comment on the degree to which funding and operating transitional facilities extend the timeline and add to the cost incurred by state and local 911 authorities to transition to NG911. In addition, we seek comment and specific data on the benefits that the public would derive from our proposal, as well as on the costs to wireline, interconnected VoIP, and Internet-based TRS providers to deliver calls in IP-based format when a state or local 911 authority has requested it.

23. We also believe this proposal would complement our pending proposal in the *Location-Based Routing NPRM* to require CMRS and covered text providers to deliver 911 calls, texts, and associated routing information in IP-based format upon request of 911 authorities who have established the capability to accept NG911-compatible IP-based 911 communications.<sup>80</sup> Although CMRS providers originate 75 to 80 percent of 911 calls in the U.S., successful implementation of NG911 for all 911 calls cannot occur without similar steps being taken by wireline, interconnected VoIP, and Internet-based TRS providers. Therefore, we propose that wireline, interconnected VoIP, and Internet-based TRS providers should be subject to similar requirements to deliver 911 communications in IP-based format to those we have proposed for CMRS and covered text providers. We seek comment on this approach. Should we seek to achieve regulatory parity in our requirements for delivery of IP-based 911 calls by CMRS, wireline, interconnected VoIP, and Internet-based TRS providers, or are there reasons to apply different requirements to calls from different platforms?

24. We seek comment on how to ensure that our proposal to require delivery of 911 calls in IP-based format would support interoperability in the NG911 environment, *i.e.*, the ability to transfer 911 calls and related data from one PSAP to another or from one ESInet to another. Are there potential

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<sup>77</sup> Pennsylvania Emergency Mgmt. Agency Comments at 4-5 (“[Pennsylvania Emergency Mgmt. Agency] is currently experiencing difficulties in this process that may impact Pennsylvania’s transition to NG911 service and extend the period of time 911 authorities are paying for both legacy and NG911 services at the same time.”).

<sup>78</sup> TFOPA Final Report at 37.

<sup>79</sup> *E.g.*, Arizona Dept. of Administration Reply at 1 (“[Arizona Dept. of Administration] is currently facing challenges with the legacy 9-1-1 services and originating service providers (OSPs) that will cause additional unforeseen costs, becoming a significant impediment to the migration of NG9-1-1 for the 9-1-1 callers in Arizona.”); Pennsylvania Emergency Mgmt. Agency Comments at 4-5.

<sup>80</sup> *Location-Based Routing NPRM* at \*2, \*6, \*15-\*16, paras. 3-4, 17, 46-49.

interoperability risks for PSAPs or 911 authorities associated with a requirement to deliver information in an IP-based format?<sup>81</sup> If so, what are those risks and what steps should we take to address them? Should we specify that the IP-based format requested by 911 authorities and delivered by originating providers must meet specified criteria to support interoperability, e.g., by including a requirement that the format conform to commonly accepted standards? Are there other requirements or conditions we should apply to eliminate impediments to interoperability and support seamless transfer of 911 calls and data?<sup>82</sup>

25. We also seek comment on how our proposal should extend to 911 calls that originate on non-IP wireline networks. While the Commission has, for the last decade, encouraged providers to transition to all-IP networks,<sup>83</sup> some wireline carriers continue to use TDM switching facilities for voice traffic within portions of their networks.<sup>84</sup> We note that our proposed rule would not require TDM-based carriers to originate 911 calls in IP-based format on their own networks. However, it would require such calls to be converted to IP-based format for delivery to the ESInet or other designated point(s) once a 911 authority has made a valid request to receive IP-formatted calls. We seek comment on this proposal. Should we instead take steps to require that wireline, interconnected VoIP, and Internet-based TRS providers originate all 911 traffic in IP format? What would be the costs and benefits associated with this proposal? Alternatively, should we limit our requirement for wireline, interconnected VoIP, and Internet-based TRS providers to deliver 911 traffic in IP format to providers that originate 911 calls in IP? How would such a limitation impact the costs and benefits of our proposal? If providers fail to include appropriately formatted routing information, should those providers be responsible for additional costs beyond the points discussed in section III.A.2?

26. We also seek comment on how we should extend our proposed requirement to Internet-based TRS, which includes IP CTS, VRS, and IP Relay.<sup>85</sup> How would Internet-based TRS services

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<sup>81</sup> See APCO Comments at 7 (“The Commission must fully consider whether requiring originating service providers to deliver in an IP-based format will be helpful for solving interoperability problems among ECCs or whether, given the current environment of proprietary solutions and substantial interoperability challenges, this risks making the situation worse by further entrenching the problems.”).

<sup>82</sup> APCO Comments at 4, PS Docket No. 18-64 (rec. Feb. 16, 2023).

<sup>83</sup> *Call Authentication Trust Anchor*, Notice of Inquiry, WC Docket No. 17-97, FCC 22-81, 2022 WL 16634852, at \*15 (citing *Modernizing Unbundling and Resale Requirements in an Era of Next-Generation Networks and Services*, WC Docket No. 19-308, Report and Order, 35 FCC Rcd 12425 (2020) (relieving incumbent local exchange carriers of various unbundled network and avoided-cost resale requirements); *Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, WC Docket No. 17-84, Second Report and Order, 33 FCC Rcd 5660 (2018) (streamlining the discontinuance process for technology transitions); *Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, WC Docket No. 17-84, Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, 32 FCC Rcd 11128, 11142, para. 33 (2017) (streamlining the copper retirement process); *Technology Transitions et al.*, GN Docket No. 13-5, WC Docket No. 13-3, Declaratory Ruling, Second Report and Order, and Order on Reconsideration, 31 FCC Rcd 8283, 8304-8305, paras. 64-65 (2016) (adopting the adequate replacement test); *Technology Transitions et al.*, GN Docket No. 13-5 et al., Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 FCC Rcd 1433, 1435, para. 1 (2014) (seeking proposals for service-based experiments in connection with technology transitions)).

<sup>84</sup> NTCA, 2022 Broadband/Internet Availability Survey Report at 4 (Dec. 2022), <https://www.ntca.org/sites/default/files/documents/2022-12/2022%20Broadband%20Survey%20Report%20%28FINAL%2011-28-22%29.pdf> (NTCA 2022 Broadband Survey Report) (Just over on-half of respondents (53.4%) to NTCA’s 2022 Broadband Survey Report still use TDM switching facilities for voice traffic within some portion of their ILEC networks.).

<sup>85</sup> IP CTS is a form of Telecommunications Relay Service (TRS) “that permits an individual with a hearing or a speech disability to communicate in text using an internet Protocol-enabled device via the internet, rather than using a text telephone (TTY) and the public switched telephone network.” 47 CFR § 64.601(a)(24). VRS allows people who use sign language to communicate with voice telephone users with video equipment. A VRS user signs to a

(continued....)



implement our proposal if adopted? We note that we do not propose similar requirements for TTY-based TRS providers. Should we exclude from the proposed requirements Internet-based TRS providers who rely completely on their customers' underlying voice service providers to handle emergency call set-up and routing?<sup>86</sup> In such cases, it may not be necessary to impose requirements on the Internet-based TRS provider if the underlying service provider is subject to the relevant NG911 requirements.<sup>87</sup> Should covered IP CTS be subject to separate rules, as under the current part 9 rules?<sup>88</sup> Does extending our proposed requirement to Internet-based TRS raise any issues not considered above? What are the benefits and costs associated with the application of our proposal to Internet-based TRS? Are there any other providers that we should require to deliver IP-based 911 services?

## 2. Delivery Points and Cost Allocation for IP-Based 911 Calls

27. Next, we turn to the location(s) to which wireline, CMRS, interconnected VoIP, and Internet-based TRS providers should deliver 911 traffic in an NG911 environment, as well as whether to establish a default mechanism for allocating the costs associated with delivering NG911 traffic to such delivery points. Comments received in response to the *Public Notice* indicate significant disputes have arisen regarding the obligations for delivery of 911 calls in some states and localities that have implemented components of NG911.<sup>89</sup> These disputes concern the points to which providers should deliver 911 calls,<sup>90</sup> as well as which parties should bear the responsibility for the cost to deliver 911

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communications assistant (CA) who voices the information to the hearing party. See 47 CFR § 64.601(a)(51) (definition of VRS). IP Relay allows people with hearing and speech disabilities to communicate with text using an IP-enabled device over the Internet rather than a TTY and the PSTN. See 47 CFR § 64.601(a)(24) (definition of IP Relay). Current E911 requirements for VRS and IP Relay are set forth in section 9.14(d) and for covered IP CTS in section 9.14(e). 47 CFR § 9.14(d), (e).

<sup>86</sup> See *Kari's Law/RAY BAUM'S Act Order*, 34 FCC Rcd at 6688-89, para. 213 (clarifying that "these requirements do not apply to TTY-based TRS providers, or to Internet-based TRS providers who completely rely on their customers' underlying voice service providers to handle emergency call set-up, routing, and provision of location information").

<sup>87</sup> *Id.*

<sup>88</sup> 47 § 9.14(e).

<sup>89</sup> *E.g.*, NENA Comments at 2 ("The record already reflects the widespread occurrence and substantial impact from demarcation-caused delays in deployment and provision of NG9-1-1."); Comtech Comments at 7 (discussing "nearly identical POI disputes with OSPs in every state and region in which it has participated in NG911 deployments, which consistently result in deployment delays and increased costs for 911 Authorities to carry disputing OSPs' customers 911 traffic to the NG911 system"); Arizona Dept. of Administration Reply at 1 ("[Arizona Dept. of Administration] is currently facing challenges with the legacy 9-1-1 services and originating service providers (OSPs) that will cause additional unforeseen costs, becoming a significant impediment to the migration of NG9-1-1 for the 9-1-1 callers in Arizona."); Pennsylvania Emergency Mgmt. Agency Comments at 4-5 ("Based on Pennsylvania's experiences to date, the lack of a defined cost demarcation point and regulatory framework will delay or even threaten the full end state implementation of NG911.").

<sup>90</sup> *E.g.*, Arizona Dept. of Administration Reply at 1 ("Several Independent Local Exchange Carriers (ILECs) have indicated that they do not have an obligation to terminate their 9-1-1 traffic to the points of interconnection (POIs) as designated by [Arizona Dept. of Administration]."); South Carolina Telephone Coalition Comments at 2 (stating that NG911 service providers should be responsible for providing points of interconnection within the ILEC service areas).

traffic to those points.<sup>91</sup> Public safety commenters assert that these disputes have resulted in delays and costs to public safety that impact the transition to NG911 in states across the country.<sup>92</sup>

28. *Delivery Points for IP-Based 911 Traffic.* To address concerns about the points to which 911 traffic should be delivered as 911 authorities transition to NG911, we propose to require wireline, CMRS, and interconnected VoIP providers to transmit all 911 calls to the point(s) designated by the 911 authority that allow emergency calls to be answered six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority,<sup>93</sup> whichever is later. We also propose to require Internet-based TRS providers to transmit all 911 calls to the point(s) designated by the 911 authority that allow emergency calls to be answered twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later. Under this proposal, the delivery point(s) that could be designated by the 911 authority would include a PSAP, designated statewide default answering point, appropriate local emergency authority, ESInet, or other designated point(s) that allow emergency calls to be answered. This would make clear that the 911 authority may select an ESInet or other designated points on its IP-based network as the point(s) to which wireline, CMRS, interconnected VoIP, and Internet-based TRS providers must deliver 911 traffic. It would also clarify that 911 authorities determine and designate the point(s) to which 911 calls should be transmitted.

29. We believe our proposal would help to resolve disputes regarding the point(s) to which wireline, CMRS, interconnected VoIP, and Internet-based TRS providers must deliver 911 traffic in order to meet their obligations in an NG911 environment. Despite the progress many states have achieved towards implementing NG911,<sup>94</sup> public safety commenters indicate that it can be difficult to reach agreement with providers on connections to new NG911 networks.<sup>95</sup> Public safety commenters report lengthy negotiations for providers to connect to ESInets and contend that issues related to delivery of 911 calls have been a significant contributing factor.<sup>96</sup> Comtech asserts that delivery of 911 traffic to NG911 networks has been an issue “in every state and region in which it has participated in NG911 deployments.”<sup>97</sup> Some small and rural wireline carriers argue that 911 delivery points should be within

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<sup>91</sup> *E.g.*, Pennsylvania Emergency Mgmt. Agency Comments at 4 (“One ILEC is requesting that Pennsylvania build the network all the way out to their switch(es) and that [Pennsylvania Emergency Mgmt. Agency], or Pennsylvania’s NG911 system service provider assume all costs associated with this effort.”); South Carolina Telephone Coalition Comments at 2.

<sup>92</sup> Arizona Dept. of Administration Reply at 1; Pennsylvania Emergency Mgmt. Agency Comments at 4-5; Alachua County *Ex Parte* at 1 (“Florida has twenty-nine rural counties and some may never fully transition to NG-911 services if a county must continue to pay a LEC for legacy services while simultaneously paying for NG-911 services.”).

<sup>93</sup> For discussion of what constitutes a valid request, see Section III.A.3 below.

<sup>94</sup> Forty-three states, the District of Columbia, Guam, and Puerto Rico reported expenditures on NG911 programs in calendar year 2021. Fourteenth Annual 911 Fee Report at 3. The total amount of reported NG911 expenditures in 2021 was \$419,801,018.67. *Id.*

<sup>95</sup> Pennsylvania Emergency Mgmt. Agency Comments at 4 (“In some cases, the current environment promotes a contentious, uncoordinated transition to NG911 service rather than the cooperative, coordinated transition desired by [Pennsylvania Emergency Mgmt. Agency.]”); Minnesota Dept. of Public Safety Comments at 1 (“To date, not a single OSP who receives cost recovery today has submitted an interconnect plan to our ingress vendor identifying their intent to rehome their 9-1-1 ingress network. They have indicated that until they understand how the rehoming will affect their cost recovery, they are unwilling to do so.”); Comtech Comments at 7.

<sup>96</sup> Comtech Comments at 4 (describing such disputes as “protracted”); Pennsylvania Emergency Mgmt. Agency Comments at 4 (“Some ILECs are embracing the transition to NG911 while others are looking to negotiate their role and cost responsibilities for NG911 service.”); Arizona Dept. of Administration Reply at 1.

<sup>97</sup> Comtech Comments at 7.

service providers' local service areas,<sup>98</sup> and oppose rules that would require them to deliver 911 calls outside their service areas.<sup>99</sup> On the other hand, 911 authorities and Comtech argue that that providers should deliver 911 traffic to NG911 ESInet ingress points, either to legacy network gateways for TDM traffic or designated points of interconnection for IP traffic.<sup>100</sup>

30. Our proposed rule would confirm 911 authorities' role in designating points for delivery of 911 calls in the NG911 environment, whether such delivery points are at the ESInet boundary, at individual PSAPs, or at other points in the network that allow emergency calls to be answered.<sup>101</sup> We believe this approach would provide states with a uniform framework to manage NG911 transition costs and minimize time-consuming negotiations with providers. We seek comment on this proposal. Would it help to resolve state-level controversies regarding the delivery of 911 traffic in an NG911 environment? Should we take into consideration the number, location, or type of points of interconnection provided by the state? For example, should we require delivery of 911 traffic to point(s) designated by the 911 authority only if the points of interconnection meet certain criteria, e.g., the points of interconnection are located within the state to which 911 service is being provided, there are a specific number of points of interconnection per LATA, or the points of interconnection are able to receive traffic in specific formats (such as TDM or IP)? What would the benefits and costs be to wireline, CMRS, interconnected VoIP, and Internet-based TRS providers and 911 authorities of setting the demarcation point as proposed?

31. Section 9.4 of the Commission's rules currently requires all telecommunications carriers to "transmit all 911 calls to a PSAP, to a designated statewide default answering point, or to an appropriate local emergency authority as set forth in § 9.5."<sup>102</sup> Section 9.10(b) of the Commission's rules refers to this provision to set the point to which CMRS providers must transmit all wireless calls.<sup>103</sup> Similarly, section 9.11(b)(2)(ii) of the Commission's rules refers to section 9.4 to set the point to which fixed and non-fixed interconnected VoIP service providers must deliver all 911 calls, ANI, and location information.<sup>104</sup> For VRS and IP Relay providers, section 9.14(d)(2)(iii) also refers to section 9.4 to set the point for delivery of any communication initiated by an VRS or IP Relay user dialing 911.<sup>105</sup> For IP CTS

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<sup>98</sup> South Carolina Telephone Coalition Comments at 2; NTCA Comments at 6; Nebraska RLECs Reply at 3.

<sup>99</sup> South Carolina Telephone Coalition Comments at 3; Minnesota Telecom Alliance Comments at 3-4 (rec. Jan. 19, 2022) (Minnesota Telecom Alliance Comments).

<sup>100</sup> Comtech Comments at 7; Pennsylvania Emergency Mgmt. Agency Comments at 3; Texas 9-1-1 Entities Comments at 6-7.

<sup>101</sup> Most public safety commenters support setting a point for delivery of NG911 traffic at the ESInet. *See, e.g.*, BRETSA Comments at 7-8; Texas 9-1-1 Entities Comments at 8. We note that the rules we propose in this *Notice of Proposed Rulemaking* would not affect the 911 resiliency, redundancy, and reliability rules at part 9, subpart H of the Commission's rules. We also note that the proposed rules would not affect the extent of the Commission's jurisdiction over providers that supply services before and after the point(s) designated by 911 authorities, e.g., covered 911 service providers. *See, e.g.*, 47 CFR § 9.19(a)(4)(i).

<sup>102</sup> 47 CFR § 9.4.

<sup>103</sup> 47 CFR § 9.10(b) (requiring CMRS providers to "transmit all wireless 911 calls . . . to a designated statewide default answering point or appropriate local emergency authority pursuant to § 9.4").

<sup>104</sup> 47 CFR § 9.11(b)(2)(ii) (requiring interconnected VoIP service providers to transmit 911 calls, ANI, and certain location information to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's dispatchable location and that has been designated for telecommunications carriers pursuant to § 9.4).

<sup>105</sup> 47 CFR § 9.14(d)(2)(iii) (requiring VRS and IP Relay providers to transmit all 911 calls (provided that "all 911 calls" is defined as "any communication initiated by an VRS or IP Relay user dialing 911"), ANI, the name of the VRS or IP Relay provider, and the communications assistant's (CA's) identification number, and certain location information to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's dispatchable location and that has been designated for telecommunications carriers pursuant to § 9.4).

providers, section 9.14(e)(2)(ii) refers to section 9.4 to set the point for delivery of any communication initiated by an IP CTS user dialing 911.<sup>106</sup> Other Internet-based TRS providers, per section 9.14(b)(2)(i), must determine an appropriate point for call delivery that corresponds to the caller's location and relay the call to that entity.<sup>107</sup> The subpart J we propose in this *Notice of Proposed Rulemaking* would implement a uniform framework for 911 call-routing in the NG911 environment by requiring wireline, CMRS, interconnected VoIP, and Internet-based TRS providers (including VRS, IP Relay, and IP CTS) to transmit all 911 calls to the point(s) designated by the 911 authority within specific timeframes from the effective date of the IP service delivery requirement or after a valid request for IP-based service by a state or local 911 authority, whichever is later. The effect of these proposed rules would be that upon a valid request for IP-based service, wireline, CMRS, interconnected VoIP, and Internet-based TRS providers would be required to deliver 911 traffic to the point(s) that allow emergency calls to be answered that are designated by the local or state entity that has the authority and responsibility to designate the point(s) to receive 911 calls. In the absence of a valid request for IP-based service by the relevant 911 authority, the existing provisions of section 9.4 and by reference 9.10(b), 9.11(b)(2)(ii), 9.14(d)(2)(iii), 9.14(e)(2)(ii), and 9.14(b)(2)(i) would continue to apply for providers covered by those provisions. We seek comment on this approach.

32. In their comments, the Texas 9-1-1 Entities suggest an approach that would distinguish between delivery of IP and legacy services.<sup>108</sup> Under their proposal, within six months of a “bona fide request” by a 911 authority or its designated NG911 service provider, non-IP providers (which the Texas 9-1-1 Entities define as a “non-IP capable un-upgraded originating service provider”) would be required to “directly or indirectly connect, in accordance with industry standards,” to the Legacy Network Gateway provided by the 911 authority or its NG911 service provider, while IP-capable providers would be required to fully support delivery of 911 traffic in NG911 format, i.e., “(i) directly or indirectly connect, in accordance with industry standards, via Session Initiation Protocol; (ii) deliver [Presence Information Data Format—Location Object (PIDF-LO)]; and (iii) use a Location Validation Function provided by the 9-1-1 authority (or its designated NG9-1-1 System Service Provider agent).”<sup>109</sup> We seek comment on this alternative approach. What are the benefits and costs associated with this proposal? Would it be beneficial to treat IP-based providers differently from providers that are not IP-based? What threshold legacy issues would we need to determine before adopting this proposal either in full or in part? Should we establish a minimum number of legacy network gateway points of interconnection within each state? Or should there be a minimum number of legacy network gateway points of interconnection per LATA? It appears that several states provide two legacy network gateway points of interconnection per LATA.<sup>110</sup> Would this be a reasonable approach? Alternatively, would it be preferable to require no minimum number of legacy network gateway points of interconnection before a “bona fide request” is made? Are there any other factors we should consider in connection with this proposal?

33. *Cost Allocation.* In addition to issues regarding the designation of 911 delivery points in the NG911 environment, disagreements over cost allocation appear to have contributed to delays in

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<sup>106</sup> 47 CFR § 9.14(e)(2)(ii) (requiring IP CTS providers to transmit all 911 calls (provided that “all 911 calls” is defined as “any communication initiated by an IP CTS user dialing 911”), the telephone number that is assigned to the caller and that enables direct callback with captions, and certain location information to the PSAP, designated statewide default answering point, or appropriate local emergency authority that serves the caller's dispatchable location and that has been designated for telecommunications carriers pursuant to § 9.4).

<sup>107</sup> 47 CFR § 9.14(b)(2)(i) (requiring certain Internet-based TRS providers to determine the appropriate PSAP, designated statewide default answering point, or appropriate local emergency authority that corresponds to the caller's location, and to relay the call to that entity).

<sup>108</sup> Texas 9-1-1 Entities Comments at 7-9.

<sup>109</sup> *Id.* at 8.

<sup>110</sup> *See* Texas 9-1-1 Entities Reply at 6 & n.20 (rec. Feb. 3, 2022) (Texas 9-1-1 Entities Reply).

transitioning to NG911.<sup>111</sup> To address this concern, we propose to establish a default demarcation point for purposes of cost allocation in the NG911 environment. Under this proposed approach, states and localities would remain free to establish cost recovery mechanisms as they deem necessary for the costs of delivering 911 traffic to required destination point(s), but, in the absence of such mechanisms, the cost of compliance from call origination to the demarcation point would presumptively be the responsibility of the wireline, CMRS, interconnected VoIP, or Internet-based TRS provider. As a default mechanism, this proposal would allocate costs only when the parties are unable to agree on cost recovery measures. It thus would not preempt state or local authority over 911, including existing 911 cost recovery mechanisms. There is strong support for this default approach among public safety commenters, and it is consistent with the request in NASNA's Petition.<sup>112</sup>

34. Our cost allocation proposal is also consistent with the Commission's approach to similar cost allocation issues in the *King County* proceeding two decades ago. In *King County*, the Commission responded to complaints from state and local 911 authorities that wireless service providers were delaying implementation of wireless E911 due to disagreements regarding the appropriate demarcation point for responsibility and cost.<sup>113</sup> The Wireless Telecommunications Bureau found, and the Commission later affirmed, that for a wireless carrier to satisfy its obligation to provide Phase I information to the PSAP, the carrier must bear the costs to deliver the information to the 911 selective router.<sup>114</sup> The Bureau found that it was reasonable "to make the carriers responsible for those expenditures necessary to deliver location information in a usable form to the E911 Network so as to ensure that their customers have access to enhanced 911 services."<sup>115</sup> However, the *King County* decisions also affirmed that 911 authorities and wireless providers could agree on a different point for cost allocation and call delivery.<sup>116</sup>

35. Today, as 911 authorities seek to retire legacy selective routers<sup>117</sup> and migrate to NG911 networks, legacy selective routers will no longer be the network element that "analyzes and distributes"

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<sup>111</sup> The Minnesota Department of Public Safety notes that it has contracted with a vendor to "rehome" the statewide ingress points for 911 traffic in Minnesota but that, to date, the providers that receive cost recovery have not submitted interconnection plans to the vendor and will not do so until they understand how rehomeing will affect their cost recovery. Minnesota Dept. of Public Safety Comments at 1. Comtech also cites examples of legacy 911 providers that it contends have refused to interconnect to designated NG911 points of interconnection to preserve the payments they receive for legacy 911 services. Comtech Comments at 4-5, 7. Comtech asserts that these delays can result in ongoing costs for 911 authorities because they must continue to maintain legacy 911 networks until all providers have migrated to the NG911 network. Comtech Reply at 5-6.

<sup>112</sup> NASNA Petition at 2-3 (urging the Commission to "establish a NG911 cost demarcation point or points, for allocating costs when the parties cannot agree on the appropriate demarcation point(s)"). *E.g.*, Colorado Public Utilities Comm. Comments at 4; BRETSA Reply at 1-2; Letter from George Kelemen, Executive Director, iCERT, to Marlene Dortch, Secretary, FCC, PS Docket No. 21-479, at 3 (filed by Oct. 16, 2022) (iCERT *Ex Parte*) ("iCERT agrees with NASNA that any FCC review of OSP responsibilities should focus on the applicability of 47 C.F.R. §§ 9.4 and 9.5, as well as the allocation of costs and the appropriate demarcation points between OSPs and 911 Authorities.").

<sup>113</sup> See *King County Order on Reconsideration*, 17 FCC Rcd at 14789, para. 1.

<sup>114</sup> *King County Letter* at \*3. On reconsideration, the Commission affirmed the Wireless Telecommunications Bureau's interpretation of the Commission's rules and extended that interpretation to require wireless carriers to bring Phase II data to "that point at which the system identifies the appropriate PSAP and distributes the voice call and location data to that PSAP," i.e. the selective router in legacy E911 environments. *King County Order on Reconsideration*, 17 FCC Rcd at 14789, para. 1; see *id.* at 14793, paras. 9-10.

<sup>115</sup> *King County Letter* at \*4.

<sup>116</sup> *King County Order on Reconsideration*, 17 FCC Rcd at 14793, para. 10.

<sup>117</sup> Minnesota Dept. of Public Safety Comments at 1 ("[T]he [legacy selective routers] are end-of-service, end-of-life and starting to fail[.]"); Texas 9-1-1 Entities Reply at 4 ("[T]ransitioning may involve removing the single point of failure for a legacy selective router by [] having legacy OSPs connect to two Legacy Network Gateways ('LNGs') within the LATA.").

information to the NG911 network, and therefore will not be relevant points for determining appropriate cost allocation where state or local 911 authorities have implemented ESInets and other IP-based network elements. These IP-based network elements perform similar functional roles to legacy selective routers, while also providing new capabilities that can support flexible re-routing of 911 calls in response to on-the-ground conditions.

36. As with the *King County* decisions, we note that the costs of installing, maintaining, and upgrading components necessary to continue to deliver 911 traffic to 911 networks are required costs for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to continue to provide 911 service, a significant reason why consumers subscribe to telecommunications services.<sup>118</sup> Several public safety entities specifically argue that the Commission should either extend the precedent set for wireless E911 service in the *King County* decisions to NG911 or apply a similar regulatory approach.<sup>119</sup> We tentatively agree that a regulatory approach similar to *King County* is appropriate here, with appropriate modification as needed to reflect the differences between legacy and NG911 networks. We seek comment on this analysis.

37. Our proposed approach would clarify that cost obligations for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers in the NG911 environment presumptively extend to the demarcation point(s) designated by state or local 911 authorities in the NG911 environment. We believe that by clarifying responsibility for costs to connect to NG911 networks, the proposed rules would resolve uncertainty regarding cost allocation between 911 authorities and wireline, CMRS, interconnected VoIP, and Internet-based TRS providers and thus would accelerate the transition to NG911.<sup>120</sup> We also believe that establishing a common cost allocation framework for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers would promote regulatory parity across service platforms. We seek comment on this approach. NASNA and public safety commenters contend that the cost of compliance with the requirement to deliver 911 traffic to the point of delivery should be the responsibility of the provider.<sup>121</sup> However, rural LECs and Minnesota entities argue that costs for delivery of 911 traffic should not extend outside of the provider's service area.<sup>122</sup> Pennsylvania and Arizona incumbent LECs argue that the state must cover the costs to deliver traffic from the edge of the incumbent LECs' networks to the ESInet, if the state does not build out connections to the provider's switches.<sup>123</sup> We also seek comment on these alternatives proposed by commenters to the *Public Notice*. Should we provide additional limits on these costs, such as only requiring wireline, CMRS, and interconnected VoIP

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<sup>118</sup> See *King County Letter* at \*5.

<sup>119</sup> E.g., Arizona Dept. of Administration Reply at 1; Iowa Dept. of Homeland Security and Emergency Mgmt. Comments at 2; Nebraska Public Service Comm. Comments at 2; Texas 9-1-1 Entities Comments at 5; see also Comtech Reply at 3; iCERT *Ex Parte* at 3-4.

<sup>120</sup> See, e.g., Pennsylvania Emergency Mgmt. Agency Comments at 4-5; Comtech Comments at 2.

<sup>121</sup> NASNA Petition at 2-3; Colorado Public Utilities Comm. Comments at 4 (“While the Commission’s current regulation already *implies* this relationship through extrapolation, it would be better for the statute to declare explicitly that OSPs are responsible for the cost of 911 call delivery to the point of demarcation with the 911 system service provider.”); BRETSA Reply at 2 (“As with any other call, originating service providers should be responsible for delivery of the call, and the cost of call delivery, to the called party (*i.e.*, the PSAP).”); iCERT *Ex Parte* at 3 (“As was the case with E911, OSPs should not charge the NG911 service provider for delivering NG911 calls to the appropriate point of demarcation.”).

<sup>122</sup> South Carolina Telephone Coalition Comments at 2 (stating that NG911 service providers should be responsible for “covering the costs of transport of traffic from the edge of the ILEC service area to the NG911 interconnection point”); Minnesota Telecom Alliance Comments at 3 (stating that because NG911 routing changes are beyond existing meet points, they are “wholly within the financial responsibility and operational control of the state and local agencies”); Minnesota Dept. of Public Safety at 1 (“For the default, it seems most appropriate the edge of the OSP’s network be defined as the cost demarcation point.”).

<sup>123</sup> Arizona Dept. of Administration Reply at 1, Pennsylvania Emergency Mgmt. Agency Comments at 4.



providers to bear the cost of delivering traffic when interconnection points are available within the telecommunication carrier's LATA or service area? Are there other considerations for extending this approach to Internet-based TRS (IP CTS, VRS, and IP Relay)?

38. We seek estimates from rural providers and 911 authorities on specific costs for rural providers to comply with our proposed rules. What minimum costs would be required, from an implementation standpoint, for a given wireline, CMRS, interconnected VoIP, or Internet-based TRS provider to connect from current service areas to (1) legacy network gateways in the same LATA, or (2) an IP point of interconnection? How would this affect monthly or annual charges to subscribers, i.e., is there a range or specific dollar amount that would be newly reflected on customers' monthly bills?

39. We emphasize that under our proposed cost allocation approach, states and localities would retain the flexibility to develop alternative cost allocation mechanisms, including providing cost recovery for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to delivering 911 traffic to designated connection points. This approach conforms with the requests of NASNA commenters to preserve state and local authority over 911, especially with regard to 911 cost recovery mechanisms.<sup>124</sup> In the *King County Order on Reconsideration*, the Commission affirmed that 911 authorities and wireless providers could agree on a different point for cost allocation and call delivery.<sup>125</sup> Under our proposed rules, states would similarly be able to implement alternative points to which wireline, CMRS, interconnected VoIP, and Internet-based TRS providers should bear the cost to deliver 911 traffic in the NG911 environment. We seek comment on this aspect of our proposal.

### 3. Valid Request for IP-based Service, Timing, and Registry

40. *Valid Request for IP-based Service.* Consistent with our existing rules for text-to-911<sup>126</sup> and our proposal in the *Location-Based Routing NPRM*,<sup>127</sup> we propose to define a valid request as one made by a local or state entity that certifies that it (1) is technically ready to receive 911 calls in the IP-based format requested, (2) is specifically authorized to accept calls in the IP-based format requested, and (3) has provided notification to the provider via either a registry made available by the Commission or by written notification reasonably acceptable to the provider. We believe that this approach would minimize miscommunication between providers and 911 authorities and facilitate the timely delivery of 911 calls once state and local 911 authorities indicate their readiness to receive calls in IP format at the destination point(s) they designate. We additionally agree with commenters who indicate that this approach would provide predictability and clarity to the 911 community.<sup>128</sup> We seek comment on this approach.

41. We also seek comment on what level of NG911 readiness PSAPs should achieve to trigger the requirements for 1) wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to transmit 911 calls to the point(s) designated by the 911 authority, and 2) wireline, interconnected VoIP, and Internet-based TRS providers to begin delivering calls, including routing and location information, in IP-based format. Our proposed approach would establish one level of readiness to trigger these obligations. We seek comment on whether specific NG911-related network components or capabilities would need to be in place to establish readiness. Another approach, as suggested by NASNA, would be to define three readiness phases based on the TFOPA "NG9-1-1 Readiness Scorecard."<sup>129</sup> What are the

<sup>124</sup> NASNA Petition at 6; BRETSA Comments at 8 (stating that Commission oversight is helpful, but that it "must be subject to state determination of call-routing, allocation of responsibility for costs of service, and similar matters").

<sup>125</sup> *King County Order on Reconsideration*, 17 FCC Rcd at 14793, para. 10.

<sup>126</sup> 47 CFR § 9.10(q)(10)(iii) (defining a valid request for text-to-911 service).

<sup>127</sup> *Location-Based Routing NPRM* at \*16, paras. 51-52.

<sup>128</sup> NENA Comments at 4; Colorado Public Utilities Comm. Comments at 5.

<sup>129</sup> NASNA Petition at 7-8. NASNA suggests that in Phase I, the ESInet would be ready to receive 911 calls from OSPs via a Legacy Network Gateway. *Id.* at 7. In Phase II, the ESInet would be ready to receive 911 calls in SIP

costs and benefits associated with NASNA's suggestion? If we were to adopt NASNA's suggestion, what level of readiness would trigger the requirement for service from wireline, CMRS, interconnected VoIP, and Internet-based TRS providers? Are there generally accepted standards for PSAP readiness to accept IP traffic? How have 911 authorities that accept some IP traffic navigated readiness with providers? Should we consider different or additional phases? Should individual PSAPs be able to trigger the requirement or should readiness be established at a more aggregated level, e.g., on an ESInet-by-ESInet or state-by-state basis? As part of a valid request, should a 911 authority be required to certify or demonstrate the capability of its IP-based network to support 911 interoperability?

42. For purposes of determining whether a state or local 911 authority could be technically ready to receive calls in IP-based format, we seek comment on the elements that a state or local 911 authority would need to have in place before making a valid request.<sup>130</sup> In the *Location-Based Routing NPRM* proceeding, Verizon argues for a "robust PSAP readiness standard, that reflects the substantial completion of a PSAP's NG911 provider's i3 based solution" as the basis for considering a request "valid" and triggering an implementation period.<sup>131</sup> Verizon asserts that relevant factors for PSAP readiness to accept IP interconnection would be, at a minimum: (1) "PSAP connectivity with a NG911 provider who has fully deployed a standards-based i3 IP infrastructure"; (2) "completion of SIP connectivity onboarding and testing with Wireless Originating Service Providers"; (3) "completion of HTTP-Enabled Location Delivery (HELD) certification"; and (4) "PSAP i3-ready call handling equipment."<sup>132</sup> We seek comment on whether some or all of these factors should be considered in determining readiness before a valid request may be made. What are the benefits and costs associated with such a proposal? Would adopting a specific set of factors to establish readiness limit the flexibility of state and local 911 authorities as they continue their NG911 deployments? What efficiencies would be gained from adopting a specific set of factors? Should we consider additional factors to determine the level of readiness needed before a valid request may be made?<sup>133</sup> For example, T-Mobile, in its comments on the *Location-Based Routing NPRM*, indicates that comprehensive testing would be required to determine PSAP readiness.<sup>134</sup> Should we require testing as a precondition to a valid request? Should we have a separate request process for triggering IP-based service from Internet-based TRS providers from the valid request process for wireline, CMRS, and interconnected VoIP providers? If so, are there

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format. *Id.* at 8. In Phase III, the ESInet would be ready to receive 911 calls in NG911 format. *Id.* at 8. "The 911 authority/ESInet administrator may request all three phases simultaneously if the implementation of the ESInet allows for this." *Id.* at 8.

<sup>130</sup> As an example of possible readiness elements, we note that TFOPA created a "NG9-1-1 Readiness Scorecard" that categorizes components of NG911 implementation. TFOPA NG9-1-1 Readiness Scorecard at 17-21.

<sup>131</sup> Verizon LBR NPRM Comments at 8.

<sup>132</sup> *Id.* at 8-9.

<sup>133</sup> Other commenters in the *Location-Based Routing NPRM* proceeding provided additional examples of factors we could consider to determine readiness. *E.g.*, CTIA Comments, PS Docket No. 18-64, at 9 (rec. Feb. 16, 2023) (CTIA LBR NPRM Comments) (noting that the TFOPA Readiness Scorecard identifies hardware, software, data, operational policies and procedures, security, and governance elements that are necessary for a PSAP to make the full-scale transition to NG911); Alliance for Telecommunications Industry Solutions Comments, PS Docket No. 18-64, at 5 (rec. Feb. 16, 2023) (ATIS LBR NPRM Comments) (The Commission "should not employ a 'registry' approach to trigger implementation deadlines; it is necessary for state and local governments to engage directly with individual wireless providers in order to become technically ready and capable to receive and process 911 calls in IP format in the first instance."); Intrado LBR NPRM Comments at 6 (noting that completion of IP-based delivery requires several steps and time, such as establishing new connectivity into the ESInet, cutting traffic over from the old TDM path to IP, nationwide scaling, and significant testing/validation, and recommending "further discussion with the CMRS providers and PSAPs regarding a standardized definition of PSAP readiness and a flexible implementation timeframe to account for CMRS/PSAP discussions and varying implementation steps/timelines").

<sup>134</sup> T-Mobile LBR NPRM Comments at 12.

additional or different readiness criteria that should be included for IP-based service from Internet-based TRS providers?

43. In addition, we seek comment as to whether we should define “IP-capable” as part of the readiness determination. Would such a definition be useful to wireline, interconnected VoIP, and Internet-based TRS providers and state and local 911 authorities? If so, what level of specificity should be required in the definition? For example, in the *Location-Based Routing NPRM* proceeding, T-Mobile indicates that the Commission should delineate between SIP and NG911 connectivity.<sup>135</sup> What are the benefits associated with making this distinction in a potential definition of “IP-capable”? Should IP-capable mean SIP? NENA, on the other hand, argues for using a more specific term in the rules “such as ‘i3 compatible’ or some other mutually-agreed terminology to describe standards-based” NG911.<sup>136</sup> Would it be preferable to tie readiness to i3 compatibility? Are there other specific terms we should consider instead of or in addition to “IP-capable,” such as “NG911-capable”?

44. We also seek comment on whether 911 authorities should be required to submit requests to all wireline, interconnected VoIP and Internet-based TRS providers in the serving area as a precondition to considering the request “valid”? In its comments to the *Location-Based Routing NPRM* proceeding, Verizon argues that unless a request is submitted to all wireless providers in the serving area, the rules would impose disparate burdens on competing service providers.<sup>137</sup> We seek comment as to whether that concern would also apply to wireline, interconnected VoIP, and Internet-based TRS providers. What are the benefits and disadvantages of such an approach? Are there any technical barriers associated with this approach? Would delaying a valid request to one provider in a service area until it can be sent to all providers in the service area slow the NG911 transition?

45. *Timing of IP-based Delivery and Delivery to Point(s) Designated by 911 Authorities.* For wireline and interconnected VoIP providers to deliver 911 calls in IP format, we propose an implementation timeline of six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. For Internet-based TRS providers to deliver calls in IP format, we propose an implementation timeline of twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later. Our proposals also would allow 911 authorities and wireline, interconnected VoIP, or Internet-based TRS providers to enter into agreements setting an alternate time frame. In the event of 911 authorities and providers agreeing to an alternate time frame, we propose that the provider notify the Commission within 30 days of the parties’ agreement. For wireline, CMRS, and interconnected VoIP providers to deliver 911 traffic to point(s) designated by 911 authorities, we similarly propose an implementation timeline of six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. For Internet-based TRS, we propose a twelve-month implementation timeline to deliver 911 traffic to point(s) designated by 911 authorities from the effective date of the IP service delivery, or twelve months after a valid request for IP-based service from a state or local 911 authority, whichever is later.

46. We seek comment on the proposed six-month time frame for delivery of IP-based services for wireline, CMRS, and interconnected VoIP providers. Would six months be an adequate amount of time for wireline and interconnected VoIP providers to deliver 911 calls in IP-based format, and for wireline, CMRS, and interconnected VoIP providers to deliver 911 traffic to point(s) designated by 911 authorities? The record indicates support for a mandatory time frame by which providers would be

<sup>135</sup> T-Mobile LBR NPRM Comments at 12.

<sup>136</sup> NENA Comments, PS Docket No. 18-64, at 11 (rec. Feb. 15, 2023) (NENA LBR NPRM Comments).

<sup>137</sup> Verizon LBR NPRM Comments at 9.

required to deliver NG911 services once the PSAP is NG911-capable,<sup>138</sup> and that six months would be a reasonable time period.<sup>139</sup> NASNA notes that while it did not propose a specific time in its Petition, “six months is an ample time frame for OSPs to make necessary preparations for transition.”<sup>140</sup> However, in response to our proposed six-month time frame for CMRS providers in the *Location-Based Routing NPRM*, some industry commenters contend that six months is not uniformly feasible, and propose time frames longer than six months or flexible time frames.<sup>141</sup> Would the same concerns apply to wireline and interconnected VoIP providers? Is a longer time frame, e.g., 18-24 months, needed to provide sufficient time for most wireline and interconnected VoIP providers to deliver traffic via IP to most NG911 networks? Should we adopt a tolling mechanism for wireline and interconnected VoIP providers similar to that proposed by T-Mobile in response to the *Location-Based Routing NPRM*?<sup>142</sup> We also seek comment on the proposed twelve-month time frame for delivery of IP-based services for Internet-based TRS providers. We propose a longer timeframe for Internet-based TRS consistent with previous Commission action regarding these services.<sup>143</sup> Because of operational differences between Internet-based TRS and other providers,<sup>144</sup> we believe that an additional six months is an appropriate amount of time for Internet-based TRS providers to make necessary network changes once other providers have come into compliance with the proposed rules.

47. Under our proposal, wireline, interconnected VoIP, and Internet-based TRS providers would be able to enter into agreements with local and state entities to establish an alternate time frame (other than six months for wireline and interconnected VoIP providers or other than twelve months for Internet-based TRS providers) for delivery of IP-based traffic. NASNA recommends that “as with E911 Phase I and II and text-to-911, mutually agreed upon extensions can be granted by the 911 authority to the OSPs when warranted by circumstances.”<sup>145</sup> Would this approach be sufficient to address circumstances where more time is needed? Should we similarly enable local and state entities to enter into agreements with wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to establish an alternate

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<sup>138</sup> See, e.g., Arizona Dept. of Administration Reply at 1; Pennsylvania Emergency Mgmt. Agency Comments at 2-3; Texas 9-1-1 Alliance, the Texas Commission on State Emergency Communications, and the Municipal Emergency Communication Districts Association Comments at 7-9 (rec. Jan. 19, 2022) (Texas 9-1-1 Entities Comments); Mission Critical Partners, LLC Comments at 5 (rec. Jan. 19, 2022) (MCP Comments); Comtech Comments at 4-6.

<sup>139</sup> NASNA Reply at 3 (rec. Feb. 3, 2022) (NASNA Reply); see also Comtech Comments at 5; Texas 9-1-1 Entities Comments at 9 (supporting a six-month time period for compliance with a valid request).

<sup>140</sup> NASNA Reply at 3.

<sup>141</sup> Verizon Comments, PS Docket No. 18-64, at 6 (rec. Feb 16, 2023) (Verizon LBR NPRM Comments) (stating that six months for CMRS providers may be feasible in some circumstances, “but only if the PSAP has fully implemented i3 in its network through a NG911 provider that has deployed its service in coordination with Verizon”); AT&T Services Inc. (AT&T) Comments, PS Docket No. 18-64, at 7 (rec. Feb. 16, 2023) (AT&T LBR NPRM Comments) (proposing 18-24 months for CMRS providers to deliver IP-based traffic to NG911 networks); see also The Industry Council for Emergency Response Technologies (iCERT) Comments, PS Docket No. 18-64, at 4 (rec. Feb. 14, 2023) (iCERT LBR NPRM Comments) (noting that the adequacy of six months for CMRS providers is dependent on how NG911 capability is determined and the process used by the Commission for facilitating PSAP requests); Intrado Life & Safety, Inc. (Intrado) Comments, PS Docket No. 18-64, at 6 (rec. Feb. 16, 2023) (Intrado LBR NPRM Comments) (recommending further discussion on PSAP readiness and flexible implementation time frames).

<sup>142</sup> T-Mobile USA, Inc. (T-Mobile) Comments, PS Docket No. 18-64, at 13 (rec. Feb. 16, 2023) (T-Mobile LBR NPRM Comments) (“Tolling mechanisms will be critical to allow carriers and PSAPs to collaboratively guarantee PSAP readiness, and timeframes must acknowledge the varying burdens on PSAPs and their vendors at each step of readiness.”).

<sup>143</sup> See *Kari’s Law/RAY BAUM’S Act Order*, 34 FCC Rcd at 6688, para. 210.

<sup>144</sup> See *id.* at 6687-89, paras. 208, 212; 47 CFR § 64.601(a)(23), (24), (51).

<sup>145</sup> *Id.*

time frame for delivering 911 calls to the point(s) in the IP-based network designated by the 911 authority? We seek comment on the length of time required by wireline, interconnected VoIP, and Internet-based TRS providers to complete IP connectivity onboarding and testing with 911 authorities that have requested IP-based service.

48. *NG911 Readiness Registry.* To facilitate notification, we seek comment on whether the Commission should require or make available a registry or database that would allow state and local 911 authorities to notify wireline, interconnected VoIP, or Internet-based TRS providers of readiness to receive calls in IP-based format, including associated location information. In the *Location-Based Routing NPRM*, we proposed making available a registry or database for CMRS providers and covered text providers.<sup>146</sup> If this proposal were adopted, we believe that establishing a common registry to notify all providers (wireline, CMRS, interconnected VoIP, and Internet-based TRS) would be beneficial to public safety entities and providers alike. It would provide state and local 911 authorities with one notification platform rather than requiring 911 authorities to use multiple to determine which providers would receive notice via multiple registries. We seek comment on this proposal. We also seek comment on the granularity of such a registry, including whether to organize it by PSAP, state, ESInet, or other level of specificity. Should it be combined with our existing Master PSAP Registry and Text-to-911 Registry?<sup>147</sup> If so, what features would be required in such a combined registry?

49. We note that in the *Location-Based Routing NPRM* proceeding, commenters expressed differing views on whether a PSAP registry would be useful for triggering delivery of IP-based service.<sup>148</sup> We believe that the need for providers to communicate with state and local 911 authorities does not necessarily obviate the need for a registry. Nevertheless, we seek comment on whether a registry might hamper NG911 transition efforts. Are there any ways in which a registry might prevent providers and state and local 911 authorities from coordinating requests for IP-delivery service?

50. *Appropriate Requesting Entities.* Under our proposed rule, the local or state entity with authority and responsibility to designate the point(s) that allow emergency calls to be answered would be the appropriate authority to request IP-based service from wireline, interconnected VoIP, and Internet-based TRS providers. However, statewide, regional, or county governmental entities transitioning to NG911 may deploy shared resources such as a common ESInet or other network elements, which may provide services for multiple PSAPs or public safety entities.<sup>149</sup> There are also still many PSAPs serving a single jurisdiction managed by a city, county, or police or fire department.<sup>150</sup> We seek comment on the appropriate requesting entity or entities we should include in our rule given the varied governance of NG911 deployments. Should the proposed rule include PSAPs, appropriate local emergency authorities, state or local 911 authorities, and/or other specified authorities as entities that may initiate a valid request for IP-based service?

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<sup>146</sup> *Location-Based Routing NPRM* at \*17, para. 52.

<sup>147</sup> See 47 CFR § 9.10(q)(10)(ii), (iii) (requirements for text-to-911 registry).

<sup>148</sup> For example, ATIS argues that we should not employ a registry approach, as state and local governments need to engage directly with wireless providers to become technically ready and capable to receive IP format calls in the first instance. ATIS LBR NPRM Comments at 5. Verizon asserts that for wireless providers and PSAPs, the delivery of 911 calls in IP format will be less like the implementation of text-to-911 and “more analogous to—and in most respects more complex than—the early years of wireless E911 implementation.” Verizon LBR NPRM Comments at 7-8. Accordingly, Verizon states, the registry mechanism is “inappropriate” in this context and will create confusion among PSAPs. *Id.* at 7. On the other hand, NENA proposes establishment of an “authoritative database” where a jurisdiction could certify that it is ready to receive IP calls and provide ESInet boundary information. NENA LBR NPRM Comments at 8.

<sup>149</sup> TFOPA Final Report at 100.

<sup>150</sup> *Id.* at 76.

#### 4. Definitions

51. *Next Generation 911 (NG911)*. We seek comment on defining the term “Next Generation 911.” There are multiple definitions of “NG911” in both pending federal legislation and federal law. Most recently, the Next Generation 9-1-1 Act of 2023 (H.R. 1784) introduced in March 2023 includes a definition of “Next Generation 9-1-1”:

[A]n Internet Protocol-based system that— (A) ensures interoperability; (B) is secure; (C) employs commonly accepted standards; (D) enables emergency communications centers to receive, process, and analyze all types of 9-1-1 requests for emergency assistance; (E) acquires and integrates additional information useful to handling 9-1-1 requests for emergency assistance; and (F) supports sharing information related to 9-1-1 requests for emergency assistance among emergency communications centers and emergency response providers.<sup>151</sup>

In the Next Generation 9-1-1 Advancement Act of 2012, Congress enacted a definition of “Next Generation 9-1-1 services” for purposes of administration of federal 911 implementation grants.<sup>152</sup> We note that in response to the *Location-Based Routing NPRM*, commenters discussed whether the Commission should adopt a definition of NG911. For example, APCO urges the Commission to adopt the definition of NG911 “as defined by the public safety community with support from a variety of stakeholders” that appeared in legislation passed by the House of Representatives in 2022 but was not enacted into law.<sup>153</sup> However, NENA urges the Commission to “be cautious in adopting formal definitions [of terms such as NG911]... without full industry-wide support and without considering all potential consequences of such definitions.”<sup>154</sup> NENA also asks the Commission to consider using the term “i3 compatible” or some other mutually-agreed upon terminology rather than “IP-enabled” to describe standards-based NG911.<sup>155</sup> We seek comment on whether we should adopt one of these definitions or incorporate elements of these or other definitions of NG911 into our rules. Is a definition of NG911 necessary for compliance with the Commission’s proposed NG911 rules? If so, we seek input on crafting a definition that would be technologically neutral. We note that recent legislative definitions include qualitative descriptors of NG911 systems, such as security, interoperability, and use of commonly accepted standards, as well as specific technical capabilities. Should we include any or all of these

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<sup>151</sup> Next Generation 9-1-1 Act of 2023, H.R. 1784, 118<sup>th</sup> Cong. § 159 (2023).

<sup>152</sup> The statute provides that “Next Generation 9-1-1 services” means “an IP-based 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, 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; (E) supports data or video communications needs for coordinated incident response and management; and (F) provides broadband service to public safety answering points or other first responder entities.” 47 U.S.C. § 942(e)(5).

<sup>153</sup> APCO Comments, PS Docket No. 18-64, at 5 (rec. Feb. 16, 2023). APCO urges the Commission to define NG911 as “an IP-based system that: (A) ensures interoperability; (B) is secure; (C) employs commonly accepted standards; (D) enables emergency communications centers to receive, process, and analyze all types of 9–1–1 requests for emergency assistance; (E) acquires and integrates additional information useful to handling 9–1–1 requests for emergency assistance; and (F) supports sharing information related to 9–1–1 requests for emergency assistance among emergency communications centers and emergency response providers.” *Id.* (citing Spectrum Innovation Act of 2022, H.R. 7624, 117<sup>th</sup> Cong. § 301 (2022)). The language proposed by APCO is identical to that included in the Next Generation 9-1-1 Act of 2023.

<sup>154</sup> NENA Reply at 7-8, PS Docket No. 18-64 (rec. Mar. 20, 2023) (NENA LBR NPRM Reply) (noting that such definitions may have “substantial impacts” on state statutes, federal and state regulatory bodies, future grant programs, and future case law).

<sup>155</sup> NENA LBR NPRM Comments at 11.



elements in a definition of NG911 adopted by the Commission? Do the definitions discussed above encompass current NG911 networks and technologies, as well as possible future NG911 technologies?

52. *Emergency Services Internet Protocol Network (ESInet)*. We propose to adopt a definition of “Emergency Services Internet Protocol Network (ESInet)” that defines the term in reference to the protocol used on the network, the entities that manage the network, and the use of the network for purposes of emergency services communications. We therefore propose to define “Emergency Services Internet Protocol Network (ESInet)” as “[a]n Internet Protocol (IP)-based network used for emergency services communications, including Next Generation 911.” We seek comment on this proposed definition.

53. *911 Authority*. We propose to adopt a definition of “911 Authority” that would define the term for purposes of our rules relating to the NG911 transition. We propose to define “911 Authority” as “[t]he state, territorial, regional, Tribal, or local agency or entity with the authority and responsibility under applicable law to designate the point(s) to receive emergency calls.” Does this definition encompass the diverse set of authorities in the United States that have the authority and responsibility to designate the point(s) to receive emergency calls? We seek comment on this proposed definition.

54. In addition to the proposed definitions of “Next Generation 911 (NG911),” “Emergency Services Internet Protocol Network (ESInet),” and “911 Authority,” are there any other terms that we should define for purposes of the cost allocation and IP-delivery rules that we propose for wireline, CMRS, and interconnected VoIP providers? For example, should we include definitions of potential entry points for call delivery in an NG911 environment, such as Legacy Network Gateway or IP Point of Interconnection?

## 5. Applicability of Interconnection Statutes to 911

55. Although the NASNA Petition did not explicitly raise this issue, the record indicates that disagreement over the applicability of interconnection requirements to 911 has contributed to disputes regarding NG911 deployments in several states.<sup>156</sup> Some rural LECs argue that the interconnection provisions in sections 251 and 252 of the Act require 911 authorities and their contracted NG911 service providers to provide points of interconnection for receipt of 911 traffic within LEC local service areas.<sup>157</sup> Some of these commenters also argue that requiring carriers to build out to distant points for purposes of 911 interconnection could impose high costs on small rural customer bases that this would undermine the universal service mandates of section 254 of the Act.<sup>158</sup> NTCA also argues that requiring carriers to interconnect outside of their networks would be contrary to the Commission’s historical approach to interconnection under the Act, under which rural telephone companies are not required to agree to interconnect outside of their network unless a state commission determines that doing so meets requirements in section 251(f)(1)(A) of the Act.<sup>159</sup> Conversely, some public safety entities argue that sections 251 and 252 in fact require LECs to connect to a 911 authority’s ESInet.<sup>160</sup>

56. We propose to clarify that the interconnection requirements of sections 251 and 252 do not require 911 authorities or their contracted NG911 service providers to provide points of interconnection for 911 traffic within existing LEC service areas. Sections 251 and 252 were intended to impose interconnection and negotiation duties on commercial telecommunications carriers (including both

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<sup>156</sup> See, e.g., South Carolina Telephone Coalition Comments at 2.

<sup>157</sup> Nebraska RLECs Comments at 4-5; NTCA Comments at 4-5; Letter from Guy N. Benson, Policy Director, JSI and Margaret M. Fox, Attorney for the South Carolina Telephone Coalition, Burr & Forman LLP, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 21-479, at 2 (filed Oct. 31, 2022) (South Carolina Telephone Coalition *Ex Parte*).

<sup>158</sup> E.g., NTCA Comments at 4.

<sup>159</sup> *Id.*

<sup>160</sup> E.g., Texas 9-1-1 Entities Comments at 6-7.

incumbent and competitive LECs) to promote a competitive telecommunications marketplace.<sup>161</sup> State and local 911 authorities are not commercial “telecommunications carriers” to which the interconnection requirements of sections 251 and 252 would apply, because they do not offer telecommunications for a fee directly to the public.<sup>162</sup> In the context of wireless cost allocation for E911 service, the U.S. Court of Appeals for the District of Columbia Circuit stated that PSAPs are not “private businesses... providing for-profit services to the public... PSAPs are governmental entities playing a critical role in the provision of public safety services.”<sup>163</sup> Similarly, we propose to clarify that section 251(f)(1)(A) of the Act, which provides that a rural ILEC is not required to interconnect under section 251(c) until certain conditions are met, does not apply because 911 authorities are not telecommunications carriers requesting interconnection. We seek comment on this analysis.

## B. Monitoring and Compliance

57. We seek comment on whether the Commission should implement any new data collections to assist in monitoring compliance with our proposed rules for NG911. If reporting would be helpful, what specific information should providers include and how frequently should we require them to report? We also seek comment on measures the Commission could take to limit the burden of reporting on the provision of IP-based service. To what extent could the Commission limit the burden of any reporting requirements by providing increased flexibility for providers or businesses identified as small by the Small Business Administration?<sup>164</sup> As an alternative to reporting, should the Commission require wireline, interconnected VoIP, and Internet-based TRS providers to certify that they are in compliance with requirements for delivery of calls in IP format? Should the proposed rules include requirements for disclosures to PSAPs or other state or local 911 authorities in connection with the proposed NG911 rules?

58. Public safety entities and members of the public seeking to report non-compliance with the proposed rules would be able to file complaints via the Public Safety and Homeland Security Bureau’s Public Safety Support Center or through the Commission’s Consumer Complaint Center.<sup>165</sup> We

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<sup>161</sup> The Telecommunications Act of 1996 was intended to “promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.” Telecommunications Act of 1996, Pub. L. No. 104-104, Preamble, 110 Stat 56, 56 (1996 Act). The Senate conference report on the 1996 Act stated that Section 251(a) “imposes a duty on local exchange carriers possessing market power in the provision of telephone exchange service or exchange access service in a particular local area to negotiate in good faith and to provide interconnection with other telecommunications carriers that have requested interconnection for the purpose of providing telephone exchange service or exchange access service.” S. Rep. No. 104-230, at 117 (1996) (Conf. Rep.) (1996 Act Conf. Rep.). The same report indicates that Section 252 imposes “separate subsidiary and other safeguards on certain activities of the [Bell Operating Companies].” 1996 Act Conf. Rep. at 150.

<sup>162</sup> A “telecommunications carrier” is a provider of a “telecommunications service,” which is “the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.” 47 U.S.C. § 153(51), (53).

<sup>163</sup> *U.S. Cellular Corp.*, 254 F.3d at 84. The court held, in part, that the Commission’s action to remove a rule that conditioned wireless carriers’ obligation to deliver E911 services on guaranteed state or local government funding did not violate the cost causation principle, assuming that this principle applies outside of rate regulation. (Under the cost causation principle, when the Commission sets rates, it must specifically justify any rate differential that does not reflect cost.) In addition, the court held that governmental entities responsible for coordinating emergency response were not cost-causers within this principle.

<sup>164</sup> For example, the Commission’s requirements for live call data reporting provide a reduced reporting schedule for non-nationwide CMRS providers. 47 CFR § 9.10(i)(3)(ii)(D).

<sup>165</sup> The Public Safety Support Center is a web-based portal that enables PSAPs and other public safety entities to request support or information from the Public Safety and Homeland Security Bureau and to notify it of problems or issues impacting the provision of emergency services. *Public Safety and Homeland Security Bureau Announces Opening of Public Safety Support Center*, Public Notice, 30 FCC Rcd 10639 (PSHSB 2015); FCC, *Public Safety Support Center*, <https://www.fcc.gov/general/public-safety-support-center> (last visited May 16, 2023). The

(continued....)

tentatively conclude that these existing mechanisms should be sufficient for addressing potential violations of the NG911 rules. We seek comment on this tentative conclusion.

### C. Additional Proposals

59. Several commenters responding to the NASNA Petition urge us to expand the scope of the rulemaking beyond the specific issues raised in the petition. For example, BRETSA urges us to address how NG911 can assist non-English speakers and the deaf and hard of hearing, standards and cost allocation for transferring 911 calls between PSAPs in different states, and the delivery of text-to-911.<sup>166</sup> NTCA and Nebraska RLECs advocate looking more broadly at IP interconnection and the proper allocation of transport costs.<sup>167</sup> The Alarm Industry Communications Committee urges the Commission to restrict the use of “device-initiated emergency service calls to protect the integrity of the NG911 network.”<sup>168</sup> We decline to address these additional issues in this *Notice*.

### D. Legal Authority

60. The Communications Act of 1934, as amended (the Act) established the FCC, in part, “for the purpose of promoting safety of life and property through the use of wire and radio communication.”<sup>169</sup> Beyond that general mandate, Congress has repeatedly and specifically endorsed a role for the Commission in the nationwide implementation of advanced 911 capabilities. Section 251(e)(3) of the Act, which directs the FCC to “designate 911 as the universal emergency telephone number,”<sup>170</sup> and other federal 911-related statutes demonstrate that the Commission’s general jurisdictional grant includes the responsibility to set up and maintain a comprehensive and effective 911 system, encompassing a variety of communication services in addition to wireless and IP-enabled voice services.<sup>171</sup> The NET 911 Act indicated the congressional goal to “promote and enhance public safety by facilitating the rapid deployment of IP-enabled 911 and E-911 services, encourage the Nation’s transition to a national IP-enabled emergency network, and improve the 911 and E-911 access to those with disabilities.”<sup>172</sup> The Twenty-First Century Communications and Video Accessibility Act of 2010 (CVAA) advanced the Commission’s implementation of technologies such as text-to-911 by granting authority to promulgate “regulations, technical standards, protocols, and procedures . . . necessary to achieve reliable, interoperable communication that ensures access by individuals with disabilities to an Internet protocol-enabled emergency network, where achievable and technically feasible.”<sup>173</sup> RAY BAUM’S Act directed the Commission to consider adopting rules to ensure that dispatchable location is conveyed with 911 calls

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Consumer Complaint Center handles consumer inquiries and complaints, including consumer complaints about access to 911 emergency services. See FCC, Consumer Complaint Center, <https://consumercomplaints.fcc.gov/hc/en-us> (last visited May 16, 2023).

<sup>166</sup> BRETSA Comments at 2-5.

<sup>167</sup> NTCA Comments at 2-5; Nebraska RLECs Reply at 2-3.

<sup>168</sup> Letter from John A. Prendergast, Attorney for Alarm Industry Communications Committee, to Marlene H. Dortch, Secretary, FCC, PS Docket Nos. 21-479, 11-153, and 10-255, at 4 (filed Aug. 22, 2022).

<sup>169</sup> 47 U.S.C. § 151.

<sup>170</sup> 47 U.S.C. § 251(e)(3).

<sup>171</sup> *911 Fee Diversion; New and Emerging Technologies 911 Improvement Act of 2008*, PS Docket Nos. 20-291, 09-14, Report and Order, 36 FCC Rcd 10804, 10811-12, para. 16 (2021) (*911 Fee Diversion R&O*) (noting that, taken together, federal 911-related statutes and Communications Act provisions “establish an overarching federal interest in ensuring the effectiveness of the 911 system”).

<sup>172</sup> NET 911 Act, Preamble.

<sup>173</sup> Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 124 Stat 2751 § 106(g) (2010) (CVAA) (codified at 47 U.S.C. § 615c(g)).

“regardless of the technological platform used” and defined the term “9-1-1 call” to include a voice call “or a message that is sent by other means of communication.”<sup>174</sup>

61. Together, these statutes indicate that Congress has given the Commission broad authority to ensure that the 911 system, including 911, E911, and NG911 calls and texts from all providers, is available and functions effectively.<sup>175</sup> The Commission has previously concluded that “[i]n light of these express statutory responsibilities, regulation of additional capabilities related to reliable 911 service, both today and in an NG911 environment, would be well within Commission’s . . . statutory authority.”<sup>176</sup> The Commission also has stated that “[t]he Commission already has sufficient authority to regulate the 911 and NG911 activity of, inter alia, wireline and wireless carriers, interconnected VoIP providers, and other IP-based service providers,”<sup>177</sup> and also that its jurisdiction to regulate 911 extends to the regulation of NG911 across different technologies.<sup>178</sup> We seek comment on this analysis.

62. Commenters responding to the *Public Notice* support the view that the Commission has authority over NG911 as an extension of its jurisdiction over 911 generally.<sup>179</sup> No commenter argues that the Commission does not have authority to regulate NG911 as a general matter. We agree with commenters who indicate that power to regulate 911 is shared between the Commission and the states,<sup>180</sup> and our proposals in this *Notice of Proposed Rulemaking* are premised on that assumption. These proposals are not intended to alter state jurisdiction over 911 or to limit state and local authorities’ ability to take action in their jurisdictions to advance NG911. The nationwide framework we propose expressly empowers state and local authorities and affords them flexibility to make decisions regarding the configuration, timing, and cost responsibility for NG911 implementation in their jurisdictions. Consistent with past practice, we intend to carry out our proposals in partnership with state and local authorities and in light of their unique interest in the delivery of 911 service to their communities. We seek comment on additional considerations for striking the most effective balance between state and federal authority to implement the transition to NG911.

### E. Promoting Digital Equity and Inclusion

63. The Commission, as part of its continuing effort to advance digital equity for all,<sup>181</sup> including people of color, persons with disabilities, persons who live in rural or Tribal areas, and others

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<sup>174</sup> Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, 132 Stat. 348, Division P, Repack Airwaves Yielding Better Access for Users of Modern Services Act of 2018 (RAY BAUM’S Act) § 506(a), (c)(1) (codified at 47 U.S.C. § 615 Notes).

<sup>175</sup> *911 Fee Diversion R&O*, 36 FCC Rcd at 10811-10812, para. 16.

<sup>176</sup> *Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-75, 11-60, Report and Order, 28 FCC Rcd 17476, 17529-30, para. 150 (2013).

<sup>177</sup> 2013 NG911 Framework Report, Section 4.1.2.2 at 28.

<sup>178</sup> *Id.* (noting that the Commission “already has sufficient authority to regulate the 911 and NG911 activity of, *inter alia*, wireline and wireless carriers, interconnected VoIP providers, and other IP-based service providers”); *911 Governance and Accountability, Improving 911 Reliability*, PS Docket Nos. 14-193, 13-75, Policy Statement and Notice of Proposed Rulemaking, 29 FCC Rcd 14208, 14209-10, 14223, paras. 3, 34 (2014) (*NG911 Policy Statement*) (stating that while the Commission had “previously undertaken to monitor the transition to Next Generation 911 (NG911) technologies to determine whether our rules should be revised or expanded to cover new best practices or additional entities, recent events have demonstrated that the pace of change already requires prompt action to review these vulnerabilities” (footnotes omitted) and that “the Commission has the public safety imperative to oversee each of the increasingly complex component pieces of the nation’s 911 infrastructure”).

<sup>179</sup> CTIA Comments at 4; iCert *Ex Parte* Letter at 2; Comtech Comments at 3; Comtech Reply at 5.

<sup>180</sup> Colorado Public Utilities Comm. Comments at 2-3; NTCA Reply at 5.

<sup>181</sup> Section 1 of the Communications Act of 1934 as amended provides that the FCC “regulat[es] interstate and foreign commerce in communication by wire and radio so as to make [such service] available, so far as possible, to

(continued....)

who are or have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality, invites comment on any equity-related considerations<sup>182</sup> and benefits, if any, that may be associated with the proposals and issues discussed herein. Specifically, we seek comment on how our proposals may promote or inhibit advances in diversity, equity, inclusion, and accessibility.

#### F. Summary of Benefits and Costs

64. *Summary of Benefits of Proposed Actions.* As discussed above, the actions we propose in this *Notice of Proposed Rulemaking* have several potential benefits. First, removing an impediment to the transition to NG911 will speed up the arrival of NG911's public safety benefits to those who have yet to receive them. Second, allowing 911 authorities to retire aging legacy 911 systems will save 911 authority funds. Third, retiring legacy 911 systems will improve public safety by moving 911 calls to the more reliable NG911 system. Fourth, the proposed actions will reduce the need for negotiations between providers and 911 authorities, resulting in savings to both parties. We seek detailed comment on the scope and size of all of these benefits, as well as any additional benefits that our proposed actions may convey.

65. *Speeding up the NG911 Transition.* The proposed action will facilitate the rapid and effective transition to NG911 by requiring delivery of 911 calls from wireline, interconnected VoIP, and Internet-based TRS providers in IP-based format and establishing a point for the delivery of NG911 traffic. We seek comment on whether and how our proposed rules would benefit state and local 911 authorities by reducing NG911 transition costs and improve public safety by increasing the availability of NG911 services. While difficult to quantify numerically, the benefits of NG911 to the public appear to be extensive and to affect multiple aspects of 911 systems and response.<sup>183</sup> Commenters note that these benefits include real-time call routing flexibility, faster call delivery, additional data for improved situational awareness, improved service reliability, improved call transfer capabilities, and better service to disabled and non-English speaking communities.<sup>184</sup> Including Internet-based TRS providers in this transition will also benefit individuals with hearing and speech disabilities who rely on TRS. We seek comment on the magnitude of these and other benefits that would accrue as a result of our proposed actions.

66. *Saving 911 Authority Funds.* The proposed action will end the need to maintain legacy 911 systems by requiring wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to connect to the point(s) designated by the 911 authority, requiring those providers to cover the costs of transmitting 911 calls to those points and requiring wireline, interconnected VoIP, and Internet-based TRS providers to deliver 911 traffic in IP-based format. Although ESInets are available in a large majority of

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all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex." 47 U.S.C. § 151.

<sup>182</sup> The term "equity" is used here consistent with Executive Order 13985 as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. See Exec. Order No. 13985, 86 Fed. Reg. 7009, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (Jan. 20, 2021).

<sup>183</sup> See, e.g., *NG911 NOI*, 25 FCC Rcd at 17880-81, paras. 28-29.

<sup>184</sup> Comtech Reply at 4 (indicating that benefits of NG911 systems include "real-time call routing flexibility, faster call delivery, additional data for improved situational awareness, capabilities such as integrated text messages (and other multi-media messages soon), and significantly improved service reliability"); BRETSA Reply at 4-7 (detailing benefits including "[c]onferencing in telephone or video relay and language interpretation services during 9-1-1 call setup," "interstate 9-1-1 call transfer and CAD incident data transfer," "geospatial routing," and "transfer of CAD data with call transfer"); NTCA Comments at 2 (indicating that NG911 will provide increased situational awareness to first responders, which will benefit rural consumers).

jurisdictions, some providers resist connecting to them at the requested delivery points or transitioning from providing 911 calls in legacy format to providing 911 calls in IP-based format compatible with NG911. Our proposed action will allow 911 authorities to discontinue support of legacy networks—including the maintenance of legacy network gateways and selective routers. Legacy 911 systems include Centralized Automated Message Accounting (CAMA) trunks, legacy selective routers, and Automatic Location Information (ALI) databases.<sup>185</sup> We seek comment and specific information on the costs to 911 authorities to maintain legacy 911 networks while also operating an NG911 network. In addition, the requirement for wireline, interconnected VoIP, and Internet-based TRS providers to deliver IP-based 911 traffic would eliminate costs for 911 authorities to maintain transitional gateways to process and convert legacy calls. For states that deliver calls to PSAPs in IP-based format, our proposal would require any calls arriving in legacy TDM format to be converted into an IP-based protocol, such as SIP.<sup>186</sup> Several states report maintaining several legacy network gateways to convert legacy-format 911 calls at the ratio of two legacy network gateways per LATA.<sup>187</sup> This introduces an extra step that is inconsistent with the end-state NG911 system described in NENA’s i3 standard.<sup>188</sup> Under the proposed rules, states would no longer need to maintain these gateways once all providers begin delivering IP-based traffic to the ESInet. We seek comment on these and other 911 authority costs that would be avoided if we adopt our proposed rules.

67. *Improving Reliability.* The proposed actions will move 911 calls off of the aging legacy 911 system that commenters indicate is increasingly unreliable,<sup>189</sup> thus improving public safety. This will also accelerate consumer access to NG911 services.<sup>190</sup> NASNA argues that legacy 911 call routing and legacy network infrastructure is “beyond end-of-life and has an increasing failure rate.”<sup>191</sup> For instance, in California, the 911 authority has been tracking the reliability and availability of the legacy 911 system for over 10 years and has seen an increase in outage minutes for the legacy 911 system.<sup>192</sup> In 2017 the average number of minutes of outage was 17,000 minutes per month, but in 2022 the average increased to over 59,000 outage minutes per month.<sup>193</sup> Moving from legacy systems to IP-based systems will reduce system outages and strengthen our 911 networks to improve public safety. We seek comment on the

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<sup>185</sup> Comtech Reply at 5-6.

<sup>186</sup> Colorado Public Utilities Comm. Comments at 3 (discussing that because Colorado’s ESInet must convert calls from TDM to SIP format, “the state’s ESInet is that much further from representing a true NG911 system as described in the NENA i3 standard.”).

<sup>187</sup> Texas 9-1-1 Entities Reply at 4 (stating that transitioning to NG911 “may involve removing the single point of failure for a legacy selective router by the having legacy OSPs connect to two Legacy Network Gateways (‘LNGs’) within the LATA.”); Minnesota Dept. of Public Safety Comments at 1 (indicating that the state offers “two diverse TDM [points of interconnection] within each of Minnesota’s five LATA boundaries.”); Pennsylvania Emergency Mgmt. Agency Comments at 3 (detailing the state’s NG911 efforts, which “includes establishing two time-division multiplexing OSP points of interconnection (POI) in each local access and transport area, as well as two SIP POIs for the state, to ingress calls into the NG911 system.”); Comtech Comments at 7 (stating that South Carolina’s network design includes two points of interconnection per LATA).

<sup>188</sup> Colorado Public Utilities Comm. Comments at 3.

<sup>189</sup> Minnesota Dept. of Public Safety Comments at 1 (stating that “the LSRs [legacy selective routers] are end-of-service, end-of-life and starting to fail”); Texas 9-1-1 Entities Reply at 4; NASNA Comments, PS Docket No. 18-64, at 7 (rec. Feb. 16, 2023) (NASNA LBR NPRM Comments).

<sup>190</sup> Comtech Reply at 5 (“[D]elays due to unnecessary disputes with ILEC/RLEC OSPs and Legacy 911 Providers... inhibit consumers’ access to NG911 services.”).

<sup>191</sup> NASNA LBR NPRM Comments at 7.

<sup>192</sup> *Id.* at 7.

<sup>193</sup> *Id.* at 7-8.

likely magnitude of the public safety benefits resulting from improved reliability and resiliency of the networks transitioning from legacy systems to NG911 systems.

68. *Reducing the Need for Negotiations.* Requirements for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to deliver 911 traffic to points designated by a 911 authority would minimize uncertainty, delays, and costs for 911 authorities to repeatedly negotiate for call delivery and cost responsibility with wireline, CMRS, interconnected VoIP, and Internet-based TRS providers. State and local 911 authorities and their contracted 911 service providers currently must work with each provider in their locality to negotiate costs and delivery to new designated delivery points.<sup>194</sup> Public safety entities report that there is ambiguity about providers' obligations to deliver 911 traffic to new NG911 networks and that this can lengthen negotiation time.<sup>195</sup> The proposed rules and database would permit states to notify wireline, CMRS, interconnected VoIP, and Internet-based TRS providers via a centralized database of readiness to accept IP-based 911 traffic, eliminating the need for individualized and extensive negotiations with providers. This would eliminate transactional costs for both 911 authorities and wireline, CMRS, interconnected VoIP, and Internet-based TRS providers and minimize the uncertainty and attendant delays currently associated with allocating costs for connecting to NG911 networks. We seek comment on the length of time that 911 authorities currently spend to negotiate connections, as well as the costs associated with doing so. Reducing the need to negotiate may also accelerate the NG911 transition. Comtech states that delays resulting from disputes between 911 authorities and providers inhibit consumers' access to NG911 services.<sup>196</sup> We seek comment on these and other benefits that would result from the proposed actions in this proceeding, and to the extent possible, the estimated monetary or other value of such benefits.

69. *Feasibility and Costs of Implementation.* To determine whether the proposed requirements are reasonable, we must determine whether they are technically feasible and do not impose costs that exceed their benefits. Because commenters note issues only with specific providers,<sup>197</sup> we assume that some wireline, CMRS, interconnected VoIP, and Internet-based TRS providers have connected to states' NG911 networks. We also assume that some wireline, interconnected VoIP, and Internet-based TRS providers have connected via IP to state's NG911 networks. We therefore tentatively conclude that the actions we propose are technically feasible and seek comment on this conclusion. The record does not currently contain detailed information on costs required for wireline, CMRS, and interconnected VoIP providers to connect to NG911 networks six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. The record also does not contain detailed information on costs required for wireline and interconnected VoIP providers to provide IP-based service six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. In addition, the record does not contain detailed information on the costs required for Internet-based TRS providers to connect to NG911 networks or provide IP-based service twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later.

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<sup>194</sup> The Pennsylvania Emergency Mgmt. Agency, for example, notes that it must work with each incumbent LEC operating in the state of Pennsylvania to determine costs and delivery to the NG911 system. Pennsylvania Emergency Mgmt. Agency Comments at 4. Comtech similarly notes that it must repeatedly negotiate "the same points of contention with Legacy 911 Providers and OSPs for each and every NG911 deployment location." Comtech Comments at 2. Iowa notes that it would have to work with 150 carriers, with 150 different cost methods to transition to direct SIP. Iowa Dept. of Homeland Security and Emergency Mgmt. Comments at 2.

<sup>195</sup> For example, the Pennsylvania Emergency Mgmt. Agency states that it is "currently experiencing difficulties in this process that may impact Pennsylvania's transition to NG911 service and extend the period of time 911 authorities are paying for both legacy and NG911 services at the same time. Pennsylvania Emergency Mgmt. Agency Comments at 4.

<sup>196</sup> Comtech Reply at 5.

<sup>197</sup> Comtech Reply at 2-3; Pennsylvania Emergency Mgmt. Agency at 4.



Accordingly, we seek comment on the level and types of costs that would be imposed by the implementation of our proposed rules, including costs for hardware, software, services, or transport, or other costs to wireline, CMRS, interconnected VoIP, and Internet-based TRS providers or for state and local 911 authorities. We seek comment on the amount of those costs and ask commenters to provide sufficiently detailed information to allow accurate cost calculations.

70. *Cost Estimates.* Although the proposed rulemaking may incur additional costs to wireline, CMRS, interconnected VoIP, and Internet-based TRS providers through 1) the requirement for wireline, interconnected VoIP, and Internet-based TRS providers to deliver 911 calls in IP-based format to 911 facilities and 2) the requirement for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to deliver 911 traffic to the point(s) designated by the 911 authority, we believe these costs are relatively small. Our initial estimate of the upper bound of these costs is approximately \$103,000 in one-time costs and \$11.6 million in recurring annual costs. We outline those costs below and seek comment on our cost estimates.

71. The cost of moving the point for delivery of 911 traffic for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to a point designated by the 911 authority, such as an ESInet, occurs only once. The cost of changing connecting points should be insignificant for transporters. To estimate the maximum of this one-time cost, we assume that all of the 2,327 wireline, CMRS, interconnected VoIP, and Internet-based TRS providers' 911 calls must be reconfigured to connect to ESInets.<sup>198</sup> This is an overestimate because some providers already are connected to ESInets. We assume that each provider needs at most one hour of work by a technician to change connection points.<sup>199</sup> We use \$30 per hour as the wage for workers who move the connection points.<sup>200</sup> Marking up this wage by 45% to account for benefits, we arrive at a total of \$44 per hour.<sup>201</sup> We therefore estimate that the upper bound of one-time costs is \$103,000.<sup>202</sup>

72. Ongoing costs will be incurred by the small percentage of providers that do not yet have IP switching facilities for voice traffic.<sup>203</sup> According to NTCA, 91.5% of respondents to the NTCA Broadband/Internet Availability Survey Report, which we assume are rural wireline providers, indicate that they already have IP switching facilities for voice traffic in their networks, and therefore 8.5% do

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<sup>198</sup> See FCC, Office of Economics and Analytics, Industry Analysis Division, Voice Telephone Services: Status as of June 30, 2021 at 10, Table 2 (August 2022), <https://docs.fcc.gov/public/attachments/DOC-385814A1.pdf%20> (OEA Voice Telephone Service Status) (finding that as of June 2021, there were 2,256 wireline end-user switched access lines and interconnected VoIP subscriptions providers and 61 mobile telephony providers). There are 10 certified Internet-based TRS providers. FCC, *Internet-Based TRS Providers*, <https://www.fcc.gov/general/internet-based-trs-providers> (last visited May 16, 2023).

<sup>199</sup> Based on the FCC internal engineering staff's estimate, changing an IP-based demarcation point requires system reconfiguration that will take no more than 30 minutes to complete. We double the amount of time to allow for variation in the time it may require across service providers.

<sup>200</sup> We use the Bureau of Labor Statistics average wage for telecommunications equipment installers and repairers, except line installers for the telecommunications industry, which they estimate at \$30.37, which we round to \$30 to avoid false precision. See Bureau of Labor Statistics, *Occupational Employment Statistics*, <https://www.bls.gov/oes/current/oes492022.htm> (last visited May 16, 2023).

<sup>201</sup> According to the Bureau of Labor Statistics, as of September, 2022, civilian wages and salaries averaged \$28.88/hour and benefits averaged \$12.98/hour. Total compensation therefore averaged  $\$28.88 + \$12.98 = \$41.86$ . See Press Release, Bureaus of Labor Statistics, Employer Costs for Employee Compensation – September 2022 (Dec. 15, 2022), <https://www.bls.gov/news.release/pdf/ecec.pdf>. Total compensation therefore averaged  $\$28.88 + \$12.98 = \$41.86$ . *Id.* Using these figures, benefits constitute a markup of  $\$12.98/\$28.88 = 45\%$ . We therefore markup wages by 45% to account for benefits.  $\$30 \times 1.45 = \$43.50$ , which we round to \$44.

<sup>202</sup> One hour per provider  $\times$  \$44/hour  $\times$  2,327 providers = \$102,388, which we round to \$103,000.

<sup>203</sup> Since VoIP and Internet-based TRS providers are already transmitting calls via IP, we assume that they incur no additional cost to comply with the requirement of transmitting 911 calls in IP format.



not.<sup>204</sup> As a result, the cost of converting 911 calls from TDM format to IP format would only be imposed on 8.5% of rural wireline providers. We assume the percentage of non-rural telecommunications wireline providers without IP-switching capability to be similar or smaller. Among the 947 local exchange telephone service providers,<sup>205</sup> we therefore estimate that at most 81 providers (8.5% of 947) may need to hire a third-party to transport their TDM calls in IP format to the ESInets.<sup>206</sup> The cost of adding these 81 providers to existing available transport services would not be particularly burdensome. To estimate the cost of additional transport service, we make several assumptions. First, we assume that the 81 providers are evenly spread across 56 U.S. states, commonwealths, and territories.<sup>207</sup> This would yield an additional 1.45 providers (81/56) per state. That is, we assume it would require adding 1.45 providers and 28,281 calls per year into existing transport services available in each state or territory.<sup>208</sup> Hiring an additional full-time telecommunications technician in one transport service provider per state should be more than sufficient to handle the increase in calls.<sup>209</sup> The annual wage, including benefits of a telecommunication technician would be \$44 per hour, as above, multiplied by 2080 hours, for a total of \$91,520 for each state. Given an estimated average of 55.53% gross margin for the communications service industry,<sup>210</sup> the annual cost to providers would be \$205,802 for each state.<sup>211</sup> Multiplying the annual cost per state by 56 states and territories, we estimate a total annual recurring cost of \$11,524,912, which we round to \$11.6 million per year. We note that small providers could trim costs by leveraging transport procurement through small provider consortia or entering into interconnectivity agreements with larger providers.<sup>212</sup>

<sup>204</sup> NTCA 2022 Broadband Survey Report at 4.

<sup>205</sup> See OEA Voice Telephone Service Status, at 10, Table 2 (As of June 2021, there were 947 providers providing local exchange telephone service (Switched Access Lines)).

<sup>206</sup> We multiply 947 providers by 8.5% (the percent of providers that may not have IP switching facilities) to arrive at 81 providers that may need to hire a third-party to transport their 911 calls [ $947 \times 8.5\% = 80.495$ , rounded up to 81].

<sup>207</sup> This includes 50 states, Washington D.C., American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and U.S. Virgin Islands.

<sup>208</sup> Per the Fourteenth Annual 911 Fee Report, forty-seven states, the District of Columbia, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands reported a cumulative total of 220,107,525 voice calls of all types during the 2021 annual period. Fourteenth Annual Fee Report at 12, para. 14. According to NENA, more than 80% of 911 calls in the U.S. each year are from wireless devices. Therefore 20% of 220,107,525 calls, or 44,034,105 calls are generated via wireline or interconnected VoIP [ $220,107,525 \times 20\% = 44,034,105$ ]. Divide 44,034,105 calls by a total of 2,256 wireline and interconnected VoIP providers, each provider passes an average of approximately 19,504 call per year [ $44,034,105/2256 = 19,503.6$ , rounded up to 19,504]. Multiply 19,504 by 1.45 providers, the transport service providers in each state or territory may see an increase of 28,281 calls [ $19,504 \times 1.45 = 28,280.8$ , rounded up to 28,281].

<sup>209</sup> Assuming that, on an annual basis, a full-time, full-year technician works 2,080 hours to handle the additional 28,281 calls, each technician would have to support only 14 calls per hour on average [ $28,281/2,080 = 13.6$ , rounded up to 14]. We believe that our assumption of hiring a technician per state to handle these additional 911 calls is an overestimate given that converting and transporting these calls are largely automated with little need of personnel involvement once the providers' calls are routed to the transport service providers' site.

<sup>210</sup> According to Dr. Aswath Damodarn at NYU Stern School of Business, the gross margin for the telecommunication services sector is 55.53%. See New York University, *Margins by Sector (US)*, [https://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/margin.html](https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html) (last visited May 16, 2023).

<sup>211</sup> We assume that these wireline service providers need to hire a third-party to provide this transport service, and we further assume that these third-party transport service providers mark up their service, so the gross profit margin is 55.53% according to the estimated industry average. If the cost is \$91,520, the after mark-up price of transport service would be \$205,802 [ $=\$91,520/(1 - 55.53\%) = 205,802$ ]. In other words, if a third-party transport provider charges \$205,802 to provide the additional services, it retains \$114,282 [ $=\$205,802*55.53\%$ ] as its gross profit after paying \$91,520 in wages and benefits to the additional technician it has to hire.

<sup>212</sup> NASNA Reply at 3-4.

We also note that these annual costs will fall over time due to ongoing modernization of legacy 911 systems. We seek comment on all these estimates.

73. *Costs Imposed on Rural Local Exchange Carriers.* Some rural LEC commenters oppose NASNA's proposal to define the ESInet gateway as the demarcation point for delivery of the NG911 services, arguing that this framework would impose substantial and unrecoverable costs on rural service providers.<sup>213</sup> For example, the South Carolina Telephone Coalition notes that imposing additional costs for 911 transport would create an unfair burden on rural providers and their customers.<sup>214</sup> In addition, the South Carolina Telephone Coalition notes that the costs to connect to IP points of interconnection would involve "hiring third-party transport providers to deliver . . . traffic to two diverse points."<sup>215</sup> NTCA calls these "significant new transport costs."<sup>216</sup>

74. We seek comment on specifics of these anticipated costs under our proposed rules. What are the estimated initial and ongoing costs for a wireline provider to connect to an NG911 network via IP? For wireline, interconnected VoIP, and Internet-based TRS providers that have already transitioned to providing 911 traffic to the ESInet via IP or via legacy network gateway, what are the costs to provide such service? What variables impact the costs to different providers? Are costs to connect to NG911 significantly different for different providers? If so, how? We seek cost information associated with different use cases. In addition, we note that many rural incumbent LECs offer broadband in addition to telephony, and these providers likely have already established IP peering relationships with other providers.<sup>217</sup> NASNA asserts that small providers' transition to IP "diminishes the argument that the distance to ESInet point of interconnection [POI] is cost prohibitive."<sup>218</sup> We seek comment on this assertion. We tentatively conclude that the costs for rural LECs providing broadband to transmit 911 traffic via IP to a state's NG911 point of interconnection would be small, and we seek comment on this tentative conclusion. We also seek comment on costs for IP transport to points of interconnection located in adjacent states.<sup>219</sup> In addition, we seek comment and specific data on wireline, interconnected VoIP, and Internet-based TRS provider costs to implement NG911 in rural areas, including any costs that could be avoided or reduced. Further, we seek comment on any additional costs to transition to NG911 for a rural LEC that already provides broadband service.

75. *Impact of Proposed Approach on Universal Service.* Some commenters argue that requiring the delivery of IP 911 traffic to specific points would place universal service in jeopardy through

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<sup>213</sup> NTCA Reply at 3; South Carolina Telephone Coalition Reply at 2.

<sup>214</sup> South Carolina Telephone Coalition Reply at 2-3.

<sup>215</sup> South Carolina Telephone Coalition Reply at 5.

<sup>216</sup> NTCA Reply at 5.

<sup>217</sup> See, e.g., NTCA, *Entry Into Telecommunications: Rural ILEC Perspective* at slide 4 (June 25, 2015) <https://www.justice.gov/atr/entry-telecommunications-rural-ilec-perspective> (92% of Independent Rural Carriers offer Internet); NTCA 2022 Broadband Survey Report at 4 (The "vast majority" of respondents (91.5%) to the NTCA's annual survey "indicate that they have IP switching facilities for voice traffic in their networks. Just over one-half of respondents (53.4%) still use TDM switching facilities for voice traffic within some portion of their ILEC networks." The response rate to this survey was 38.3%.); see *Connect America Fund; ETC Annual Reports and Certifications; Establishing Just and Reasonable Rates for Local Exchange Carriers; Developing a Unified Intercarrier Compensation Regime*, Report and Order, Further Notice of Proposed Rulemaking, and Order on Reconsideration, 33 FCC Rcd 11893, 11925-27, paras. 101-12 (2018) (applying the requirement to provide broadband to those carriers that have not adopted one of the Alternative Connect America Cost Model support programs or the Alaska Plan).

<sup>218</sup> NASNA Reply at 3-4.

<sup>219</sup> South Carolina Telephone Coalition Reply at 5 (indicating that the two diverse points for Comtech's ESInet implementation in South Carolina are in adjacent states).

increased costs.<sup>220</sup> With respect to section 254 of the Act, we do not believe that our proposed rules would cause injury to the principles of universal service, given that states would remain free to implement cost recovery mechanisms as they deem necessary. As NASNA points out, costs to small providers may also be addressed by other means, including “collaborative consortiums of smaller providers to leverage transport procurement, interconnectivity agreements with larger providers, and the providers’ transition to IP.”<sup>221</sup> We seek comment on the feasibility of these measures and their capability to defray costs for small providers. In addition, we seek comment on the impacts of our proposed rules on the availability of universal service and universal service support under section 254 of the Act.

76. *Benefits Expected to Exceed Costs.* The proposed actions would have important benefits outlined above, as well as impose some costs. We tentatively conclude that the Commission’s proposals would produce benefits far exceeding the costs imposed on wireline, CMRS, interconnected VoIP, and Internet-based TRS providers, and we seek comment on this tentative conclusion.

#### IV. PROCEDURAL MATTERS

77. *Paperwork Reduction Act.* This *Notice of Proposed Rulemaking* may contain proposed new or modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on any information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, we seek specific comment on how we might “further reduce the information collection burden for small business concerns with fewer than 25 employees.”<sup>222</sup>

78. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),<sup>223</sup> requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that “the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.”<sup>224</sup> Accordingly, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) concerning potential rule and policy changes contained in this *Notice of Proposed Rulemaking*. The IRFA is contained in Appendix B. Written public comments are requested on the IRFA. Comments must be filed by the deadlines for comments on the *Notice* indicated on the first page of this document and must have a separate and distinct heading designating them as responses to the IRFA.

79. *Ex Parte Presentations – Permit-But-Disclose.* The proceeding this *Notice of Proposed Rulemaking* initiates shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.<sup>225</sup> Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s

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<sup>220</sup> NTCA Comment at 4; South Carolina Telephone Coalition at 3.

<sup>221</sup> NASNA Reply at 3-4.

<sup>222</sup> 44 U.S.C. § 3506(c)(4).

<sup>223</sup> 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601–612, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>224</sup> 5 U.S.C. § 605(b).

<sup>225</sup> 47 CFR § 1.1200 *et seq.*

written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

80. *Comment Filing Instructions.* Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <https://www.fcc.gov/ecfs>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.
  - Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
  - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street NE, Washington, D.C., 20554.
  - Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19. See *FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, 35 FCC Rcd 2788 (OMD 2020), <https://www.fcc.gov/document/fcc-closes-headquarters-open-window-and-changes-hand-delivery-policy>.

81. *People with Disabilities.* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice).

82. *Additional Information.* For additional information on this proceeding, contact Rachel Wehr, [Rachel.Wehr@fcc.gov](mailto:Rachel.Wehr@fcc.gov) or 202-418-1138, or Brenda Boykin, [Brenda.Boykin@fcc.gov](mailto:Brenda.Boykin@fcc.gov) or 202-418-2062, of the Public Safety and Homeland Security Bureau, Policy and Licensing Division.

## V. ORDERING CLAUSES

83. Accordingly, IT IS ORDERED, pursuant to sections 1, 2, 4(i), 201, 214, 222, 225, 251(e), 301, 303, 316, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 201, 214, 222, 225, 251(e), 301, 303, 316, 332; the Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, 47 U.S.C. §§ 615 note, 615, 615a, 615b; and section 106 of the Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 47 U.S.C. § 615c, that this *Notice of Proposed Rulemaking* IS ADOPTED.

84. IT IS FURTHER ORDERED that, pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments on the *Notice of Proposed Rulemaking* on or before 30 days after publication in the Federal Register, and reply comments on or before 60 days after publication in the Federal Register.

85. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

## Appendix A Proposed Rules

The Federal Communications Commission proposes to amend part 9 of Title 47 of the Code of Federal Regulations as follows:

### **PART 9 – 911 REQUIREMENTS**

1. The authority citation for part 9 continues to read as follows:

**Authority:** [To be inserted prior to Federal Register publication.]

2. Amend § 9.1 by revising it to read as follows:

The purpose of this part is to set forth the 911, E911, and Next Generation 911 service requirements and conditions applicable to telecommunications carriers (subpart B); commercial mobile radio service (CMRS) providers (subpart C); interconnected Voice over Internet Protocol (VoIP) providers (subpart D); providers of telecommunications relay services (TRS) for persons with disabilities (subpart E); multi-line telephone systems (MLTS) (subpart F); and Mobile-Satellite Service (MSS) providers (subpart G). The rules in this part also include requirements to help ensure the resiliency, redundancy, and reliability of communications systems, particularly 911 and E911 networks and/or systems (subpart H), acceptable obligations and expenditures of 911 fees (subpart I), and Next Generation 911 obligations (subpart J).

3. Revise § 9.4 to read as follows:

#### **§ 9.4 Obligation to transmit 911 calls.**

Except as otherwise provided in subpart J, all telecommunications carriers shall transmit all 911 calls to a PSAP, to a designated statewide default answering point, or to an appropriate local emergency authority as set forth in § 9.5.

4. Add subpart J, consisting of §§ 9.27-9.30, to read as follows:

#### **Subpart J – Next Generation 911 Obligations**

Sec.

9.27 Applicability.

9.28 Definitions.

9.29 Next Generation 911 Transition Requirements and Cost Allocation.

9.30 Valid Request.

#### **§ 9.27 Applicability.**

The rules in this subpart apply to wireline, commercial mobile radio service, interconnected Voice over Internet Protocol service providers, and Internet-based Telecommunications Relay Service providers.

#### **§ 9.28 Definitions.**

*911 Authority.* The state, territorial, regional, Tribal, or local agency or entity with the authority and responsibility under applicable law to designate the point(s) to receive emergency calls.

*Emergency Services Internet Protocol Network (ESInet).* An Internet Protocol (IP)-based network managed by public safety authorities and used for emergency services communications, including Next Generation 911.

**§ 9.29 Next Generation 911 Transition Requirements and Cost Allocation.**

(a) *Wireline Providers.*

- (1) By [six months from the effective date of paragraph (a) of this section], or within 6 months of a valid request as defined in § 9.30 for Internet Protocol-based service by the 911 Authority, whichever is later:
  - (i) Wireline providers shall transmit all 911 calls to the point(s) designated by the 911 Authority, including to a PSAP, to a designated statewide default answering point, to an appropriate local emergency authority, or to an ESInet or other designated point(s) that allow emergency calls to be answered.
  - (ii) Wireline providers shall complete all translation and routing to deliver all 911 calls, including associated location information, in the requested Internet Protocol-based format, to an ESInet or other designated point(s) that allow emergency calls to be answered.
- (2) 911 Authorities may enter into agreements with wireline providers that establish an alternate time frame for meeting the requirements of paragraph (a)(1)(ii) of this section. The wireline providers must notify the Commission of the dates and terms of the alternate time frame within 30 days of the parties' agreement.

(b) *Commercial Mobile Radio Service Providers.* By [six months from the effective date of this paragraph (b)], or within 6 months of a valid request as defined in § 9.30 for Internet Protocol-based service by the 911 Authority, whichever is later, commercial mobile radio service (CMRS) providers shall transmit all 911 calls to the point(s) designated by the 911 Authority, including to a PSAP, to a designated statewide default answering point, to an appropriate local emergency authority, or to an ESInet or other designated point(s) that allow emergency calls to be answered.

(c) *Interconnected Voice over Internet Protocol Providers.*

- (1) By [six months from the effective date of paragraph (c) of this section], or within 6 months of a valid request as defined in § 9.30 for Internet Protocol-based service by the 911 Authority, whichever is later:
  - (i) Interconnected Voice over Internet Protocol (VoIP) providers shall transmit all 911 calls to the point(s) designated by the 911 Authority, including to a PSAP, to a designated statewide default answering point, to an appropriate local emergency authority, or to an ESInet or other designated point(s) that allow emergency calls to be answered.
  - (ii) Interconnected VoIP providers shall complete all translation and routing to deliver all 911 calls, including associated location information, in the requested Internet Protocol-based format, to an ESInet or other designated point(s) that allow emergency calls to be answered.

- (2) 911 Authorities may enter into agreements with interconnected VoIP providers that establish an alternate time frame for meeting the requirements of paragraph (c)(1)(ii) of this section. The interconnected VoIP providers must notify the Commission of the dates and terms of the alternate time frame within 30 days of the parties' agreement.
- (d) *Internet-based Telecommunications Relay Service Providers.*
- (1) By [twelve months from the effective date of paragraph (d) of this section], or within twelve months of a valid request as defined in § 9.30 for Internet Protocol-based service by the 911 Authority, whichever is later:
- (i) Internet-based Telecommunications Relay Service (TRS) providers shall transmit all 911 calls to the point(s) designated by the 911 Authority, including to a PSAP, to a designated statewide default answering point, to an appropriate local emergency authority, or to an ESInet or other designated point(s) that allow emergency calls to be answered.
  - (ii) Internet-based TRS providers shall complete all translation and routing to deliver all 911 calls, including associated location information, in the requested Internet Protocol-based format, to an ESInet or other designated point(s) that allow emergency calls to be answered.
- (2) 911 Authorities may enter into agreements with Internet-based TRS providers that establish an alternate time frame for meeting the requirements of paragraph (d)(1)(ii) of this section. The Internet-based TRS providers must notify the Commission of the dates and terms of the alternate time frame within 30 days of the parties' agreement.
- (e) *Cost allocation.* In the absence of agreement by states or localities on alternative cost recovery mechanisms, wireline providers, interconnected VoIP providers, Internet-based TRS providers, and CMRS providers are responsible for the costs of transmitting 911 calls to the point(s) designated by a 911 Authority, including any costs associated with completing the translation and routing necessary to deliver such calls and associated location information in the requested Internet Protocol-based format.
- (f) This section 9.29 contains information collection and recordkeeping requirements. Compliance will not be required until after review by the Office of Management and Budget. The Commission will publish a document in the Federal Register announcing the compliance date and revising this section accordingly.

### **§ 9.30 Valid Request.**

Valid request means that:

- (a) The requesting 911 Authority is, and certifies that it is, technically ready to receive 911 calls in the Internet Protocol-based format requested;
- (b) The requesting 911 Authority has been specifically authorized to accept 911 calls in the Internet Protocol-based format requested; and
- (c) The requesting 911 Authority has provided notification to the provider that it meets the



requirements in paragraphs (a) and (b) of this section. Registration by the requesting 911 Authority in a database made available by the Commission in accordance with requirements established in connection therewith, or any other written notification reasonably acceptable to the provider, shall constitute sufficient notification for purposes of § 9.29.

- (d) This section 9.30 contains information collection and recordkeeping requirements. Compliance will not be required until after review by the Office of Management and Budget. The Commission will publish a document in the Federal Register announcing the compliance date and revising this section accordingly.

## Appendix B

### Initial Regulatory Flexibility Act Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *Notice of Proposed Rule Making (Notice)*. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines in the *Notice*. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).<sup>2</sup> In addition, the *Notice* and IRFA (or summaries thereof) will be published in the *Federal Register*.<sup>3</sup>

#### A. Need for, and Objectives of, the Proposed Rules

2. In the *Notice*, we propose to take steps that will advance the nationwide transition to Next Generation 911 (NG911).<sup>4</sup> Like communications networks generally, dedicated 911 networks are evolving from Time Division Multiplex (TDM)-based architectures to Internet Protocol (IP)-based architectures. With the transition to NG911, 911 authorities will replace the circuit-switched architecture of legacy 911 networks with IP-based technologies and applications, which provide new capabilities and improved interoperability and system resilience. Most states have invested significantly in NG911, but some report that they are experiencing delays in providers connecting to these IP-based networks. As a result of these delays, state and local 911 authorities incur prolonged costs because of the need to maintain both legacy and IP networks during the transition. Managing 911 traffic on both legacy and IP networks may also result in increased vulnerability and risk of 911 outages.

3. In the *Notice*, we propose to expedite the NG911 transition by adopting certain requirements that would apply to wireline, Commercial Mobile Radio Service (CMRS), interconnected Voice over Internet Protocol (VoIP), and Internet-based Telecommunications Relay Service (TRS) providers as state and local 911 authorities transition to IP-based networks and develop the capability to support NG911 elements and functions.

- First, we propose to require wireline, interconnected VoIP, and Internet-based TRS providers to complete all translation and routing to deliver 911 calls, including associated location information, in the requested IP-based format to an Emergency Services IP network (ESInet) or other designated point(s) that allow emergency calls to be answered upon request of 911 authorities who have certified the capability to accept IP-based 911 communications. Wireline and interconnected VoIP providers would be subject to this requirement six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. Internet-based TRS providers would be subject to this requirement twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later. This proposal is similar to what was proposed for CMRS and covered text providers in our recent proceeding on

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<sup>1</sup> 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> See 5 U.S.C. § 603(a).

<sup>3</sup> See *id.*

<sup>4</sup> For purposes of this Initial Rules Flexibility Analysis (IRFA), we use the term Next Generation 911 (NG911) to refer generally to the digital Internet Protocol (IP)-based 911 systems that are replacing analog time division multiplex (TDM) 911 infrastructure.

wireless location-based routing.<sup>5</sup>

- Second, as state and local 911 authorities transition to IP-based networks, we propose to require wireline, interconnected VoIP, CMRS, and Internet-based TRS providers to transmit all 911 calls to destination point(s) in those networks designated by a 911 authority, including to a public safety answering point (PSAP), designated statewide default answering point, local emergency authority, ESI-net, or other point(s) designated to receive 911 calls that allow emergency calls to be answered, upon request of 911 authorities who have certified the capability to accept IP-based 911 communications.
- Third, we propose that in the absence of agreements by states or localities on alternative cost recovery mechanisms, wireline, interconnected VoIP, CMRS, and Internet-based TRS providers must cover the costs of transmitting 911 calls to the point(s) designated by a 911 authority, including any costs associated with completing the translation and routing necessary to deliver such calls and associated location information to the designated destination point(s) in the requested IP-based format. Under this proposal, states and localities would remain free to establish alternative cost allocation arrangements with providers. However, in the absence of such arrangements, providers would be presumptively responsible for the costs associated with delivering traffic to the destination point(s) identified by the appropriate 911 authority.

4. Together, these proposals are intended to expedite the NG911 transition and help ensure that the nation's 911 system functions effectively and with the most advanced capabilities available. In addition, they respond to the petition filed in 2021 by the National Association of State 911 Administrators (NASNA)<sup>6</sup> urging the Commission to take actions to resolve uncertainty and disputes between originating service providers (OSPs)<sup>7</sup> and state 911 authorities regarding the NG911 transition. We seek to create a consistent framework for ensuring that providers (including wireline, CMRS, interconnected VoIP, and Internet-based TRS providers) take the necessary steps to implement the transition to NG911 capability in coordination with state and local 911 authorities. We also seek to align the NG911 transition rules for wireline, interconnected VoIP, and Internet-based TRS providers with similar requirements we have proposed for CMRS and covered text providers in the *Location-Based Routing NPRM*, thereby promoting consistency across service platforms. Finally, our demarcation point and cost allocation proposals seek to address what NASNA described in its Petition as “the critical component, and biggest regulatory roadblock, to transitioning to NG911 services.”<sup>8</sup>

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<sup>5</sup> See *Location-Based Routing for Wireless 911 Calls*, Notice of Proposed Rulemaking, PS Docket No. 18-64, FCC 22-96, 2022 WL 17958801, at \*2, para. 4 (Dec. 22, 2022) (*Location-Based Routing NPRM*). The Commission defines the term “covered text provider” as including “all CMRS providers as well as all providers of interconnected text messaging services that enable consumers to send text messages to and receive text messages from all or substantially all text-capable U.S. telephone numbers, including through the use of applications downloaded or otherwise installed on mobile phones.” 47 CFR § 9.10(q)(1).

<sup>6</sup> Petition for Rulemaking; Alternatively, Petition for Notice of Inquiry, CC Docket No. 94-102, PS Docket Nos. 18-64, 18-261, 11-153, and 10-255 (filed Oct. 19, 2021), <https://www.fcc.gov/ecfs/document/1019188969473/1> (NASNA Petition).

<sup>7</sup> NASNA and other commenters on NASNA's Petition use the term “originating service providers” to refer to all service providers that originate 911 calls and are subject to part 9 of our rules, including wireline, wireless, and interconnected Voice over Internet Protocol (VoIP) providers. See, e.g., NASNA Petition at 2. For purposes of this IRFA, we use the term “originating service providers” (OSPs) to refer collectively to wireline, wireless, and interconnected VoIP providers, but not to other service providers covered by part 9 (e.g., telecommunications relay and mobile satellite services).

<sup>8</sup> NASNA Petition at 6.

## B. Legal Basis

5. The proposed action is authorized pursuant to sections 1, 2, 4(i), 201, 214, 222, 225, 251(e), 301, 303, 316, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 201, 214, 222, 225, 251(e), 301, 303, 316, 332; the Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, 47 U.S.C. §§ 615 note, 615, 615a, 615b; and section 106 of the Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 47 U.S.C. § 615c.

## C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

6. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.<sup>9</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>10</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>11</sup> A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>12</sup>

7. *Small Businesses, Small Organizations, Small Governmental Jurisdictions.* Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe, at the outset, three broad groups of small entities that could be directly affected herein.<sup>13</sup> First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration’s (SBA) Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.<sup>14</sup> These types of small businesses represent 99.9% of all businesses in the United States, which translates to 32.5 million businesses.<sup>15</sup>

8. Next, the type of small entity described as a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”<sup>16</sup> The Internal Revenue Service (IRS) uses a revenue benchmark of \$50,000 or less to delineate its annual electronic filing requirements for small exempt organizations.<sup>17</sup> Nationwide, for tax year 2020, there

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<sup>9</sup> 5 U.S.C. § 603(b)(3).

<sup>10</sup> *Id.* § 601(6).

<sup>11</sup> *See id.* § 601(3) (incorporating by reference the definition of “small business concern” in Section 3 of the Small Business Act, which is codified at 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.” 5 U.S.C. § 601(3).

<sup>12</sup> 15 U.S.C. § 632.

<sup>13</sup> *See* 5 U.S.C. § 601(3)-(6).

<sup>14</sup> *See* SBA, Office of Advocacy, Frequently Asked Questions, “What is a small business?,” <https://cdn.advocacy.sba.gov/wp-content/uploads/2021/11/03093005/Small-Business-FAQ-2021.pdf> (Nov 2021).

<sup>15</sup> *Id.*

<sup>16</sup> *See* 5 U.S.C. § 601(4).

<sup>17</sup> The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C § 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number small organizations in this small entity description. *See* Annual Electronic Filing Requirement for Small Exempt Organizations – Form 990-N (e-Postcard), “Who must file,” <https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard>. We note that the IRS data

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were approximately 447,689 small exempt organizations in the U.S. reporting revenues of \$50,000 or less according to the registration and tax data for exempt organizations available from the IRS.<sup>18</sup>

9. Finally, the small entity described as a “small governmental jurisdiction” is defined generally as “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”<sup>19</sup> U.S. Census Bureau data from the 2017 Census of Governments<sup>20</sup> indicate there were 90,075 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.<sup>21</sup> Of this number, there were 36,931 general purpose governments (county,<sup>22</sup> municipal, and town or township<sup>23</sup>) with populations of less than 50,000 and 12,040 special purpose governments—independent school districts<sup>24</sup> with enrollment populations of less than 50,000.<sup>25</sup> Accordingly, based on the 2017 U.S. Census of Governments data, we estimate that at least 48,971 entities fall into the category of “small governmental jurisdictions.”<sup>26</sup>

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does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

<sup>18</sup> See Exempt Organizations Business Master File Extract (EO BMF), “CSV Files by Region,” <https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-ao-bmf>. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description were extracted from the IRS EO BMF data for businesses for the tax year 2020 with revenue less than or equal to \$50,000 for Region 1-Northeast Area (58,577), Region 2-Mid-Atlantic and Great Lakes Areas (175,272), and Region 3-Gulf Coast and Pacific Coast Areas (213,840) that includes the continental U.S., Alaska, and Hawaii. These data do not include information for Puerto Rico.

<sup>19</sup> See 5 U.S.C. § 601(5).

<sup>20</sup> See 13 U.S.C. § 161. The Census of Governments survey is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Census of Governments, <https://www.census.gov/programs-surveys/cog/about.html>.

<sup>21</sup> See U.S. Census Bureau, 2017 Census of Governments – Organization Table 2. Local Governments by Type and State: 2017 [CG1700ORG02], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township) and special purpose governments (special districts and independent school districts). See also tbl.2. CG1700ORG02 Table Notes\_Local Governments by Type and State\_2017.

<sup>22</sup> See *id.* at tbl.5. County Governments by Population-Size Group and State: 2017 [CG1700ORG05], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 2,105 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

<sup>23</sup> See *id.* at tbl.6. Subcounty General-Purpose Governments by Population-Size Group and State: 2017 [CG1700ORG06], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 18,729 municipal and 16,097 town and township governments with populations less than 50,000.

<sup>24</sup> See *id.* at tbl.10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2017 [CG1700ORG10], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 12,040 independent school districts with enrollment populations less than 50,000. See also tbl.4. Special-Purpose Local Governments by State Census Years 1942 to 2017 [CG1700ORG04], CG1700ORG04 Table Notes\_Special Purpose Local Governments by State\_Census Years 1942 to 2017.

<sup>25</sup> While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data do not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts are included in the special purpose governments category.

<sup>26</sup> This total is derived from the sum of the number of general purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,931) and the number of special purpose governments -

(continued....)

10. Below, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

11. *All Other Telecommunications.* This industry is comprised of establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation.<sup>27</sup> This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.<sup>28</sup> Providers of Internet services (e.g. dial-up ISPs) or Voice over Internet Protocol (VoIP) services, via client-supplied telecommunications connections are also included in this industry.<sup>29</sup> The SBA small business size standard for this industry classifies firms with annual receipts of \$35 million or less as small.<sup>30</sup> U.S. Census Bureau data for 2017 show that there were 1,079 firms in this industry that operated for the entire year.<sup>31</sup> Of those firms, 1,039 had revenue of less than \$25 million.<sup>32</sup> Based on this data, the Commission estimates that the majority of “All Other Telecommunications” firms can be considered small.

12. *Advanced Wireless Services (AWS) - (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3); 2000-2020 MHz and 2180-2200 MHz (AWS-4)).* Spectrum is made available and licensed in these bands for the provision of various wireless communications services.<sup>33</sup> Wireless Telecommunications Carriers (except Satellite)<sup>34</sup> is the closest industry with a SBA small business size standard applicable to these services. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>35</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>36</sup> Of this number, 2,837 firms

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independent school districts with enrollment populations of less than 50,000 (12,040), from the 2017 Census of Governments - Organizations tbls.5, 6 & 10.

<sup>27</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517919 All Other Telecommunications,” <https://www.census.gov/naics/?input=517919&year=2017&details=517919>.

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> See 13 CFR § 121.201, NAICS Code 517919 (as of 10/1/22, NAICS Code 517810).

<sup>31</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 517919, <https://data.census.gov/cedsci/table?y=2017&n=517919&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

<sup>32</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>33</sup> See 47 CFR § 27.1(b).

<sup>34</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (except Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>35</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>36</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

employed fewer than 250 employees.<sup>37</sup> Thus, under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

13. According to Commission data as December 2021, there were approximately 4,472 active AWS licenses.<sup>38</sup> The Commission's small business size standards with respect to AWS involve eligibility for bidding credits and installment payments in the auction of licenses for these services. For the auction of AWS licenses, the Commission defined a "small business" as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a "very small business" as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million.<sup>39</sup> Pursuant to these definitions, 57 winning bidders claiming status as small or very small businesses won 215 of 1,087 licenses.<sup>40</sup> In the most recent auction of AWS licenses 15 of 37 bidders qualifying for status as small or very small businesses won licenses.<sup>41</sup>

14. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

15. *Wired Telecommunications Carriers.* The U.S. Census Bureau defines this industry as establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired communications networks.<sup>42</sup> Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services, wired (cable) audio and video programming distribution, and wired broadband Internet services.<sup>43</sup> By exception, establishments providing satellite television distribution services using facilities

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<sup>37</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>38</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = AD, AH, AT, AW; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>39</sup> See 47 CFR §§ 27.1002, 27.1102, 27.1104, 27.1106.

<sup>40</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 66: Advanced Wireless Services (AWS-1), Summary, Spreadsheets, <https://www.fcc.gov/sites/default/files/wireless/auctions/66/charts/66cls2.pdf>.

<sup>41</sup> See *Auction of Advanced Wireless Services (AWS-3) Licenses Closes; Winning Bidders Announced for Auction 97*, Public Notice, DA-15-131, Attachments A-B, (Auction No. 97) (January 30, 2015).

<sup>42</sup> See U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

<sup>43</sup> *Id.*



and infrastructure that they operate are included in this industry.<sup>44</sup> Wired Telecommunications Carriers are also referred to as wireline carriers or fixed local service providers.<sup>45</sup>

16. The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.<sup>46</sup> U.S. Census Bureau data for 2017 show that there were 3,054 firms that operated in this industry for the entire year.<sup>47</sup> Of this number, 2,964 firms operated with fewer than 250 employees.<sup>48</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 4,590 providers that reported they were engaged in the provision of fixed local services.<sup>49</sup> Of these providers, the Commission estimates that 4,146 providers have 1,500 or fewer employees.<sup>50</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

17. *Local Exchange Carriers (LECs)*. Neither the Commission nor the SBA has developed a size standard for small businesses specifically applicable to local exchange services. Providers of these services include both incumbent and competitive local exchange service providers. Wired Telecommunications Carriers<sup>51</sup> is the closest industry with an SBA small business size standard.<sup>52</sup> Wired Telecommunications Carriers are also referred to as wireline carriers or fixed local service providers.<sup>53</sup> The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.<sup>54</sup> U.S. Census Bureau data for 2017 show that there were 3,054 firms that operated in this industry for the entire year.<sup>55</sup> Of this number, 2,964 firms operated with fewer than

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<sup>44</sup> *Id.*

<sup>45</sup> Fixed Local Service Providers include the following types of providers: Incumbent Local Exchange Carriers (ILECs), Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs), Cable/Coax CLECs, Interconnected VOIP Providers, Non-Interconnected VOIP Providers, Shared-Tenant Service Providers, Audio Bridge Service Providers, and Other Local Service Providers. Local Resellers fall into another U.S. Census Bureau industry group and therefore data for these providers are not included in this industry.

<sup>46</sup> See 13 CFR § 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

<sup>47</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFFIRM, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPFFIRM&hidePreview=false>.

<sup>48</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>49</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

<sup>50</sup> *Id.*

<sup>51</sup> See U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

<sup>52</sup> See 13 CFR § 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

<sup>53</sup> Fixed Local Exchange Service Providers include the following types of providers: Incumbent Local Exchange Carriers (ILECs), Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs), Cable/Coax CLECs, Interconnected VOIP Providers, Non-Interconnected VOIP Providers, Shared-Tenant Service Providers, Audio Bridge Service Providers, Local Resellers, and Other Local Service Providers.

<sup>54</sup> *Id.*

<sup>55</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFFIRM, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPFFIRM&hidePreview=false>.



250 employees.<sup>56</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 4,590 providers that reported they were fixed local exchange service providers.<sup>57</sup> Of these providers, the Commission estimates that 4,146 providers have 1,500 or fewer employees.<sup>58</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

18. *Competitive Local Exchange Carriers (LECs)*. Neither the Commission nor the SBA has developed a size standard for small businesses specifically applicable to local exchange services. Providers of these services include several types of competitive local exchange service providers.<sup>59</sup> Wired Telecommunications Carriers<sup>60</sup> is the closest industry with a SBA small business size standard. The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.<sup>61</sup> U.S. Census Bureau data for 2017 show that there were 3,054 firms that operated in this industry for the entire year.<sup>62</sup> Of this number, 2,964 firms operated with fewer than 250 employees.<sup>63</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 3,378 providers that reported they were competitive local exchange service providers.<sup>64</sup> Of these providers, the Commission estimates that 3,230 providers have 1,500 or fewer employees.<sup>65</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

19. *Incumbent Local Exchange Carriers (Incumbent LECs)*. Neither the Commission nor the SBA have developed a small business size standard specifically for incumbent local exchange carriers. Wired Telecommunications Carriers<sup>66</sup> is the closest industry with an SBA small business size standard.<sup>67</sup> The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.<sup>68</sup> U.S. Census Bureau data for 2017 show that there were 3,054 firms

<sup>56</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>57</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

<sup>58</sup> *Id.*

<sup>59</sup> Competitive Local Exchange Service Providers include the following types of providers: Competitive Access Providers (CAPs) and Competitive Local Exchange Carriers (CLECs), Cable/Coax CLECs, Interconnected VOIP Providers, Non-Interconnected VOIP Providers, Shared-Tenant Service Providers, Audio Bridge Service Providers, Local Resellers, and Other Local Service Providers.

<sup>60</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517311 Wired Telecommunications Carriers," <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

<sup>61</sup> See 13 CFR § 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

<sup>62</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>63</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>64</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

<sup>65</sup> *Id.*

<sup>66</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517311 Wired Telecommunications Carriers," <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

<sup>67</sup> See 13 CFR § 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

<sup>68</sup> *Id.*

in this industry that operated for the entire year.<sup>69</sup> Of this number, 2,964 firms operated with fewer than 250 employees.<sup>70</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 1,212 providers that reported they were incumbent local exchange service providers.<sup>71</sup> Of these providers, the Commission estimates that 916 providers have 1,500 or fewer employees.<sup>72</sup> Consequently, using the SBA's small business size standard, the Commission estimates that the majority of incumbent local exchange carriers can be considered small entities.

20. *Interexchange Carriers (IXCs)*. Neither the Commission nor the SBA have developed a small business size standard specifically for Interexchange Carriers. Wired Telecommunications Carriers<sup>73</sup> is the closest industry with a SBA small business size standard.<sup>74</sup> The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.<sup>75</sup> U.S. Census Bureau data for 2017 show that there were 3,054 firms that operated in this industry for the entire year.<sup>76</sup> Of this number, 2,964 firms operated with fewer than 250 employees.<sup>77</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 127 providers that reported they were engaged in the provision of interexchange services. Of these providers, the Commission estimates that 109 providers have 1,500 or fewer employees.<sup>78</sup> Consequently, using the SBA's small business size standard, the Commission estimates that the majority of providers in this industry can be considered small entities.

21. *Local Resellers*. Neither the Commission nor the SBA have developed a small business size standard specifically for Local Resellers. Telecommunications Resellers is the closest industry with a SBA small business size standard.<sup>79</sup> The Telecommunications Resellers industry comprises establishments engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling wired and wireless telecommunications services (except

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<sup>69</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>70</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>71</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

<sup>72</sup> *Id.*

<sup>73</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517311 Wired Telecommunications Carriers," <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

<sup>74</sup> See 13 CFR § 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

<sup>75</sup> *Id.*

<sup>76</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>77</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>78</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

<sup>79</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517911 Telecommunications Resellers," <https://www.census.gov/naics/?input=517911&year=2017&details=517911>.

satellite) to businesses and households.<sup>80</sup> Establishments in this industry resell telecommunications; they do not operate transmission facilities and infrastructure.<sup>81</sup> Mobile virtual network operators (MVNOs) are included in this industry.<sup>82</sup> The SBA small business size standard for Telecommunications Resellers classifies a business as small if it has 1,500 or fewer employees.<sup>83</sup> U.S. Census Bureau data for 2017 show that 1,386 firms in this industry provided resale services for the entire year.<sup>84</sup> Of that number, 1,375 firms operated with fewer than 250 employees.<sup>85</sup> Additionally, based on Commission data in the 2021 Universal Service Monitoring Report, as of December 31, 2020, there were 293 providers that reported they were engaged in the provision of local resale services.<sup>86</sup> Of these providers, the Commission estimates that 289 providers have 1,500 or fewer employees.<sup>87</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

22. *Broadband Personal Communications Service.* The broadband personal communications services (PCS) spectrum encompasses services in the 1850-1910 and 1930-1990 MHz bands.<sup>88</sup> The closest industry with a SBA small business size standard applicable to these services is Wireless Telecommunications Carriers (except Satellite).<sup>89</sup> The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>90</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>91</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>92</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

23. Based on Commission data as of November 2021, there were approximately 5,060 active licenses in the Broadband PCS service.<sup>93</sup> The Commission's small business size standards with respect to

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<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> See 13 CFR § 121.201, NAICS Code 517911 (as of 10/1/22, NAICS Code 517121).

<sup>84</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517911, <https://data.census.gov/cedsci/table?y=2017&n=517911&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>85</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>86</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2021), <https://docs.fcc.gov/public/attachments/DOC-379181A1.pdf>.

<sup>87</sup> *Id.*

<sup>88</sup> See 47 CFR § 24.200.

<sup>89</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (except Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>90</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>91</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>92</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>93</sup> Based on a FCC Universal Licensing System search on November 16, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match (continued....)

Broadband PCS involve eligibility for bidding credits and installment payments in the auction of licenses for these services. In auctions for these licenses, the Commission defined “small business” as an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$40 million for the preceding three years, and a “very small business” as an entity that, together with its affiliates and controlling interests, has had average annual gross revenues not exceeding \$15 million for the preceding three years.<sup>94</sup> Winning bidders claiming small business credits won Broadband PCS licenses in C, D, E, and F Blocks.<sup>95</sup>

24. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA’s small business size standard.

25. *Narrowband Personal Communications Services.* Narrowband Personal Communications Services (*Narrowband PCS*) are PCS services operating in the 901-902 MHz, 930-931 MHz, and 940-941 MHz bands.<sup>96</sup> PCS services are radio communications that encompass mobile and ancillary fixed communication that provide services to individuals and businesses and can be integrated with a variety of competing networks.<sup>97</sup> Wireless Telecommunications Carriers (*except Satellite*)<sup>98</sup> is the closest industry with a SBA small business size standard applicable to these services. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>99</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>100</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>101</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

26. According to Commission data as of December 2021, there were approximately 4,211 active *Narrowband PCS* licenses.<sup>102</sup> The Commission’s small business size standards with respect to

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only the following radio service(s)”, Radio Service = CW; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>94</sup> See 47 CFR § 24.720(b).

<sup>95</sup> See Federal Communications Commission, Office of Economics and Analytics, Auctions, Auctions 4, 5, 10, 11, 22, 35, 58, 71 and 78, <https://www.fcc.gov/auctions>.

<sup>96</sup> See 47 CFR § 24.5.

<sup>97</sup> *Id.*

<sup>98</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (*except Satellite*)”, <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>99</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>100</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePrevious=false>.

<sup>101</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>102</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = CN; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

*Narrowband PCS* involve eligibility for bidding credits and installment payments in the auction of licenses for these services. For the auction of these licenses, the Commission defined a “small business” as an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million.<sup>103</sup> A “very small business” is defined as an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million.<sup>104</sup> Pursuant to these definitions, 7 winning bidders claiming small and very small bidding credits won approximately 359 licenses.<sup>105</sup> One of the winning bidders claiming a small business status classification in these *Narrowband PCS* license auctions had an active license as of December 2021.<sup>106</sup>

27. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA’s small business size standard.

28. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the Gulf of Mexico.<sup>107</sup> Wireless Telecommunications Carriers (*except* Satellite)<sup>108</sup> is the closest industry with a SBA small business size standard applicable to this service. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>109</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>110</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>111</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small. Additionally, based on

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<sup>103</sup> See 47 CFR § 24.321(a)(1)-(2).

<sup>104</sup> *Id.*

<sup>105</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 41: Narrowband PCS, Summary, Closing Charts, License By Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/41/charts/41cls2.pdf>; Auction 50: Narrowband PCS, Summary, Closing Charts, License By Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/50/charts/50cls2.pdf>.

<sup>106</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = CN; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>107</sup> This service is governed by Subpart I of Part 22 of the Commission’s Rules. See 47 CFR §§ 22.1001-22.1037.

<sup>108</sup> See U.S. Census Bureau, 2017 NAICS Definition, “517312 Wireless Telecommunications Carriers (*except* Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>109</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>110</sup> See U.S. Census Bureau, 2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>111</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.



Commission data, as of December 2021, there was one licensee with an active license in this service.<sup>112</sup> However, since the Commission does not collect data on the number of employees for this service, at this time we are not able to estimate the number of licensees that would qualify as small under the SBA's small business size standard.

29. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.<sup>113</sup> Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.<sup>114</sup> The SBA small business size standard for this industry classifies businesses having 1,250 employees or less as small.<sup>115</sup> U.S. Census Bureau data for 2017 show that there were 656 firms in this industry that operated for the entire year.<sup>116</sup> Of this number, 624 firms had fewer than 250 employees.<sup>117</sup> Thus, under the SBA size standard, the majority of firms in this industry can be considered small.

30. *Rural Radiotelephone Service.* Neither the Commission nor the SBA have developed a small business size standard specifically for small businesses providing Rural Radiotelephone Service. Rural Radiotelephone Service is radio service in which licensees are authorized to offer and provide radio telecommunication services for hire to subscribers in areas where it is not feasible to provide communication services by wire or other means.<sup>118</sup> A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS).<sup>119</sup> Wireless Telecommunications Carriers (*except* Satellite),<sup>120</sup> is the closest applicable industry with a SBA small business size standard. The SBA small business size standard for Wireless Telecommunications Carriers (*except* Satellite) classifies firms having 1,500 or fewer employees as small.<sup>121</sup> For this industry, U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated for the entire year.<sup>122</sup> Of this total, 2,837 firms

<sup>112</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = CO; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>113</sup> See U.S. Census Bureau, *2017 NAICS Definition, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing,"* <https://www.census.gov/naics/?input=334220&year=2017&details=334220>.

<sup>114</sup> *Id.*

<sup>115</sup> See 13 CFR § 121.201, NAICS Code 334220.

<sup>116</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 334220, <https://data.census.gov/cedsci/table?y=2017&n=334220&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>117</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>118</sup> 47 CFR § 22.99.

<sup>119</sup> BETRS is defined in 47 CFR §§ 22.757, 22.759.

<sup>120</sup> See U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (except Satellite),"* <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>121</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>122</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312,

(continued....)

employed fewer than 250 employees.<sup>123</sup> Thus under the SBA size standard, the Commission estimates that the majority of Rural Radiotelephone Services firm are small entities. Based on Commission data as of December 27, 2021, there were approximately 119 active licenses in the Rural Radiotelephone Service.<sup>124</sup> The Commission does not collect employment data from these entities holding these licenses and therefore we cannot estimate how many of these entities meet the SBA small business size standard.

31. *Wireless Communications Services.* Wireless Communications Services (WCS) can be used for a variety of fixed, mobile, radiolocation, and digital audio broadcasting satellite services. Wireless spectrum is made available and licensed for the provision of wireless communications services in several frequency bands subject to Part 27 of the Commission's rules.<sup>125</sup> Wireless Telecommunications Carriers (*except* Satellite)<sup>126</sup> is the closest industry with an SBA small business size standard applicable to these services. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>127</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>128</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>129</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

32. The Commission's small business size standards with respect to WCS involve eligibility for bidding credits and installment payments in the auction of licenses for the various frequency bands included in WCS. When bidding credits are adopted for the auction of licenses in WCS frequency bands, such credits may be available to several types of small businesses based average gross revenues (small, very small and entrepreneur) pursuant to the competitive bidding rules adopted in conjunction with the requirements for the auction and/or as identified in the designated entities section in Part 27 of the Commission's rules for the specific WCS frequency bands.<sup>130</sup>

33. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to

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<https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>123</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>124</sup> Based on a FCC Universal Licensing System search on December 27, 2021.

<https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = CR; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>125</sup> See 47 CFR §§ 27.1–27.1607.

<sup>126</sup> See U.S. Census Bureau, 2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (*except* Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>127</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>128</sup> See U.S. Census Bureau, 2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>129</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>130</sup> See 47 CFR §§ 27.201–27.1601. The Designated entities sections in Subparts D – Q each contain the small business size standards adopted for the auction of the frequency band covered by that subpart.

estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

34. *Wireless Telecommunications Carriers (except Satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves.<sup>131</sup> Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless internet access, and wireless video services.<sup>132</sup> The SBA size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>133</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms in this industry that operated for the entire year.<sup>134</sup> Of that number, 2,837 firms employed fewer than 250 employees.<sup>135</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 594 providers that reported they were engaged in the provision of wireless services.<sup>136</sup> Of these providers, the Commission estimates that 511 providers have 1,500 or fewer employees.<sup>137</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

35. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. The closest applicable industry with an SBA small business size standard is *Wireless Telecommunications Carriers (except Satellite)*.<sup>138</sup> The size standard for this industry under SBA rules is that a business is small if it has 1,500 or fewer employees.<sup>139</sup> For this industry, U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated for the entire year.<sup>140</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>141</sup> Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 331 providers that reported they were engaged in the provision of cellular, personal communications services, and specialized mobile radio services.<sup>142</sup> Of these providers, the Commission estimates that 255

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<sup>131</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (except Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>132</sup> *Id.*

<sup>133</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>134</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>135</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>136</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.

<sup>137</sup> *Id.*

<sup>138</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (except Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>139</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>140</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>141</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>142</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), <https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf>.



providers have 1,500 or fewer employees.<sup>143</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

36. *700 MHz Guard Band Licensees.* The 700 MHz Guard Band encompasses spectrum in 746-747/776-777 MHz and 762-764/792-794 MHz frequency bands. Wireless Telecommunications Carriers (*except* Satellite)<sup>144</sup> is the closest industry with a SBA small business size standard applicable to licenses providing services in these bands. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>145</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>146</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>147</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

37. According to Commission data as of December 2021, there were approximately 224 active 700 MHz Guard Band licenses.<sup>148</sup> The Commission's small business size standards with respect to 700 MHz Guard Band licensees involve eligibility for bidding credits and installment payments in the auction of licenses. For the auction of these licenses, the Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years, and a "very small business" an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>149</sup> Pursuant to these definitions, five winning bidders claiming one of the small business status classifications won 26 licenses, and one winning bidder claiming small business won two licenses.<sup>150</sup> None of the winning bidders claiming a small business status classification in these 700 MHz Guard Band license auctions had an active license as of December 2021.<sup>151</sup>

38. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the

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<sup>143</sup> *Id.*

<sup>144</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (*except* Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>145</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>146</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePrevious=false>.

<sup>147</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>148</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = WX; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>149</sup> See 47 CFR § 27.502(a).

<sup>150</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 33: Upper 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/33/charts/33cls2.pdf>, Auction 38: Upper 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/38/charts/38cls2.pdf>.

<sup>151</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = WX; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

39. *Lower 700 MHz Band Licenses.* The lower 700 MHz band encompasses spectrum in the 698-746 MHz frequency bands. Permissible operations in these bands include flexible fixed, mobile, and broadcast uses, including mobile and other digital new broadcast operation; fixed and mobile wireless commercial services (including FDD- and TDD-based services); as well as fixed and mobile wireless uses for private, internal radio needs, two-way interactive, cellular, and mobile television broadcasting services.<sup>152</sup> Wireless Telecommunications Carriers (*except* Satellite)<sup>153</sup> is the closest industry with a SBA small business size standard applicable to licenses providing services in these bands. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>154</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>155</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>156</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

40. According to Commission data as of December 2021, there were approximately 2,824 active Lower 700 MHz Band licenses.<sup>157</sup> The Commission's small business size standards with respect to Lower 700 MHz Band licensees involve eligibility for bidding credits and installment payments in the auction of licenses. For auctions of Lower 700 MHz Band licenses the Commission adopted criteria for three groups of small businesses. A very small business was defined as an entity that, together with its affiliates and controlling interests, has average annual gross revenues not exceeding \$15 million for the preceding three years, a small business was defined as an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$40 million for the preceding three years, and an entrepreneur was defined as an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$3 million for the preceding three years.<sup>158</sup> In auctions for Lower 700 MHz Band licenses seventy-two winning bidders claiming a small business classification won 329

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<sup>152</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auctions 44, 49, 60: Lower 700 MHz Band, Fact Sheet, Permissible Operations, <https://www.fcc.gov/auction/44/factsheet>, <https://www.fcc.gov/auction/49/factsheet>, <https://www.fcc.gov/auction/60/factsheet>.

<sup>153</sup> See U.S. Census Bureau, 2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (*except* Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>154</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>155</sup> See U.S. Census Bureau, 2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017, Table ID: EC1700SIZEEMPFI, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFI&hidePreview=false>.

<sup>156</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>157</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = WY, WZ; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>158</sup> See 47 CFR § 27.702(a)(1)-(3).

licenses,<sup>159</sup> twenty-six winning bidders claiming a small business classification won 214 licenses,<sup>160</sup> and three winning bidders claiming a small business classification won all five auctioned licenses.<sup>161</sup>

41. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

42. *Upper 700 MHz Band Licenses.* The upper 700 MHz band encompasses spectrum in the 746-806 MHz bands. Upper 700 MHz D Block licenses are nationwide licenses associated with the 758-763 MHz and 788-793 MHz bands.<sup>162</sup> Permissible operations in these bands include flexible fixed, mobile, and broadcast uses, including mobile and other digital new broadcast operation; fixed and mobile wireless commercial services (including FDD- and TDD-based services); as well as fixed and mobile wireless uses for private, internal radio needs, two-way interactive, cellular, and mobile television broadcasting services.<sup>163</sup> Wireless Telecommunications Carriers (*except* Satellite)<sup>164</sup> is the closest industry with a SBA small business size standard applicable to licenses providing services in these bands. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>165</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>166</sup> Of that number, 2,837 firms employed fewer than 250 employees.<sup>167</sup> Thus, under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

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<sup>159</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 44: Lower 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/44/charts/44cls2.pdf>.

<sup>160</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 49: Lower 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/49/charts/49cls2.pdf>.

<sup>161</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 60: Lower 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/60/charts/60cls2.pdf>.

<sup>162</sup> See 47 CFR § 27.4.

<sup>163</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 73: 700 MHz Band, Fact Sheet, Permissible Operations, <https://www.fcc.gov/auction/73/factsheet>. We note that in Auction 73, Upper 700 MHz Band C and D Blocks as well as Lower 700 MHz Band A, B, and E Blocks were auctioned.

<sup>164</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (*except* Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>165</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>166</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>167</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

43. According to Commission data as of December 2021, there were approximately 152 active Upper 700 MHz Band licenses.<sup>168</sup> The Commission’s small business size standards with respect to Upper 700 MHz Band licensees involve eligibility for bidding credits and installment payments in the auction of licenses. For the auction of these licenses, the Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years, and a “very small business” an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>169</sup> Pursuant to these definitions, three winning bidders claiming very small business status won five of the twelve available licenses.<sup>170</sup>

44. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA’s small business size standard.

45. *Wireless Resellers.* Neither the Commission nor the SBA have developed a small business size standard specifically for Wireless Resellers. The closest industry with a SBA small business size standard is Telecommunications Resellers.<sup>171</sup> The Telecommunications Resellers industry comprises establishments engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling wired and wireless telecommunications services (except satellite) to businesses and households.<sup>172</sup> Establishments in this industry resell telecommunications and they do not operate transmission facilities and infrastructure.<sup>173</sup> Mobile virtual network operators (MVNOs) are included in this industry.<sup>174</sup> Under the SBA size standard for this industry, a business is small if it has 1,500 or fewer employees.<sup>175</sup> U.S. Census Bureau data for 2017 show that 1,386 firms in this industry provided resale services during that year.<sup>176</sup> Of that number, 1,375 firms operated with

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<sup>168</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = WP, WU; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>169</sup> See 47 CFR § 27.502(a).

<sup>170</sup> See *Auction of 700 MHz Band Licenses Closes; Winning Bidders Announced for Auction 73*, Public Notice, DA-08-595, Attachment A, Report No. AUC-08-73-I (Auction 73) (March 20, 2008). The results for Upper 700 MHz Band C Block can be found on pp. 62-63.

<sup>171</sup> See U.S. Census Bureau, *2017 NAICS Definition, “517911 Telecommunications Resellers,”* <https://www.census.gov/naics/?input=517911&year=2017&details=517911>.

<sup>172</sup> *Id.*

<sup>173</sup> *Id.*

<sup>174</sup> *Id.*

<sup>175</sup> See 13 CFR § 121.201, NAICS Code 517911 (as of 10/1/22, NAICS Code 517121).

<sup>176</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517911, <https://data.census.gov/cedsci/table?y=2017&n=517911&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePrevious=false>.

fewer than 250 employees.<sup>177</sup> Thus, for this industry under the SBA small business size standard, the majority of providers can be considered small entities.

46. *Semiconductor and Related Device Manufacturing.* This industry comprises establishments primarily engaged in manufacturing semiconductors and related solid state devices.<sup>178</sup> Examples of products made by these establishments are integrated circuits, memory chips, microprocessors, diodes, transistors, solar cells and other optoelectronic devices.<sup>179</sup> The SBA small business size standard for this industry classifies entities having 1,250 or fewer employees as small.<sup>180</sup> U.S. Census Bureau data for 2017 show that there were 729 firms in this industry that operated for the entire year.<sup>181</sup> Of this total, 673 firms operated with fewer than 250 employees.<sup>182</sup> Thus, under the SBA size standard, the majority of firms in this industry can be considered small.

47. *Telecommunications Relay Service (TRS) Providers.* Telecommunications relay services enable individuals who are deaf, hard of hearing, deaf-blind, or who have a speech disability to communicate by telephone in a manner that is functionally equivalent to using voice communication services.<sup>183</sup> Internet-based TRS (*iTRS*) connects an individual with a hearing or a speech disability to a TRS communications assistant using an Internet Protocol-enabled device via the Internet, rather than the public switched telephone network.<sup>184</sup> Video Relay Service (VRS) one form of *iTRS*, enables people with hearing or speech disabilities who use sign language to communicate with voice telephone users over a broadband connection using a video communication device.<sup>185</sup> Internet Protocol Captioned Telephone Service (IP CTS) another form of *iTRS*, permits a person with hearing loss to have a telephone conversation while reading captions of what the other party is saying on an Internet-connected device.<sup>186</sup> Providers must be certified by the Commission to provide VRS and IP CTS<sup>187</sup> and to receive compensation from the TRS Fund for TRS provided in accordance with applicable rules.<sup>188</sup>

48. Neither the Commission nor the SBA have developed a small business size standard specifically for TRS Providers. All Other Telecommunications is the closest industry with a SBA small business size standard.<sup>189</sup> Internet Service Providers (ISPs) and Voice over Internet Protocol (VoIP)

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<sup>177</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>178</sup> See U.S. Census Bureau, *2017 NAICS Definition, "334413 Semiconductor and Related Device Manufacturing,"* <https://www.census.gov/naics/?input=334413&year=2017&details=334413>.

<sup>179</sup> *Id.*

<sup>180</sup> See 13 CFR § 121.201, NAICS Code 334413.

<sup>181</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 334413, <https://data.census.gov/cedsci/table?y=2017&n=334413&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePrevious=false>.

<sup>182</sup> *Id.* The available U.S. Census Bureau data do not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>183</sup> 47 U.S.C. § 225(a)(3).

<sup>184</sup> 47 CFR § 64.601(a)(22). Except as authorized or required by the Commission, Internet-based TRS does not include the use of a text telephone (TTY) or RTT over an interconnected Voice over Internet Protocol service.

<sup>185</sup> *Id.* § 64.601(a)(51).

<sup>186</sup> *Id.* § 64.601(a)(23).

<sup>187</sup> *Id.* § 64.606(a)(2).

<sup>188</sup> *Id.* § 64.604(c)(5)(iii)(F).

<sup>189</sup> See U.S. Census Bureau, *2017 NAICS Definition, "517919 All Other Telecommunications,"* <https://www.census.gov/naics/?input=517919&year=2017&details=517919>.



services, via client-supplied telecommunications connections are included in this industry.<sup>190</sup> The SBA small business size standard for this industry classifies firms with annual receipts of \$35 million or less as small.<sup>191</sup> U.S. Census Bureau data for 2017 show that there were 1,079 firms in this industry that operated for the entire year.<sup>192</sup> Of those firms, 1,039 had revenue of less than \$25 million.<sup>193</sup> Based on Commission data there are ten certified *iTRS* providers.<sup>194</sup> The Commission however does not compile financial information for these providers. Nevertheless, based on available information, the Commission estimates that most providers in this industry are small entities.

**D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities**

49. The *Notice* proposes and seeks comment on implementing new NG911 requirements for 911 voice calls, that if adopted, may impose new or modified reporting or recordkeeping, and other compliance obligations on small entities. Some of our proposed requirements contain written notification and certification requirements that will be applicable to small entities. For example, in the *Notice* we propose to require wireline, interconnected VoIP, and Internet-based TRS providers to complete all translation and routing to deliver 911 calls, including associated location information, in the requested IP-based format to an ESInet or other designated point(s) that allow emergency calls to be answered upon request of 911 authorities who have certified the capability to accept IP-based 911 communications. Wireline and interconnected VoIP providers would be subject to this requirement six months from the effective date of the IP service delivery requirement, or six months after a valid request for IP-based service by a state or local 911 authority, whichever is later. Internet-based TRS providers would be subject to this requirement twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later. Wireline, interconnected VoIP, and Internet-based TRS providers and state or local 911 authorities would be allowed to agree to alternate time frames for delivery of IP-formatted calls and associated routing information as long as the wireline, interconnected VoIP, or Internet-based TRS provider notifies the Commission of the alternate time frame within 30 days of the parties' agreement.

50. To determine whether wireline, interconnected VoIP, and Internet-based TRS providers' have received a "valid request," the criteria we proposed to constitute a valid request includes certification from a requesting local or state entity that it meets the following conditions, (1) it is technically ready to receive calls and/or texts in the IP-based format requested, (2) it is specifically authorized to accept calls and/or texts in the IP-based format requested, and (3) it has provided notification to the wireline, interconnected VoIP, or Internet-based TRS providers via either a registry made available by the Commission or any other written notification reasonably acceptable to the wireline, interconnected VoIP, or Internet-based TRS provider.

51. In the *Notice*, we seek comment on whether to implement any new data collections to assist in monitoring performance and compliance with the proposed NG911 rules. For example, we ask: (1) whether to require wireline, interconnected VoIP, and Internet-based TRS providers to provide a

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<sup>190</sup> *Id.*

<sup>191</sup> See 13 CFR § 121.201, NAICS Code 517919 (as of 10/1/22, NAICS Code 517810).

<sup>192</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 517919, <https://data.census.gov/cedsci/table?y=2017&n=517919&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

<sup>193</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>194</sup> See [Internet-Based TRS Providers | Federal Communications Commission \(fcc.gov\)](https://www.fcc.gov/general/internet-based-trs-providers), <https://www.fcc.gov/general/internet-based-trs-providers> (last visited May 16, 2023).

certification of compliance with the proposed rules, and (2) if reporting would be helpful, what specific information should providers include and at what frequency we should require them to report it. We also seek information on whether the proposed rules should include requirements for disclosures to the PSAP or other state or local 911 authority in connection with compliance with the NG911 rules.

52. Our inquiry into the potential reporting obligations that may be necessary to complement our proposed NG911 rules includes requesting comment on measures the Commission could take to limit the burden of reporting on the transition to NG911. In particular, in the *Notice* we seek information on the extent that the Commission could limit the burden of any reporting requirements on businesses identified as small by the SBA. We also assess whether we need to adopt requirements and systems for reporting non-compliance with the proposed NG911 rules. While we tentatively conclude that our existing mechanisms (which would allow public safety entities and members of the public seeking to report non-compliance with the proposed rules to file complaints via the Public Safety and Homeland Security Bureau's Public Safety Support Center or the Commission's Consumer Complaint Center) should be sufficient to address any potential violations, we seek comment on this tentative conclusion.

53. Although the proposed rulemaking may impose additional costs to wireline, CMRS, interconnected VoIP, and Internet-based TRS providers as a result of (1) the requirement for wireline, interconnected VoIP, and Internet-based TRS providers to deliver 911 calls in IP-based format to 911 facilities, and (2) the requirement for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to deliver 911 traffic to the point(s) designated by the 911 authority, we believe these costs are relatively small. Our initial estimate of the upper bound of these costs for all such providers in total is approximately \$103,000 in one-time costs and \$11.6 million recurring annual costs. We outline the details of those costs below and seek comment on our cost estimates in the *Notice*.

54. The cost of moving the point for delivery of 911 traffic for wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to a point designated by the 911 authority, such as an ESInet, occurs only once. Further, we believe the cost of changing connecting points should be insignificant for transporters. To estimate the maximum of this one-time cost, we assume that all of the 2,327 wireline, CMRS, interconnected VoIP, and Internet-based TRS providers' 911 calls must be reconfigured to connect to ESInets.<sup>195</sup> This is likely an overestimate because some providers already are connected to ESInets. We assume that each provider needs at most one hour of work by a technician to change connection points.<sup>196</sup> We use \$30 per hour as the wage for workers who move the connection points.<sup>197</sup> Marking up this wage by 45% to account for benefits, we arrive at a total of \$44 per hour.<sup>198</sup> We

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<sup>195</sup> See FCC, Office of Economics and Analytics, Industry Analysis Division, Voice Telephone Services: Status as of June 30, 2021 at 10, Table 2 (August 2022), <https://docs.fcc.gov/public/attachments/DOC-385814A1.pdf> (OEA Voice Telephone Service Status) (finding that as of June 2021, there were 2,256 wireline end-user switched access lines and interconnected VoIP subscriptions providers and 61 mobile telephony providers). There are 10 certified Internet-based TRS providers. FCC, *Internet-Based TRS Providers*, <https://www.fcc.gov/general/internet-based-trs-providers> (last visited May 16, 2023).

<sup>196</sup> Based on the FCC internal engineering staff's estimate, changing an IP-based demarcation point requires system reconfiguration that will take no more than 30 minutes to complete. We double the amount of time to allow for variation in the time it may require across service providers.

<sup>197</sup> We use the Bureau of Labor Statistics average wage for telecommunications equipment installers and repairers, except line installers for the telecommunications industry, which they estimate at \$30.37, which we round to \$30 to avoid false precision. See Bureau of Labor Statistics, *Occupational Employment Statistics*, <https://www.bls.gov/oes/current/oes492022.htm> (last visited May 16, 2023).

<sup>198</sup> According to the Bureau of Labor Statistics, as of September, 2022, civilian wages and salaries averaged \$28.88/hour and benefits averaged \$12.98/hour. Total compensation therefore averaged  $\$28.88 + \$12.98 = \$41.86$ . See Press Release, Bureaus of Labor Statistics, Employer Costs for Employee Compensation – September 2022 (Dec. 15, 2022), <https://www.bls.gov/news.release/pdf/eccc.pdf>. Total compensation therefore averaged  $\$28.88 + \$12.98 = \$41.86$ . *Id.* Using these figures, benefits constitute a markup of  $\$12.98/\$28.88 = 45\%$ . We therefore markup wages by 45% to account for benefits.  $\$30 \times 1.45 = \$43.50$ , which we round to \$44.



therefore estimate that the upper bound of one-time costs is \$103,000.<sup>199</sup>

55. Ongoing costs will be incurred by the small percentage of providers that do not yet have IP switching facilities for voice traffic.<sup>200</sup> According to NTCA, 91.5% of respondents to the NTCA Broadband/Internet Availability Survey Report, which we assume are rural wireline providers, indicate that they already have IP switching facilities for voice traffic in their networks, and therefore 8.5% do not.<sup>201</sup> As a result, the cost of converting 911 calls from TDM format to IP format would only be imposed on 8.5% of rural wireline providers. We assume the percentage of non-rural telecommunications wireline providers without IP-switching capability to be similar or smaller. Among the 947 local exchange telephone service providers,<sup>202</sup> we therefore estimate that at most 81 providers (8.5% of 947) may need to hire a third-party to transport their TDM calls in IP format to the ESInets.<sup>203</sup> The cost of adding these 81 providers to existing available transport services would not be particularly burdensome. To estimate the cost of additional transport service, we make several assumptions. First, we assume that the 81 providers are evenly spread across 56 U.S. states, commonwealths, and territories.<sup>204</sup> This would yield an additional 1.45 providers (81/56) per state. That is, we assume it would require adding 1.45 providers and 28,281 calls per year into existing transport services available in each state or territory.<sup>205</sup> Hiring an additional full-time telecommunications technician in one transport service provider per state should be more than sufficient to handle the increase in calls.<sup>206</sup> The annual wage, including benefits of a telecommunication technician would be \$44 per hour, as above, multiplied by 2080 hours, for a total of \$91,520 for each state. Given an estimated average of 55.53% gross margin for the communications service industry,<sup>207</sup> the

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<sup>199</sup> One hour per provider x \$44/hour x 2,327 providers = \$102,388, which we round to \$103,000.

<sup>200</sup> Since VoIP and Internet-based TRS providers are already transmitting calls via IP, we assume that they incur no additional cost to comply with the requirement of transmitting 911 calls in IP format.

<sup>201</sup> NTCA 2022 Broadband Survey Report at 4.

<sup>202</sup> See OEA Voice Telephone Service Status, at 10, Table 2 (As of June 2021, there were 947 providers providing local exchange telephone service (Switched Access Lines)).

<sup>203</sup> We multiply 947 providers by 8.5% (the percent of providers that may not have IP switching facilities) to arrive at 81 providers that may need to hire a third-party to transport their 911 calls [947 x 8.5% = 80.495, rounded up to 81].

<sup>204</sup> This includes 50 states, Washington D.C., American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and U.S. Virgin Islands.

<sup>205</sup> Per the Fourteenth Annual 911 Fee Report, forty-seven states, the District of Columbia, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands reported a cumulative total of 220,107,525 voice calls of all types during the 2021 annual period. Fourteenth Annual Fee Report at 12, para. 14. According to NENA, more than 80% of 911 calls in the U.S. each year are from wireless devices. Therefore 20% of 220,107,525 calls, or 44,034,105 calls are generated via wireline or interconnected VoIP [220,107,525 x 20% = 44,034,105]. Divide 44,034,105 calls by a total of 2,256 wireline and interconnected VoIP providers, each provider passes an average of approximately 19,504 call per year [44,034,105/2256 = 19,503.6, rounded up to 19,504]. Multiply 19,504 by 1.45 providers, the transport service providers in each state or territory may see an increase of 28,281 calls [19,504 x 1.45 = 28,280.8, rounded up to 28,281].

<sup>206</sup> Assuming that, on an annual basis, a full-time, full-year technician works 2,080 hours to handle the additional 28,281 calls, each technician would have to support only 14 calls per hour on average [28,281/2,080 = 13.6, rounded up to 14]. We believe that our assumption of hiring a technician per state to handle these additional 911 calls is an overestimate given that converting and transporting these calls are largely automated with little need of personnel involvement once the providers' calls are routed to the transport service providers' site.

<sup>207</sup> According to Dr. Aswath Damodarn at NYU Stern School of Business, the gross margin for the telecommunication services sector is 55.53%. See New York University, *Margins by Sector (US)*, [https://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/margin.html](https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html) (last visited May 16, 2023).

annual cost to providers would be \$205,802 for each state.<sup>208</sup> Multiplying the annual cost per state by 56 states and territories, we estimate a total annual recurring cost of \$11,524,912, which we round to \$11.6 million per year. We note that small providers could trim costs by leveraging transport procurement through small provider consortia or entering into interconnectivity agreements with larger providers.<sup>209</sup> We also note that these annual costs will fall over time due to ongoing modernization of legacy 911 systems. We seek comment on all of these estimates.

56. The record in this proceeding does not currently contain detailed information on the costs required for the implementation of wireline, interconnected VoIP, and Internet-based TRS IP-based 911 service delivery. Therefore, at this time, the Commission is not in a position to determine whether implementation of IP-based service delivery would result in significant costs for small wireline, interconnected VoIP, and Internet-based TRS providers, NG911 services providers, or state and local 911 authorities, or require small entities to hire professionals to comply, if our proposals are adopted. To help the Commission more fully evaluate the cost of compliance, we seek additional detailed information on the various cost issues implicated by our proposed rules. In the *Notice*, we specifically request information on the costs of compliance for wireline, interconnected VoIP, and Internet-based TRS providers to implement the required hardware, software, services, or transport, or other significant costs to telecommunications carriers or to state and local 911 authorities. We also request information on planned or expended costs from providers that have already transitioned to providing 911 traffic to the ESInet via IP or via legacy network gateway. Further, we ask whether costs to connect to NG911 are significantly different for different types of providers.

#### **E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

57. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for such small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.”<sup>210</sup>

58. *Delivery in IP-Based Format.* We believe our proposal to require wireline, interconnected VoIP, and Internet-based TRS providers to complete all translation and routing to deliver 911 calls, including associated location information, in the requested IP-based format to an ESInet or other designated point(s) that allow emergency calls to be answered upon request of 911 authorities who have certified the capability to accept IP-based 911 communications would help to advance NG911 and benefit small entities in several ways. Specifically our proposal would, (1) help address operational and routing issues for small and other jurisdictions that have implemented NG911; (2) help alleviate the burden on small state and local 911 authorities of maintaining transitional gateways and other network elements to process and convert legacy calls;<sup>211</sup> and (3) help small and other jurisdictions realize additional public

<sup>208</sup> We assume that these wireline service providers need to hire a third-party to provide this transport service, and we further assume that these third-party transport service providers mark up their service, so the gross profit margin is 55.53% according to the estimated industry average. If the cost is \$91,520, the after mark-up price of transport service would be \$205,802 [ $=\$91,520/(1 - 55.53\%) = 205,802$ ]. In other words, if a third-party transport provider charges \$205,802 to provide the additional services, it retains \$114,282 [ $=\$205,802*55.53\%$ ] as its gross profit after paying \$91,520 in wages and benefits to the additional technician it has to hire.

<sup>209</sup> NASNA Reply at 3-4.

<sup>210</sup> See 5 U.S.C. § 603(c)(1)-(4).

<sup>211</sup> Pennsylvania Emergency Mgmt. Agency Comments at 4-5 (“[Pennsylvania Emergency Mgmt. Agency] is currently experiencing difficulties in this process that may impact Pennsylvania’s transition to NG911 service and extend the period of time 911 authorities are paying for both legacy and NG911 services at the same time.”).

safety benefits available on NG911 networks. In assessing NG911 requirements, we considered whether there any other providers that we should require to deliver IP-based 911 services. In the *Notice*, we seek comment on these matters.

59. *Delivery Points and Cost Allocation for IP-Based 911 Calls.* We propose to require wireline, interconnected VoIP, CMRS, and Internet-based TRS providers to transmit all 911 calls to destination point(s) in those networks designated by a 911 authority. In addition, we propose that in the absence of agreements by states or localities on alternative cost recovery mechanisms, wireline, interconnected VoIP, CMRS, and Internet-based TRS providers must cover the costs of transmitting 911 calls to the point(s) designated by a 911 authority, including any costs associated with completing the translation and routing necessary to deliver such calls and associated location information to the designated destination point(s) in the requested IP-based format. Under this proposal, states and localities would remain free to establish alternative cost allocation arrangements with providers. As a *default* mechanism, this proposal would allocate costs only when the parties are unable to agree on cost recovery measures. The proposal also provides flexibility to small entities to negotiate for state-level cost recovery when and if needed, which could minimize the economic impact for small entities.

60. Commenters representing rural and other telecommunications carriers generally oppose the establishment of a point for delivery of 911 traffic, arguing that it is unnecessary or would slow the rollout of NG911.<sup>212</sup> These commenters maintain that any demarcation point should be within service providers' local service areas.<sup>213</sup> NTCA cautions that to do otherwise would place a significant cost burden on rural customers and place universal service at risk.<sup>214</sup> As part of our consideration of these comments, we seek estimates from rural providers (usually small entities) and 911 authorities on specific costs for rural providers to comply with our proposed rules.

61. We also reviewed and considered an alternate proposal from the Texas 9-1-1 Entities which could impact small entities.<sup>215</sup> In our consideration of this proposal, we inquire and seek comment on whether we should adopt all or any parts of the Texas 9-1-1 Entities proposal; whether it would be beneficial to treat "IP-based providers" differently than "non-IP-based providers"; whether there are "threshold legacy issues" would we need to determine before adopting the Texas 9-1-1 Entities proposal either in full or in part, and whether there any other factors we should consider in connection with the proposal.

62. *Universal Service Impact.* Small entities could potentially incur an economic impact if requiring the delivery of IP 911 traffic to specific points were to increase universal costs. However, given that under our proposal there are measures available for small carriers to lower their costs such as participation in "collaborative consortiums of smaller carriers to leverage transport procurement, interconnectivity agreements with larger carriers, and the carriers' transition to IP,"<sup>216</sup> and states would remain free to implement cost recovery mechanisms as they deem necessary, we do not believe that our proposed rules would adversely impact universal service. To gain a better understanding of the implications for small entities, in the *Notice* we seek comment on the feasibility of these measures and their capability to defray costs for small carriers. In addition, we seek comment on the impacts of our

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<sup>212</sup> CTIA – The Wireless Association (CTIA) Comments at 5 (rec. Jan 19, 2022); NTCA Reply at 4-5 (rec. Feb. 4, 2022) (NTCA Reply); South Carolina Telephone Coalition Comments at 2 (rec. Jan. 19, 2022); Minnesota Telecom Alliance Comments at 3-4 (rec. Jan. 19, 2022); USTelecom – The Broadband Association (USTelecom) Comments at 3-4 (rec. Jan 19, 2022).

<sup>213</sup> South Carolina Telephone Coalition Comments at 2; NTCA Comments at 6; Nebraska Rural Incumbent Local Exchange Carriers (Nebraska RLECs) Reply at 3 (rec. Feb. 3, 2022).

<sup>214</sup> NTCA Reply at 3.

<sup>215</sup> Texas 9-1-1 Alliance, the Texas Commission on State Emergency Communications, and the Municipal Emergency Communication Districts Association (Texas 9-1-1 Entities) Comments at 7-9 (rec. Jan 19, 2022).

<sup>216</sup> NASNA Reply at 3-4.

proposed rules on the availability of universal service and universal service support under section 254 of the Act.

63. *Compliance Timelines.* We provide flexibility in the proposed compliance timelines for implementation of the requirements which should reduce the economic burden for small entities. For the requirements we propose to help ensure that jurisdictions transitioning to NG911 networks can access IP connections from wireline, interconnected VoIP, and Internet-based TRS providers, we propose to allow local and state entities to enter into agreements with wireline, interconnected VoIP, and Internet-based TRS providers that establish an alternate time frame for meeting those requirements. The flexibility to negotiate an alternative time frame which meets providers' business and financial needs is a significant step by the Commission that could minimize the economic impact for small entities.

64. Further, we provide a longer time frame for Internet-based TRS providers which are primarily small entities, to complete all translation and routing to deliver 911 calls, including associated location information, in the requested IP-based format to an Emergency Services IP network (ESInet) or other designated point(s) that allow emergency calls to be answered upon request of 911 authorities who have certified the capability to accept IP-based 911 communications. The compliance obligation we propose for Internet-based TRS providers is twelve months from the effective date of the IP service delivery requirement, or twelve months after a valid request for IP-based service by a state or local 911 authority, whichever is later, rather than the six months applicable to wireline and interconnected VoIP providers.

65. *Costs of Implementation.* In the previous section, we discussed the absence of detailed information in the record on the costs for wireline, interconnected VoIP, and Internet-based TRS providers to implement the required software, hardware, and service upgrades necessary to comply with our proposed rules. Having data on the costs and economic impact of the proposals and other matters discussed in the *Notice* will allow the Commission to better evaluate options and alternatives to minimize the impact on small entities. Based on our request for specific and detailed cost implementation information, and for information on the extent that the Commission could limit the burden of any reporting requirements, we expect to more fully consider the economic impact on small entities following our review of comments filed in response to the *Notice*, and to this IRFA. The Commission's evaluation of this information will shape the final alternatives it considers to minimize any significant economic impact that may occur on small entities, the final conclusions it reaches, and any final rules it promulgates in this proceeding.

**F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules**

66. None.

**Appendix C****List of Parties Filing Comments and *Ex Partes***

Alachua County (FL) 911/Communications (Alachua County)  
Alarm Industry Communications Committee (AICC)  
Alliance for Telecommunications Industry Solutions (ATIS)  
Arizona Department of Administration 9-1-1 Program Office (Arizona Dept. of Administration)  
Association of Public-Safety Communications Officials-International, Inc. (APCO)  
Boulder Regional Emergency Telephone Service Authority (BRETSA)  
Colorado Public Utilities Commission (Colorado Public Utilities Comm.)  
Comtech Telecommunications Corp. (Comtech)  
CTIA  
Fayette County (IA) 911 Service Board  
Industry Council for Emergency Response Technologies (iCERT)  
Iowa Department of Homeland Security and Emergency Management (Iowa Dept. of Homeland Security and Emergency Mgmt.)  
Jones County (IA) 911 Coordinator  
Minnesota Department of Public Safety's Emergency Communication Networks Division (Minnesota Dept. of Public Safety)  
Minnesota Telecom Alliance  
Mission Critical Partners, LLC (MCP)  
National Association of State 911 Administrators (NASNA)  
Nebraska Public Service Commission (Nebraska Public Service Comm.)  
Nebraska Rural Incumbent Local Exchange Carriers (Nebraska RLECs)  
NENA: The 9-1-1 Association (NENA)  
NTCA – The Rural Broadband Association (NTCA)  
Page County (IA) Emergency Management  
Pennsylvania Emergency Management Agency (Pennsylvania Emergency Mgmt. Agency)  
South Carolina Telephone Coalition  
State of Vermont Enhanced 911 Board  
Texas 9-1-1 Alliance, Texas Commission on State Emergency Communications, Municipal Emergency Communications Association (Texas 9-1-1 Entities)  
USTelecom – The Broadband Association (USTelecom)