

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

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

COMMENTS OF APCO INTERNATIONAL

The Association of Public-Safety Communications Officials, International (APCO),¹ files these comments in response to the Notice of Proposed Rulemaking on Facilitating Implementation of Next Generation 9-1-1 (NG9-1-1) Services.² APCO appreciates the opportunity to discuss what’s needed to achieve NG9-1-1. A member of the public should be able to seek emergency response using broadband-based multimedia, and emergency communications centers (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. This will save lives.

ECCs deserve the best-available tools to perform their lifesaving functions, yet across the country, ECCs continue to lack access to modern communications technologies. As the Commission notes, there are currently no fully enabled NG9-1-1 systems operating.³ Even in jurisdictions that have made progress, the public safety community faces interoperability problems and resource constraints that inhibit progress toward NG9-1-1. Federal support is needed. The public safety community has coalesced around a comprehensive vision for NG9-1-1

¹ Founded in 1935, APCO is the nation’s oldest and largest organization of public safety communications professionals. APCO is a non-profit association with over 40,000 members, primarily consisting of state and local government employees who manage and operate public safety communications systems – including 9-1-1 Emergency Communications Centers (ECCs), emergency operations centers, radio networks, and information technology – for law enforcement, fire, emergency medical, and other public safety agencies.

² Facilitating Implementation of Next Generation 911 Services (NG911), PS Docket No. 21-479, *Notice of Proposed Rulemaking*, FCC 23-47 (rel. June 9, 2023) (“NPRM”).

³ *Id.* at para. 12.

based on a technology-neutral approach that fosters a competitive marketplace and is pursuing significant federal funding legislation that has received broad bipartisan support on Capitol Hill.

The Commission’s proposals have the potential to accelerate the transition but would benefit from a more comprehensive vision and must avoid rules or assumptions that might lock ECCs into a particular approach to implementing NG9-1-1. For example, the Commission concludes that the technical details of NG9-1-1 systems are well-established, citing the 2016 TFOPA Report as the basis for this statement.⁴ However, much has changed since 2016. The 9-1-1 community and Commission have revised their assumptions about how to achieve next generation routing for 9-1-1 calls (as discussed further below), and the vendor industry has developed alternative architectural options for NG9-1-1.⁵ Moreover, the telecommunications ecosystem continues to evolve, perhaps soon at an accelerated pace due to advances in artificial intelligence.⁶ The Commission must preserve flexibility for ECCs to implement innovative approaches and should not adopt rules that bake in specific architectures for NG9-1-1.

Accordingly, APCO’s comments aim to reorient the Commission’s focus to take a comprehensive approach – most importantly by requiring service providers to achieve interoperability – and to avoid placing responsibilities on ECCs and 9-1-1 authorities that would more appropriately rest with service providers.

⁴ *Id.* at para. 12 n.44.

⁵ See iCERT Public Safety Communications Interoperability (PSCI) Working Group, *NG9-1-1 Core Services: Standards and Architectures*, Industry Council for Emergency Response Technologies, Inc. (2021), https://www.theindustrycouncil.org/files/ugd/b8d2ce_525af133855642d9971fc91c41d0009d.pdf. This white paper describes two architectural options for implementing the NGCS signaling and media control functional elements: an i3-based and IMS-based option, which the white paper describes as compatible and designed to be complementary. APCO does not endorse either approach but offers this white paper as an example of ongoing developments in NG9-1-1 architectural options and evidence that the Commission should avoid assumptions that could result in an unnecessarily prescriptive approach to NG9-1-1.

⁶ See Thomas Kinnman, Zeljka Lemaster, Andres Laya, *How is Intelligence Transforming Telecom? Five Benefits that Reveal the Full Value of AI*, ERICSSON BLOG (Mar. 27, 2023), <https://www.ericsson.com/en/blog/2023/3/value-of-ai-for-telecom-networks> (describing the potential for AI to help communication service providers protect their networks and improve network performance and reliability, among other things).

I. The Commission Should Take a Comprehensive Approach to Facilitating Next Generation 9-1-1

a. Adopt the Public Safety Community’s Definition of Next Generation 9-1-1

The Commission asks whether a definition of NG9-1-1 is necessary for compliance with the Commission’s proposed rules and whether such a definition should mirror pending federal legislation that defines NG9-1-1 as:

- an 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.⁷

Adopting this comprehensive definition, which was crafted by the public safety community, is important for aligning the rules with public safety’s needs and the Commission’s objectives. The Commission’s proposals are intended to “help ensure that the nation’s 911 system functions effectively and with the most advanced capabilities available,”⁸ and the Commission expects that NG9-1-1 will lead to interoperability and system resilience, improve connectivity between ECCs, and support the transmission of text, photos, videos, and data.⁹ These objectives and expectations will only be met if the Commission takes a comprehensive approach to NG9-1-1. Further, adopting this definition is a basic step to ensure that, should Congress pass NG9-1-1 funding legislation, the Commission’s rules facilitating NG9-1-1 will align with the \$15 billion grant program for communities across the country to deploy NG9-1-1.

⁷ NPRM at para. 51.

⁸ *Id.* at para. 3.

⁹ *Id.* at para. 10.

b. Require Support for Photos, Videos, and Other Data Types

The Commission asks whether it should specify that originating service providers' (OSPs') obligations to deliver calls in an IP-based format extend to the new communication formats expected for NG9-1-1, such as photos and video.¹⁰ The Commission will not achieve its goal of ensuring the nation's 9-1-1 systems operate with the most advanced capabilities available if 9-1-1 remains limited to voice and text communications, and merely requiring delivery of 9-1-1 traffic in an IP-based format will not ensure support for advanced capabilities. The rules should affirmatively require OSPs and 9-1-1 service providers to support the transmission of photos, videos, and other data types. This approach would support the Commission's goals and be consistent with the comprehensive definition of NG9-1-1 described above, which defines NG9-1-1 as enabling ECCs to receive, process, analyze, and share all types of 9-1-1 requests for emergency assistance.

c. Require Service Providers to Achieve Interoperability

The Commission proposes to require wireline, interconnected VoIP, and Internet-based TRS providers to complete all translation necessary to deliver 9-1-1 calls, including associated location information, in the requested IP-based format (similar to the separately proposed requirements for CMRS and covered text providers).¹¹ APCO supports this proposal, provided that the Commission requires OSPs and 9-1-1 service providers to achieve interoperability, which is a definitional component of public safety's vision for NG9-1-1.

Delivering 9-1-1 traffic in an IP-based format is foundational for NG9-1-1, but such a requirement risks perpetuating the community's interoperability problems and creating new costs for ECCs and 9-1-1 authorities. The Commission seemingly concludes that 9-1-1 traffic will not

¹⁰ *Id.* at para. 24.

¹¹ *Id.* at para. 21.

be delivered in a standardized manner, based on the proposal to require delivery “in the requested IP-based format”¹² and assumption that “changes to 911 call formatting and delivery . . . may not be implemented uniformly.”¹³ APCO is concerned that variation in delivery formats will contribute to interoperability problems for ECCs receiving 9-1-1 traffic from OSPs, as well as ECCs transferring 9-1-1 traffic to other ECCs.

The greatest impact the Commission can have on facilitating the transition to NG9-1-1 would be to require interoperability between OSPs and 9-1-1 service providers, and among 9-1-1 service providers. Without doing so, the Commission’s proposals will not achieve its intent to ensure that the nation’s 9-1-1 system functions effectively, nor will the Commission’s and public safety community’s vision for NG9-1-1 to entail interoperable communications be achieved. Achieving interoperability is one of the public safety community’s principles for NG9-1-1,¹⁴ but as the Commission is well-aware, ECCs face significant interoperability challenges for both legacy and IP-based communications.¹⁵

The Commission should require originating service providers and 9-1-1 service providers to enable the seamless transfer of 9-1-1 calls and related data. Achieving interoperability should be a baseline feature of their services and not impose additional costs for the public safety community.

¹² *Id.*

¹³ *Id.* at para. 17.

¹⁴ See PUBLIC SAFETY NEXT GENERATION 9-1-1 COALITION, *About the Coalition* (last visited July 28, 2023), <https://ng-911coalition.org/about-the-coalition/> (describing principles to be incorporated as part of NG9-1-1 legislation, including interoperability, meaning the ability for ECCs to receive 9-1-1 requests for emergency assistance and related data, then process and share the requests with other ECCs and responders in the field without the need for proprietary interfaces, and regardless of jurisdiction, equipment, device, software, or service provider); see also Next Generation 9-1-1 Act of 2023, H.R. 1784, 118th Cong. § 2 (d)(10) (2023).

¹⁵ See Communications Security, Reliability, and Interoperability Council VII, *Report on the Current State of Interoperability in the Nation’s 911 Systems* (Mar. 17, 2020) available at <https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability-council-vii>.

- II. The Commission Should Avoid Shifting Costs and Responsibilities to ECCs and 9-1-1 Authorities that Would More Appropriately Reside with Service Providers
- a. Establish Demarcation Point(s) and Cost Allocation that Maximize Flexibility for ECCs and 9-1-1 Authorities

The Commission proposes to require wireline, CMRS, interconnected VoIP, and Internet-based TRS providers to transmit IP-based 9-1-1 traffic to the point(s) determined and designated by the 9-1-1 authority, which could include an ESInet, individual ECCs, or other designated point(s).¹⁶ The Commission proposes that, in the absence of states and localities establishing cost recovery mechanisms, the costs 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.¹⁷ APCO supports these proposals.¹⁸ Empowering 9-1-1 authorities to designate the appropriate point(s) for 9-1-1 traffic delivery and making service providers responsible for the costs of delivery will resolve disputes and give 9-1-1 authorities the flexibility they need to pursue innovative, efficient approaches to NG9-1-1.

To support this approach to maximizing flexibility for ECCs and 9-1-1 authorities, APCO encourages the Commission to consider lessons from the 9-1-1 community's recent experience with location-based routing and the potential inapplicability of the King County framework to an innovative NG9-1-1 environment.

i. Revising Assumptions for Location-Based Routing

In response to the Commission's 2018 Notice of Inquiry on location-based routing for wireless 9-1-1 calls,¹⁹ several industry commenters suggested that implementation of

¹⁶ NPRM at para. 28.

¹⁷ *Id.* at para. 33.

¹⁸ Accordingly, APCO opposes the alternative approach in which non-IP providers would be required to connect to a Legacy Network Gateway provided by the 9-1-1 authority or its 9-1-1 service provider, rather than requiring non-IP providers to fully support delivery of 9-1-1 traffic in an IP-based format. *Id.* at para. 32.

¹⁹ Location-Based Routing for Wireless 911 Calls, PS Docket No. 18-64, *Notice of Inquiry*, FCC 18-32 (rel. Mar. 23, 2018).

location-based routing depended upon ECCs' technology or even deployment of NG9-1-1.²⁰ Yet just a few years later, at least one carrier had voluntarily implemented location-based routing nationwide regardless of ECCs' technology or a jurisdiction's progress toward NG9-1-1.²¹ Had the Commission accepted industry assertions that location-based routing should be 9-1-1 authorities' responsibility in an NG9-1-1 environment, the more immediate and efficient carrier-based implementations of location-based routing might not have occurred. As service providers and ECCs deploy IP-based solutions, there will be new options for providing NG9-1-1 capabilities. Thus, the Commission should take the lesson of the location-based routing experience and ensure its rules maximize flexibility for 9-1-1 authorities to pursue innovative solutions that take advantage of efficiencies in OSP networks.

ii. The Potential Inapplicability of the King County Framework

As part of the proposal regarding the point(s) for delivering 9-1-1 traffic and allocation of costs, the Commission tentatively concludes that a regulatory approach similar to King County is appropriate.²² The Commission notes that where 9-1-1 authorities have implemented ESInets and other IP-based network elements, selective routers will no longer be the network elements that analyze and distribute information to the NG9-1-1 network.²³ While this observation is generally consistent with the proposal to require OSPs to deliver 9-1-1 traffic to the point(s) designated by a 9-1-1 authority and to bear the associated costs, APCO cautions the Commission against

²⁰ See, e.g., Comments of Verizon, PS Docket No. 18-64, at 6 (filed May 7, 2018) ("The availability of LBR for 911 calls will depend on new network, device, and PSAP capabilities."); Comments of Motorola Solutions, Inc., PS Docket No. 18-64, at 6 (filed May 7, 2018) ("The Commission can best incentivize adoption of device-based hybrid location solutions by continuing to encourage: (1) the creation of sufficient and sustained levels of funding for NG9-1-1 deployments").

²¹ Location-Based Routing for Wireless 911 Calls, PS Docket No. 18-64, *Notice of Proposed Rulemaking*, FCC 22-96, para. 21 (Dec. 22, 2022).

²² NPRM at para. 36.

²³ *Id.* at para. 35.

applying legacy concepts that might undermine its objective to facilitate creative technological solutions for NG9-1-1.²⁴

The King County framework might translate well to an environment in which legacy 9-1-1 networks are replaced by IP-based networks that provide comparable capabilities, but the framework might not apply well to new approaches to achieving NG9-1-1. Consider that a smartphone user operating on a modern commercial network has many of the advanced capabilities envisioned for an ECC in an NG9-1-1 environment: the ability to receive a call with the caller's location and phone number; the ability to conference in a third party and perform a warm handoff; the ability to receive multimedia; and the ability to forward (or reroute) calls to an alternative number when the phone is busy or the call isn't answered after a certain number of rings. APCO is not suggesting that ECCs will be fully served by the same networks and tools available to the public, merely highlighting the fact that, in many ways, common consumer devices provide the sophisticated capabilities that ECCs are striving for. Avoiding preconceptions about how to provide the operational capabilities expected for NG9-1-1 is essential for maximizing the opportunity to achieve innovative solutions. ECCs and 9-1-1 authorities should be empowered to adopt new NG9-1-1 solutions, ideally with support from significant federal funding. Requiring OSPs to deliver IP-based 9-1-1 traffic to the point(s) designated by a 9-1-1 authority, and to bear the costs of delivery, will provide 9-1-1 authorities and ECCs with the flexibility they need to efficiently implement NG9-1-1.

²⁴ *Id.* at para. 39 (inviting commenters to identify steps the Commission should take to promote cooperative efforts by 9-1-1 authorities and OSPs that will lead to creative technological solutions for accelerating NG9-1-1 deployment).

b. ECCs/PSAPs Should be Given Deference as Part of a “Valid PSAP Request”

The Commission seeks comment on several issues related to what constitutes a valid ECC request for delivery of IP-based 9-1-1 traffic, including what level of ECC readiness should trigger the requirements,²⁵ whether testing should be a precondition,²⁶ and whether to apply specific terms or standards for determining that an ECC is “IP-capable.”²⁷ APCO recommends granting 9-1-1 authorities and ECCs significant deference. The Commission must avoid defining a valid ECC request in a way that makes inappropriate assumptions about how NG9-1-1 will work or shifts costs from service providers to ECCs and 9-1-1 authorities. For example, requiring a 9-1-1 authority to certify or demonstrate the capability of its IP-based network to support 9-1-1 interoperability²⁸ wrongly shifts responsibility for interoperability to 9-1-1 authorities and might conflict with an approach whereby ECCs receive IP-based 9-1-1 traffic directly from OSPs rather than through a 9-1-1 authority’s network. Requiring service providers to maintain interoperability as a baseline feature of 9-1-1 service will simplify what’s needed for a valid ECC request and obviate the need for 9-1-1 authorities or individual ECCs to undertake the expense of certifications or third party testing.

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²⁵ *Id.* at para. 41.

²⁶ *Id.* at para. 42.

²⁷ *Id.* at para. 43.

²⁸ *Id.* at para. 41.

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