

LEGISLATIVE IMPROVEMENTS TO PUBLIC SAFETY COMMUNICATIONS IN THE UNITED STATES

HEARING BEFORE THE SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES ONE HUNDRED NINETEENTH CONGRESS

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LEGISLATIVE IMPROVEMENTS TO PUBLIC SAFETY COMMUNICATIONS IN THE UNITED STATES

TUESDAY, DECEMBER 16, 2025

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:15 a.m., in the John D. Dingell Room 2123, Rayburn House Office Building, Hon. Richard Hudson (chairman of the subcommittee) presiding.

Members present: Representatives Hudson, Allen, Latta, Griffith, Carter of Georgia, Dunn, Pfluger, Cammack, Obernolte, Houchin, Kean, Goldman, Fedorchak, Guthrie (ex officio), Matsui (subcommittee ranking member), Soto, Clarke, Ruiz, Peters, Dingell, Barragán, Carter of Louisiana, Menendez, Landsman, McClellan, Castor, and Pallone (ex officio).

Also present: Representatives Joyce and Palmer.

Staff present: Jessica Donlon, General Counsel; Michael Essington, Chief Counsel, Communications and Technology; Sydney Greene, Director of Finance and Logistics; Megan Jackson, Staff Director; Noah Jackson, Clerk, Communications and Technology; AT Johnson, Special Advisor; Brayden Lacefield, Special Assistant; John Lin, Senior Counsel, Communications and Technology; Joel Miller, Chief Counsel; Elaina Murphy, Professional Staff Member, Communications and Technology; Dylan Rogers, Professional Staff Member, Communications and Technology; Chris Sarley, Member Services/Stakeholder Director; Timothy Trimble, Staff Assistant; Jane Vickers, Press Assistant; Hannah Anton, Minority Policy Analyst; Keegan Cardman, Minority Staff Assistant; Parul Desai, Minority Chief Counsel, Communications and Technology; Waverly Gordon, Minority Deputy Staff Director and General Counsel; Tiffany Guarascio, Minority Staff Director; Dan Miller, Minority Professional Staff Member; Shae Reinberg, Minority Intern; Michael Scurato, Minority FCC Detailee; Johanna Thomas, Minority Counsel; and Hannah Treger, Minority Staff Assistant.

Mr. HUDSON. The subcommittee will come to order. The Chair recognizes himself for an opening statement.

OPENING STATEMENT OF HON. RICHARD HUDSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Good morning. Welcome to today's legislative hearing on public safety communications in the United States. I am glad we were able to convene this hearing in a bipartisan manner, and we have several bipartisan bills in front of us today. I am looking forward to hearing from our witnesses about how these bills will improve communications for public safety and give first responders additional tools to do their jobs so they can best serve our communities and come home safe. This hearing will be the next step in advancing the important legislation before us.

In September we held a hearing examining the broad state of public safety communications. Now we are looking at legislative improvements to that space. Important things like upgrading our 9-1-1 call centers, improvements to our wireless emergency alerting, and improvements to our outage reporting are crucial improvements that we now can look at through a legislative lens.

Alongside my friend, Representative Carter from Louisiana, I recently introduced the Next Generation 9-1-1 Act. This legislation would establish a grant program at the National Telecommunications and Information Administration, or NTIA, for next generation 9-1-1 technology. It would also establish a nationwide next generation 9-1-1 cybersecurity center and a next generation 9-1-1 advisory board. Upgrading our Nation's call centers to NG 9-1-1 technology is crucial for public safety. This internet-protocol-based system will open the door for advanced tools for both the public and our first responders to use.

Further, this legislation will enable deployment nationwide. A patchwork of call centers that still have aging, outdated legacy systems risks a communication landscape that is uneven and noninteroperable. I have long been a supporter of NG 9-1-1 deployment nationwide, and I am proud to lead this legislation along with my friend from Louisiana.

We have a few bills before us that look to improve our Wireless Emergency Alerts, or WEAs. Wireless alerts to mobile phones can be powerful tools to quickly and directly disseminate warnings of dangerous weather, threats to public safety, national emergencies, and even missing children. However, these alerts can only be received if a phone is in range of traditional cell service. As we see mobile carriers moving towards innovative technologies like satellite-direct-to-device connections, it is worth exploring how this technology can be used as another tool for public safety communications when outside of terrestrial cell service networks.

Our public safety and law enforcement officers put their lives on the line every day to help us in our times of need, and we must make sure that they have the best tools at their disposal to do their jobs. Today we will hear from our witnesses about the legislative improvements to public safety communications before us and how these bills can make our country a safer place. I look forward to hearing from the witnesses today about these issues and how Congress can stand ready as a partner.

[The prepared statement of Mr. Hudson follows:]

Opening Statement for Chairman Richard Hudson
Subcommittee on Communications and Technology
“Legislative Improvements to Public Safety Communications in the United States”
Tuesday, December 16, 2025, at 10:15 AM

Introduction

Good morning, and welcome to today’s legislative hearing on public safety communications in the United States. I’m glad we were able to convene this hearing in a bipartisan manner, and we have several bipartisan bills in front of us today.

I am looking forward to hearing from our witnesses about how these bills will improve communications for public safety and give first responders additional tools to do their jobs so they can best serve our communities.

This hearing will be the next step in advancing the important legislation before us. In September we held a hearing examining the broad state of public safety communications. Now, we’re looking at legislative improvements to that space.

Important things like upgrading our 911 call centers, improvements to our wireless emergency alerting, and improvements to our outage

reporting are crucial improvements that we now can look at through a legislative lens.

Alongside my friend Representative Carter from Louisiana, I recently introduced the Next Generation 911 Act. This legislation would establish a grant program at the National Telecommunications and Information Administration, or NTIA, for Next Generation 911 technology. It would also establish a nationwide Next Generation 911 Cybersecurity Center and a Next Generation 911 Advisory Board.

Upgrading our nation's call centers to NG911 technology is crucial for public safety. This internet protocol-based system will open the door for advanced tools for both the public and our first responders to use.

Further, this legislation will enable deployment nationwide. A patchwork of call centers that still have aging, outdated legacy systems risks a communications landscape that is uneven and non-interoperable. I have been a long-time supporter of NG911 deployment nationwide and I am proud to lead this legislation to do so.

We have a few bills before us that look to improve our wireless emergency alerts, or WEAs. Wireless alerts to mobile phones can be

powerful tools to quickly and directly disseminate warnings of dangerous weather, threats to public safety, national emergencies, and even missing children. However, these alerts can only be received if a phone is in range of traditional cell service. As we see mobile carriers moving toward innovative technologies like satellite direct-to-device connections, it is worth exploring how this technology can be used as another tool for public safety communications like WEAs when outside of a terrestrial cell service network.

Conclusion

Our public safety and law enforcement officers put their lives on the line every day to help us in our times of need, and we must make sure they have the best tools to do their jobs.

Today, we will hear from our witnesses about the legislative improvements to public safety communications before us and how these bills can make our country a safer place.

I look forward to hearing from the witnesses today about these issues and how Congress can stand ready as a partner.

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I now yield five minutes to my colleague, Ranking Member Matsui, for her opening statement.

Mr. HUDSON. I now recognize the ranking member, the gentlelady from California, for her opening statement.

OPENING STATEMENT OF HON. DORIS O. MATSUI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. MATSUI. Thank you very much, Mr. Chairman. I am really glad that we are having this hearing today to consider bipartisan solutions to strengthen our public safety communications.

Emergencies can happen anywhere, at any time. And in their moments, every second counts. When a parent is trying to get help for their child, when an older adult has fallen, or when a wildfire is moving fast, Americans should never have to wonder whether 9-1-1 will connect. In the tragic Camp Fire in northern California near my district in 2018, the deadliest wildfire in the State's history, our emergency communication systems faced significant challenges. More than half of initial calls to 9-1-1 never got through, and emergency alert system warnings weren't consistently sent out.

Since the Camp Fire, communities in my district like Elk Grove have made real progress modernizing emergency communications, moving to cloud-based systems that connect 9-1-1 dispatch with real-time information. Elk Grove is leading the Nation by integrating drone first response operations into its real-time information center to strengthen situational awareness, community trust, and offers for safety.

But local leadership can only go so far without strong Federal follow-through, and it is frustrating that earlier this year House Republicans walked away from a bipartisan bill to fund next generation 9-1-1 through spectrum auction proceeds instead of steering those dollars to corporate tax breaks and leaving first responders in limbo. Our communities shouldn't have to face that uncertainty in a crisis, and our first responders shouldn't be left without the information they need to fight the fire and save lives.

We know that we still have work to do to improve our emergency communications system. That is why I am proud to work with my colleague, Congressman Bilirakis, on two bipartisan bills to improve the accessibility and reliability of these networks: the Emergency Reporting Act and Kari's Law Reporting Act. These bills make straightforward improvements to our existing emergency systems, ensuring the protections we already have in place are actually working.

The Emergency Reporting Act is about learning from failures quickly, transparently, and with accountability so the next disaster doesn't become a repeat of the last. If people can't reach 9-1-1 during a major event, we should know why and we should have a clear way to fix it before the next crisis exists.

The Kari's Reporting Act makes sure that basic protections Congress already enacted are working in the real world by checking whether companies are actually complying with the original law. Kari's Law was born out of a heartbreaking tragedy, when a child tried again and again to call 9-1-1 and couldn't because the system required dialing 9 before any call. That should never happen in

America. Our job is to make sure “Call 9–1–1” means exactly that—no extra steps, no confusion, no barriers.

Today I am looking forward to hearing from our witnesses about what is working, where the gaps remain, and what Congress should do next to strengthen resiliency, improve coordination, and make sure 9–1–1 is easily reachable when it matters the most.

[The prepared statement of Ms. Matsui follows:]

Committee on Energy and Commerce

**Opening Statement as Prepared for Delivery
of**

Subcommittee on Communications and Technology Ranking Member Doris Matsui

Hearing on “Legislative Solutions to Public Safety Communications in the United States”

December 16, 2025

Thank you, Chairman Hudson.

I’m glad we’re having this hearing today, to consider bipartisan solutions to strengthen our public safety communications. Emergencies can happen anywhere, at any time...and in those moments, every second counts. When a parent is trying to get help for their child, when an older adult has fallen, or when a wildfire is moving fast, Americans should never have to wonder whether 9-1-1 will connect.

In the tragic Camp Fire in Northern California near my district in 2018 — the deadliest wildfire in our state’s history — our emergency communications systems faced significant challenges. More than half of initial calls to 9-1-1 never got through, and emergency alert system warnings weren’t consistently sent out.

Since the Camp Fire, communities in my district like Elk Grove have made real progress modernizing emergency communications, moving to cloud-based systems that connect 9-1-1 dispatch with real-time information. Elk Grove is leading the nation by integrating drone-first-response operations into its real-time information center to strengthen situational awareness, community trust, and officer safety.

But local leadership can only go so far without strong federal follow-through—and it’s frustrating that earlier this year House Republicans walked away from bipartisan bills to fund Next Generation 9-1-1 through spectrum auction proceeds, instead steering those dollars to corporate tax breaks and leaving first responders in limbo.

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The Emergency Reporting Act is about learning from failures quickly, transparently, and with accountability, so the next disaster doesn’t become a repeat of the last. If people can’t reach

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Today, I'm looking forward to hearing from our witnesses about what's working, where the gaps remain, and what Congress should do next to strengthen resiliency, improve coordination, and make sure 9-1-1 is easily reachable when it matters most.

With that, I yield back the balance of my time.

Ms. MATSUI. With that I yield back the balance of my time.

Mr. HUDSON. Thank you.

I now recognize the chairman of the full committee, the gentleman from Kentucky, for 5 minutes for his opening statement.

OPENING STATEMENT OF HON. BRETT GUTHRIE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. GUTHRIE. Thank you, Chairman Hudson. Thank you for bringing us together for this important hearing. And thank you to our witnesses for being with us today. We thank you for participating.

And today we are considering several critical pieces of legislation to improve public safety communications in the United States. I look forward to hearing from our witnesses about how these bills will improve public safety and help our Nation's first responders better serve those in crisis.

In September this committee held a hearing to examine the broad state of public safety communications in the United States. We heard directly from first responders, emergency management officials, and public safety industry leaders about the technologies they utilize, their effectiveness, and where improvements are needed. The message was clear: Reliability is nonnegotiable. Regardless of the technology or service provider, first responders need certainty that their equipment will perform in the heat of a crisis.

As I have mentioned before, my home State of Kentucky has faced significant flooding and tornadoes this year. Similarly to my—what my district experienced just a few years ago, I have seen firsthand how reliable access to communications infrastructure is critical for our first responders and communities during emergencies.

Before we—before us we have several bipartisan legislative solutions to strengthen our public policy—public safety and ensure our first responders have the tools they need to do their jobs. These bills will make important improvements to next gen 9–1–1 technology deployment, wireless emergency alerting, outage reporting, and more.

Thank you again to our witnesses for your participation. I look forward to hearing from you today.

[The prepared statement of Mr. Guthrie follows:]

Opening Statement of Chairman Brett Guthrie
Subcommittee on Communications and Technology
“Legislative Improvements to Public Safety Communications in the United States”
Tuesday, September 16, 2025, at 10:15 AM

Thank you, Chairman Hudson, for bringing us together for this important hearing and thank you to the witnesses for your participation. Today, we are considering several critical pieces of legislation to improve public safety communications in the United States. I look forward to hearing from our witnesses about how these bills will improve public safety and help our nation’s first responders better serve those in crisis.

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Before us we have several bipartisan legislative solutions to strengthen our public safety and ensure our first responders have the tools they need to do their jobs. These bills will make important improvements to Next Generation 911 technology deployment, wireless, emergency alerting, outage reporting, and more.

Thank you again to the witnesses for your participation and I look forward to hearing from you.

Mr. Chairman, I yield back.

Mr. GUTHRIE. And Mr. Chairman, I yield back.

Mr. HUDSON. Thank you.

I now recognize the gentleman from New Jersey, the ranking member, for 5 minutes for his opening statement.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Mr. Chairman. I am pleased the subcommittee is holding this hearing today to discuss legislation to make emergency communications more accessible and reliable for all Americans.

For years I have consistently advocated for passing and fully funding the Next Generation 9-1-1 Act. There are thousands of emergency communications centers across the Nation, and too many of them still rely on legacy communications infrastructure that was first installed about 60 years ago.

While I am glad to see this subcommittee consider the bill here today, I must reiterate my disappointment with Republicans' decision to use spectrum auction proceeds to pay for tax breaks for billionaires in their Big, Ugly Bill, instead of investing in modern public safety communications infrastructure. These funds are hard to come by, and the task of funding this effort is now that much more difficult as a result.

Every one of our Nation's 9-1-1 centers should have the best technology we have at our disposal. By equipping them with modern infrastructure and state-of-the-art equipment, we can help 9-1-1 telecommunications assess the nature and location of an emergency more quickly with better information. This information, in turn, helps police, fire, and emergency medical services respond to a situation more safely and effectively.

And equally as important, the benefits of next generation 9-1-1 to first responders is the increased access it grants to the public to reach emergency assistance. These upgrades allow Americans to communicate with 9-1-1 the same way we communicate regularly with our friends and family beyond traditional phone calls. Now the public is able to send pictures and video to 9-1-1 and, with some applications, create a live video feed from their location which dispatchers can use to inform their work and first responders can use to scout the scene before they arrive.

While I am glad that some jurisdictions have begun to prioritize these investments already, I look forward to continuing our work to fully fund the nationwide deployment of next generation 9-1-1 so that all communities have modern equipment in place to better protect the people they serve.

And as we look at modernizing this equipment, we have to also make our communication networks more resilient so that our constituents always have access to emergency information and services when it matters most. When Superstorm Sandy hit my district in 2012, my constituents were left without communications capabilities in some places for weeks. A lot has changed for the better since Sandy, but there is more work to do to ensure our communications networks are constructed with resiliency and redundancy in mind so that no one is left in the dark during a major disaster.

So finally, we have work to do in this committee to address the impending sunset of the First Responder Network Authority, or FirstNet, which is set to expire a little over a year from now. It is important that we reauthorize FirstNet, and I look forward to working together in a bipartisan manner to ensure first responders do not lose access to this important service, as well.

[The prepared statement of Mr. Pallone follows:]

Committee on Energy and Commerce
Opening Statement as Prepared for Delivery
of
Full Committee Ranking Member Frank Pallone, Jr.

Hearing on “Legislative Solutions to Public Safety Communications in the United States”

December 16, 2025

I am pleased the Subcommittee is holding this hearing today to discuss legislation to make emergency communications more accessible and reliable for all Americans.

For years, I have consistently advocated for passing and fully funding the Next Generation 9-1-1 Act. There are thousands of emergency communications centers across the nation and too many of them still rely on legacy communications infrastructure that was first installed about 60 years ago. While I am glad to see the Subcommittee consider the bill here today, I must reiterate my disappointment with Republicans’ decision to use spectrum auction proceeds to pay for tax breaks for billionaires in their Big Ugly Bill instead of investing in modern public safety communications infrastructure. These funds are hard to come by and the task of funding this effort is now that much more difficult as a result.

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Finally, we have work to do in this Committee to address the impending sunset of the First Responder Network Authority, or FirstNet, which is set to expire a little over a year from now. It is important that we reauthorize FirstNet and I look forward to working together in a bipartisan manner to ensure first responders do not lose access to this important service.

With that, I yield the remainder of my time to Representative Carter of Louisiana.

Mr. PALLONE. So with that I would like to yield the remainder of my time to the gentleman from Louisiana, Mr. Carter.

Mr. CARTER OF LOUISIANA. Thank you, Ranking Member Pallone, and thank you to all the witnesses for being here. I am very honored to advance this bill, along with Chairman Hudson, to make sure that state-of-the-art resources are, in fact, available.

As a Member representative of Louisiana, I want to extend a special welcome to Captain Jack Varnado, someone that is no stranger to me. We worked well together when—during my days as a State senator in Louisiana.

Jack serves as president of the Association of Public Safety Communications Officers, APCO, International, and as the 9–1–1 director of Livingston Parish Sheriff's Office in my home State of Louisiana.

Captain Varnado, I want to thank you. Thank you for sharing your expertise as we discuss the importance of public safety communications and the legislation needed to make necessary improvements to this critical infrastructure. In Louisiana we know all too well how devastating natural disasters like hurricanes and flooding can be to our communities. That is why having reliable public safety communications and resilient infrastructure is essential to protecting lives and ensuring effective emergency responses.

Our communities must be prepared and well equipped to respond when disasters or emergencies strike. That is why I am proud to introduce the Next Generation 9–1–1 Act with Chairman Hudson, which will modernize our 9–1–1 system infrastructure, save lives by reducing response time, and equip first responders with the best digital tools available. I look forward to working with my colleagues to advance this Next Generation 9–1–1 Act and discussing the importance of modernizing our outdated emergency systems during this hearing, and to continue to demonstrate to the rest of the world, to America, to Louisiana, to Washington, DC. that we can work together.

This is a bipartisan effort demonstrating that when Members come together and put aside our differences, we can advance causes that save lives. This is a perfect example of that.

[The prepared statement of Mr. Carter of Louisiana follows:]

Committee on Energy and Commerce

**Opening Statement as Prepared for Delivery
of**

Subcommittee on Communications and Technology Member Troy Carter

Hearing on “Legislative Solutions to Public Safety Communications in the United States”

December 16, 2025

Thank you, Ranking Member Pallone, and thank you to our witnesses for being here today.

As a Member representing Louisiana, I want to extend a special welcome to Captain Jack Varnado, who serves as President of the Association of Public-Safety Communications Officials (APCO) International and as the 9-1-1 Director of the Livingston Parish Sheriff's Office in Louisiana. Thank you, Captain Varnado, for sharing your expertise as we discuss the importance of public safety communications and the legislation needed to make the necessary improvements to this critical infrastructure.

In Louisiana, we know all too well how devastating natural disasters like hurricanes and flooding can be to our communities. That is why having reliable public safety communications and resilient infrastructure is essential to protecting lives and ensuring effective emergency responses. Our communities must be prepared and well-equipped to respond when disasters or emergencies strike. That is why I was proud to introduce the Next Generation 9-1-1 Act with Chairman Hudson, which will modernize our 9-1-1 system infrastructure, save lives by reducing response times, and equip first responders with the best digital tools available.

I look forward to working with my colleagues to advance the Next Generation 9-1-1 Act and discussing the importance of modernizing our outdated emergency systems during today's hearing.

I yield back.

Mr. CARTER OF LOUISIANA. Mr. Chairman, I yield.

Mr. HUDSON. I thank the gentleman. His time has expired.

We have now concluded with Member opening statements. The Chair reminds Members that, pursuant to the committee rules, all Members' opening statements will be made part of the record.

We would like to thank our witnesses for being here today to testify before the subcommittee. Our witnesses will have 5 minutes to provide opening statements, which will be followed by a round of questions from members.

The witnesses here before us today are Captain Jack Varnado, the president of APCO International and 9-1-1 director of Livingston Parish Sheriff's Office; Ms. Jennifer Manner, senior vice president of regulatory affairs and international strategy at AST SpaceMobile; Mr. Matthew Gerst, partner at Wilkinson Barker Knauer; and Dr. Jeannette Sutton, associate professor of the College of Emergency Preparedness and Homeland Security and Cybersecurity at the University of Albany.

Thank you all for being here.

Captain Varnado, you are recognized for 5 minutes for your opening statement.

STATEMENT OF JACK VARNADO, CAPTAIN, PRESIDENT OF APCO INTERNATIONAL AND 9-1-1 DIRECTOR OF LIVINGSTON PARISH SHERIFF'S OFFICE; JENNIFER A. MANNER, SENIOR VICE PRESIDENT OF REGULATORY AFFAIRS AND INTERNATIONAL STRATEGY, AST SPACEMOBILE; MATTHEW GERST, PARTNER, WILKINSON BARKER KNAUER, LLP; AND JEANNETTE SUTTON, Ph.D., ASSOCIATE PROFESSOR OF THE COLLEGE OF EMERGENCY PREPAREDNESS, HOMELAND SECURITY AND CYBERSECURITY, UNIVERSITY AT ALBANY

STATEMENT OF JACK VARNADO

Mr. VARNADO. Good morning, Chairman Hudson, Ranking Member Matsui, and distinguished members of the subcommittee. My name is Captain Jack Varnado, and I have worked in emergency communications for over 30 years. I am the president of APCO International. I am also the 9-1-1 director, as you have heard, of the Livingston Parish Sheriff's Office in Louisiana, where I am the—I am leading the transition to next generation 9-1-1. I am honored to represent Livingston Parish Sheriff's Office and APCO international.

APCO is the world's oldest and largest organization of public safety communications professionals, with over 45,000 members. Our members are on the front lines of every type of emergency and handle the full spectrum of public safety telecommunications. I welcome the opportunity to share with you their expertise.

To start I want to talk about 9-1-1, because 9-1-1 is the most critical of our Nation's critical infrastructure. This is largely due to our public safety telecommunicators. On any given day these telecommunications professionals might guide callers through CPR or childbirth, or coach callers on how to stay safe during an active shooter event while ensuring help is on the way. Their work is indispensable to every emergency response, and that is why we are committed to their reclassification as a protective service occupa-

tion in OMB standard occupational classification. We deeply appreciate efforts to address this issue, including the 9-1-1 Saves Act.

Our public safety telecommunicators deserve the best resources. But the reality is that, for many, today's 9-1-1 calls are answered using yesterday's 9-1-1 technology. Modern cell phones can pinpoint locations and instantly transmit videos to friends and family, and yet they can't share this information with many 9-1-1 centers. With your support we can bring 9-1-1 into the 21st century.

NG 9-1-1 isn't just an upgrade, it is a reimagining of how emergency services operate. NG 9-1-1 envisions a fully integrated ecosystem. 9-1-1 professionals, law enforcement, fire services, and emergency medical services can access and share critical data in realtime, enhancing coordination, reducing response times, and improving public safety outcomes.

Federal legislation is essential to establishing NG 9-1-1 nationwide. This includes establishing a baseline definition of what NG 9-1-1 means. It is a comprehensive, end-to-end transformation of emergency communications.

Interoperability is a core component of NG 9-1-1. Interoperability is straightforward: the ability to exchange all forms of 9-1-1 traffic, regardless of jurisdiction, vendors, and equipment used. With NG 9-1-1, agencies can support one another during periods of high call volume, natural disasters, or system outages.

NG 9-1-1 also requires robust cybersecurity standards, which are essential for protecting both 9-1-1 infrastructure and the sensitive data that it handles.

NG 9-1-1 also requires funding. A Federal grant program will help all emergency communication centers, regardless of their size or location.

We are grateful to Representatives Hudson and Carter for introducing the Next Generation 9-1-1 Act, which will make a real difference in saving lives.

In all cases we must be able to count on public safety communications to work. I am from Louisiana, as Representative Carter said, and we have endured some of our Nation's most devastating natural disasters, including hurricanes. Unfortunately, I know from experience that the same emergencies that result in widespread calls to 9-1-1 are the same emergencies that knock out communications.

We must consider alternatives to ensure public safety communications are resilient, leveraging new technologies and services like satellite connectivity. They can help. Satellite service often remains operational during disasters or immediately following, and providing a layer of resiliency for 9-1-1 satellite service can also support wireless emergency alerts. And we can't forget our analog technologies too. Our amateur radio broadcasters have been longstanding public safety partners.

We recognize that, despite best efforts and intentions, there will be network outages. And when they occur, we need actionable information about their nature, scope, and duration to mitigate the impact. Clear visual representations of the outage would be a significant improvement over the text-based notifications that we receive today.

We thank Congresswoman Matsui and Congressman Bilirakis for introducing legislation on these matters. We appreciate their leadership in introducing legislation to ensure that the critical protections Congress enacted under Kari's Law are fully implemented. When people call for help from buildings or organizations, like during an emergency on a college campus, they should be able to reach 9-1-1 directly without needing to dial a prefix.

In closing, APCO remains committed to working together with each of you to advance public safety communications. I appreciate the opportunity to testify today, and I welcome your questions.

[The prepared statement of Mr. Varnado follows:]

Testimony of Capt. Jack Varnado
President, APCO International
9-1-1 Director, Livingston Parish Sheriff's Office, Louisiana
Before the House Committee on Energy and Commerce
Subcommittee on Communications and Technology
December 16, 2025

Good morning, Chairman Hudson, Ranking Member Matsui, and distinguished members of the subcommittee.

My name is Captain Jack Varnado, and I am the President of the Association of Public-Safety Communications Officials International, or APCO International. I am also the 9-1-1 Director for the Livingston Parish Sheriff's Office in Louisiana. Thank you for inviting me to testify before you today.

I have devoted my career of over 35 years to public safety. I began my career as a volunteer firefighter and EMT, later serving in leadership roles in emergency communications and homeland security across multiple Louisiana parishes. In May 2013, I assumed the position of Captain with the Livingston Parish Sheriff's Office, in which I oversaw all emergency communications and 9-1-1 operations for seven law enforcement agencies and 11 fire departments. I am currently the 9-1-1 director for the Livingston Parish Sheriff's Office, and I am responsible for leading major advancements in our 9-1-1 systems, including overseeing the Parish's current transition to Next Generation 9-1-1.

I have been an APCO member for over 30 years, and this past July, I was honored to be sworn in as APCO's president. APCO is the world's oldest and largest organization of public safety communications professionals. Founded in 1935, 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. APCO's mission is to advance public safety through advocacy, education, and the development of technical standards and best practices for 9-1-1 and emergency communications.

Our members are on the frontlines of every type of emergency request, from police, fire, and EMS calls to natural disasters and public health incidents. They handle the full spectrum of public safety communications, ensuring the right resources are available quickly and efficiently. I appreciate this subcommittee's focus on public safety communications issues, and I welcome the opportunity to share our members' expertise with you on a broad range of these issues. We are honored to be asked to testify today and are grateful to each of you for all that you do to support public safety. We are deeply appreciative to the subcommittee for taking up these important issues.

Modernizing 9-1-1 Infrastructure to Next Generation 9-1-1

To start, I want to talk about 9-1-1, because 9-1-1 is the most critical of our nation's critical infrastructure. This is largely due to the lifesaving work of our public safety telecommunicators. These professionals lay it all on the line, every day, for the good of our communities. On any given day, public safety telecommunicators may need to direct callers through CPR, childbirth, or controlling blood loss before help arrives. They may counsel callers to prevent them from harming themselves or others. They may assist during an active shooting or a natural disaster. They may gather, analyze, and report information about crimes in progress, fire and rescue incidents, or missing children. Public safety telecommunicators provide lifesaving instructions, gathering critical information, and supporting police, fire, and EMS personnel in their response efforts. Their work is lifesaving, emotionally demanding, and indispensable to every emergency response. Public safety telecommunicators perform protective work every day, and that is why we are working so hard with our congressional representatives to have them classified as a protective service occupation in the Office of Management and Budget's Standard Occupational Classification. Efforts to address this issue, including legislative proposals under

consideration, are an important step toward ensuring that 9-1-1 professionals receive the respect, acknowledgment, and resources necessary to sustain a strong and resilient emergency response system.

Our public safety telecommunicators deserve the best resources – not the outdated 9-1-1 systems currently in place. The reality is that today’s 9-1-1 calls are answered using yesterday’s 9-1-1 networks, built on technology that largely dates back to the 1960s and 70s. Modern cell phones can pinpoint locations, record critical details, and instantly transmit information to friends and family. Yet when a call is placed to 9-1-1, much of this valuable data is unable to be transmitted to the ECC, leaving first responders with only a voice connection. We can do better. With congressional support, we can bring our 9-1-1 centers into the 21st century and build a new “network of networks” based on modern technology. A member of the public could transmit videos, photos, and enhanced geolocation information directly to ECCs, providing public safety telecommunicators with a better understanding of incidents as they unfold. First responders could receive real-time updates, ensuring coordinated, efficient, and effective responses across jurisdictions. NG9-1-1 and broadband-enabled ECCs represent a fundamental shift from legacy analog to a digital, IP-based infrastructure. This isn’t just an upgrade – it’s a reimagining of how emergency services operate. This level of change is inherently transformative and will save lives.

As we transition to NG9-1-1, we need certain elements to be uniform nationwide. Federal legislation is essential to establishing and ensuring nationwide consistency. This includes establishing a baseline definition of what next generation 9-1-1 means. The term “NG9-1-1” has been in circulation for years, yet its meaning has often been misunderstood or oversimplified. Some equate it only with infrastructure upgrades or the deployment of IP-based networks, while others use it as a general catch-all for modernization efforts. In reality, NG9-1-1 represents a comprehensive, end-to-end transformation of emergency communications. Without clarity and a shared understanding of what NG9-1-1 means, efforts to improve 9-1-1 risk being fragmented, underinclusive, or focused on technology upgrades that fall short of what public safety truly needs. The objective is not merely to upgrade networks, but to ensure that all information flowing into and out of ECCs can be effectively utilized to inform decision-making and

support first responders. A common definition ensures the entire NG9-1-1 ecosystem, from vendors to ECCs to policymakers, is aligned around the same goals and outcomes.

We also need seamless interoperability. In this next generation world, public safety telecommunicators across jurisdictions – whether those might be county or even state jurisdictional lines – could support one another during periods of high call volume, natural disasters, or system outages. Emergency response is inherently collaborative, often requiring multiple agencies and jurisdictions to work together seamlessly. Today, many ECCs operate in isolation. Equipment, software, and networks often differ from one agency to the next, creating barriers that can delay information sharing or require costly after-the-fact solutions to facilitate communication. NG9-1-1 seeks to eliminate these barriers by establishing systems that can communicate across jurisdictions, devices, and service providers without proprietary interfaces and constraints. This lack of interoperability also prevents ECCs from helping take over communications from their neighboring jurisdictions if one ECC experiences a power or network outage.

We also need strong cybersecurity. As the central point of emergency response, 9-1-1 is a prime target for cyberattacks from domestic and foreign bad actors. Cybersecurity is one of the most critical policy challenges in the evolution of 9-1-1 systems to IP-based networks. Unlike legacy systems, which were relatively insulated because they relied on closed networks, NG9-1-1 depends on interconnected, data-rich, and often cloud-enabled systems that must be protected against cyberattacks ranging from denial-of-service attempts to ransomware. Robust cybersecurity standards, continuous monitoring, and dedicated security resources are essential for protecting both 9-1-1 infrastructure and the sensitive data it handles. NG9-1-1 can also enable the integration of advanced capabilities such as artificial intelligence (AI) to enhance public safety outcomes and strengthen system resilience. AI-enabled security tools can support continuous network monitoring, detect anomalous activity, and assist in identifying and responding to cyber threats.

And, of course, we need NG9-1-1 funding. Sustainable funding remains one of the largest barriers to nationwide NG9-1-1 implementation. Many states rely on inconsistent fee structures or annual appropriations that cannot support large-scale, multi-year technology deployments. ECCs, most of which are already operating under tight budgets, struggle to upgrade aging equipment, maintain cybersecurity protections, or adopt emerging technologies without federal support. A nationwide federal grant program would help ensure that all ECCs, regardless of size or location, have the resources needed to implement end-to-end NG9-1-1 capabilities.

We are grateful to Representatives Hudson and Carter for introducing the Next Generation 9-1-1 Act (H.R. 6505), which would modernize the nation's emergency communications infrastructure and strengthen the ability of public safety communications agencies to respond effectively in times of crisis. This bill would establish a framework for implementing uniform, nationwide, interoperable and secure NG9-1-1 – so these systems can fully realize their tremendous potential to enhance public safety and make a real difference in saving lives across America.

Ensuring Continuity of Communications During Emergencies

Public safety telecommunicators are our nation's *first* first responders. To do their jobs, they must be able to communicate – with each other, with the people in their communities who need help, and with EMTs and other public safety personnel. The public expects to be able to reach 9-1-1 in an emergency, and we want to be there for them in their time of need. As you know, this need is even greater during large-scale incidents such as hurricanes, floods, and other disasters. Our public safety communications systems must be resilient enough to withstand these challenges. I'm from Louisiana, and we have endured some of our nation's most devastating natural disasters, including Hurricane Katrina. Unfortunately, I know from experience that the same emergencies that result in widespread calls to 9-1-1 or that warrant the use of emergency alerts to warn the public of imminent threats are the same emergencies that damage cell towers and knock out traditional cellular service.

We must consider alternatives to ensure continuity of communications when terrestrial networks are down. Leveraging new technologies and services like supplemental satellite coverage from space can help fill coverage gaps during these times of need. Satellite service can provide an added layer of resiliency for 9-1-1, often remaining operational during natural disasters or other events that disrupt land-based networks. By enabling more reliable communications across a wider geographic area, satellite connectivity can help both the public and first responders maintain access to emergency services when it matters most, ultimately saving lives. Indeed, in many parts of the country, access to 9-1-1 remains limited not because of outages but simply because traditional wireless service does not reach those areas. Satellite networks offer a critical opportunity to expand coverage where terrestrial infrastructure is sparse or nonexistent. Supplementary satellite coverage can also help support our nation's emergency alerts. Wireless Emergency Alerts can deliver potentially lifesaving information even when cell sites are down. And we can't forget our analog technologies too – like amateur radio broadcasters or “hams” – who have been longstanding and critical public safety partners in times of need.

Improving Situational Awareness for Public Safety When Networks Are Down

We recognize that despite all of our best efforts and intentions, there will be network outages. When outages do occur, 9-1-1 professionals need actionable information from communications service providers to mitigate the impact on the public. Clear, visual representations of the scope and location of an outage can be significantly easier for public safety telecommunicators to utilize and act upon to mitigate the impacts of an outage than the text-based notifications they receive today. Actionable information about the nature, scope, and duration of outages affecting 9-1-1 service is essential for the local, state, and federal entities responsible for addressing these disruptions. In this regard, we appreciate the leadership of Congresswoman Matsui and Congressman Bilirakis in introducing legislation to improve situational awareness regarding network outages.

Field hearings to examine major service disruptions can yield invaluable insights into root causes of outages and the measures needed to prevent them. It is especially critical that public safety

stakeholders, including 9-1-1 professionals, are part of these discussions so that the real-world impacts on emergency response are fully understood and reflected in the solutions.

We are similarly supportive of Congresswoman Matsui and Congressman Bilirakis' efforts to ensure that the critical protections Congress enacted in 2018 to improve access to 9-1-1 are fully implemented and functioning as intended. When individuals call for help from office buildings, hotels, college campuses, or other large and complex facilities – much like the one we are in today – they often rely on multiline telephone systems that manage both internal and external calls. These systems must be able to reach 9-1-1 directly, without having to dial a prefix to obtain an outside line. We teach our children to dial “9-1-1,” and that simple three-digit number should work reliably, regardless of the device or system they are dialing from. This was Congress' intent when enacting Kari's Law seven years ago, and the Kari's Law Reporting Act provisions play an important role in ensuring this capability is implemented in practice. In an emergency, seconds matter, and no one should lose precious time navigating an unnecessary additional step when trying to reach lifesaving assistance.

Conclusion

In closing, the issues discussed today are essential to strengthening public safety communications and meeting the needs of our communities. APCO remains committed to working with the subcommittee, Congress, and our partners across public safety and in the industry to advance these efforts and ensure public safety communications are reliable, up-to-date, and prepared for the needs of the future. I appreciate the opportunity to testify today, and I welcome your questions.

Mr. HUDSON. Thank you.

Ms. Manner, you are recognized for 5 minutes for an opening statement.

STATEMENT OF JENNIFER A. MANNER

Ms. MANNER. Chairman Hudson, Ranking Member Matsui, Chairman Guthrie, and Ranking Member Pallone, thank you for the opportunity to speak about improving public safety communications.

Such improvements, coupled with American——

Mr. HUDSON. I am sorry, you might need to pull the mic a little closer.

Ms. MANNER. Sorry. I am from New York, so I am quiet.

[Laughter.]

Ms. MANNER. Such improvements, coupled with American innovations such as the space-based mobile broadband connectivity my company is providing, will improve the daily lives of all Americans, including during emergencies.

My name is Jennifer Manner, and I am the senior vice president of regulatory affairs and international strategy at AST SpaceMobile, a Texas-based company. We are proud to be the first and only provider of space-based mobile broadband services directly to unmodified mobile user devices like our smartphones. Our system is the only purpose-built system for direct-to-device services to provide a superior mobile broadband experience: voice, video, streaming apps, even when the terrestrial network is not available. We plan to have 45 to 60 satellites in space by year end of 2026, which will enable continuous coverage of the United States.

Because of our space-based wide area coverage, our network will have a vast impact on Americans' day-to-day lives and in times of emergencies. Our mission is to eliminate connectivity dead zones in the United States and worldwide and expand broadband access globally to the billions of people that are currently left unconnected. The AST SpaceMobile network will not only provide service where the terrestrial network does not exist but also supplement the wireless networks of our U.S. partners AT&T, Verizon, and FirstNet, where coverage is inadequate to ensure an always best-connected experience.

In addition to advances in industry, thoughtful governmental policy is needed to ensure reliable emergency communications. AST SpaceMobile is pleased to be supportive of several pieces of legislation that are being considered today. We support the goals proposed by the Emergency Reporting Act. However, I am hopeful that as our services become available across the United States, network outages will become a thing of the past, as mobile phones automatically switch over to space-based mobile broadband connectivity when the terrestrial network is not available.

As a Texas-based company, we take need of the—need for improved emergency services very seriously. The recent flooding in Texas is a tragic reminder of how critical it is to have constant access to communications. Because of AST SpaceMobile's coverage and capabilities, we are well positioned to partner with first responders and governmental stakeholders to advance public safety for Americans across the country. Therefore, we fully support the

intent and purpose of the Mystic Alerting Act to provide consumers with information to ensure their satellite-based connectivity to their mobile device is always on. We never want to see a day again in Texas or anywhere in America like we did on July 4, 2025.

We are pleased to see Congress considering the Next Generation 9–1–1 Act to provide the public safety community with the resources it needs to make the NG 9–1–1 a reality. But we don't want action to end there. We are working with our partners, AT&T and Verizon, to ensure that they can meet their public safety requirements to subscribers of our space-based services. We are working together to integrate our technologies as our network is deployed to enable these critical emergency services. This will take time and funding, but we are committed.

Finally, I want to address the important role of our network for first responders, including FirstNet. I was deputy chief of the FCC's Public Safety and Homeland Security Bureau when FirstNet was created by Congress. During that time we knew access to mobile broadband satellite connectivity was necessary, but there wasn't a direct-to-device solution. Therefore, we planned for regional supplies of transportable satellite broadband equipment to be available—an important step, but it wasn't ideal as it required preplanning.

Now, because of U.S. innovation, AST SpaceMobile, working with FirstNet and the public safety community, will ensure every first responder has broadband capability in their mobile device. Therefore, we look forward to the passage of the Public Safety Communications Act and working closer in collaboration with NTIA and other U.S. Government agencies to ensure public safety has access to space-based mobile broadband connectivity.

It is my honor to be included in today's hearing and to collaborate on how we can work together to make a truly generational impact on public safety communications for all Americans. I look forward to answering any questions you may have.

Thank you.

[The prepared statement of Ms. Manner follows:]

Summary of Testimony of Jennifer A. Manner, Senior Vice President, Regulatory Affairs and International Strategy

December 16, 2025

- AST SpaceMobile, a Texas-based company, is manufacturing, deploying and operating the first and only space-based platform to deliver mobile broadband services directly to unmodified user devices – no special equipment-- no modifications. Through this network, mobile phone users across the United States and globally will very shortly have full broadband - voice video, streaming, apps and data on their mobile phones – even when the terrestrial network is not available.
- AST SpaceMobile supports the goals of the Emergency Reporting Act and is dedicated to ensuring that AST SpaceMobile’s technology will soon make network outages a thing of the past.
- AST SpaceMobile also supports the purpose and intent of the Mystic Alerting Act, which will provide consumers with information to ensure that their satellite-based connectivity to their mobile device is always on. We never want to see a day again in Texas or anywhere in America like we did on July 4, 2025.
- AST SpaceMobile is also pleased to see Congress considering the Next Generation 9-1-1 Act to provide the public safety community with the resources it needs to make Next Generation 9-1-1 a reality across the country.
- Finally, AST SpaceMobile looks forward to the passage of the Public Safety Communications Act and working in closer collaboration with the National Telecommunications and Information Administration and other U.S. government agencies to ensure public safety has access to space-based mobile broadband connectivity.

Testimony of Jennifer A. Manner, Senior Vice President, Regulatory Affairs and International Strategy

December 16, 2025

Introduction and Background

Chairman Hudson, Ranking Member Matsui, Chairman Guthrie, and Ranking Member Pallone, thank you for the opportunity to speak today about legislative improvements to public safety communications in the United States. Improving public safety communications through legislation, as well as through American innovation, such as the space-based mobile broadband connectivity my company is providing, will positively influence and improve the lives of all Americans in their everyday activities and during emergencies.

My name is Jennifer Manner and I am the Senior Vice President of Regulatory Affairs and International Strategy at AST SpaceMobile, a Midland, Texas-based company, with operating and manufacturing facilities in Maryland and Florida. We are proud to be the first and only provider of space-based mobile broadband services directly to unmodified user devices like the smart phones each of us have with us today – requiring no special equipment – no modifications. The AST SpaceMobile system is the only *purpose built* system for Direct-to-Device, with the largest antennae array ever placed in orbit, for the purpose of providing a superior Mobile Broadband experience. We have 6 satellites in orbit and are scheduled to launch 45 to 60 of our Blue Bird 2 satellites by year end 2026 which will enable continuous coverage of the United States. We have strategic partnerships with AT&T, Verizon, Vodafone, Google, Rakuten, American Tower, and Bell Canada; and 50+ partnerships with global mobile network operators (MNOs) to be able to provide a turnkey service to their combined 3 billion customers. Through our space-based network, mobile phone users across the United States and globally will very soon have full broadband capabilities – that means voice video, streaming, apps and data –

on their mobile phones – even when the terrestrial network is not available. AST SpaceMobile is proud to be a part of strengthening economic opportunity and national security while maintaining America's leadership in space technology.

Space-Based Broadband is a Critical Component of Addressing Connectivity Gaps Across the Country and Ensuring Reliable Access to Public Safety Communications

Despite Americans' widespread adoption and dependence on smartphones in their daily lives (there are approximately 386 million mobile subscribers in the United States, with 15% relying on smartphones as their primary means of accessing broadband services), approximately 7% of Americans remain unconnected to broadband services, primarily Americans residing in rural areas. This gap in connectivity poses a substantial challenge to public safety, especially in emergencies when timely access to information and resources can mean the difference between safety and harm. The AST SpaceMobile network can and will address this gap.

Because of our space-based wide area coverage, our network will have a vast impact on Americans day-to-day lives and, importantly, in times of emergencies. Our mission is to eliminate connectivity dead zones in the United States and worldwide and expand broadband access globally to the billions of people that are currently left unconnected – democratizing access to the digital economy and online services such as healthcare, banking, education, job opportunities and emergency response. The AST SpaceMobile network will not only provide service where the terrestrial network does not exist but also supplement the wireless networks of our U.S. partners, AT&T, Verizon and FirstNet's, where coverage is poor or inadequate to ensure an always best-connected experience. The AST SpaceMobile network is both a complementary “meshed” network to the terrestrial network, and a complete stand-alone *Secondary* network in times of emergency.

In addition to advances in industry, thoughtful governmental policy is needed to ensure reliable emergency communications and eliminating dead zones. AST SpaceMobile is pleased to be supportive of several pieces of legislation being considered today.

H.R. 5200, the Emergency Reporting Act

AST SpaceMobile supports the goals proposed by the Emergency Reporting Act. However, I am hopeful that as AST SpaceMobile's services become available across the United States, network outages will ultimately become a thing of the past as mobile phones will soon automatically switch over to space-based mobile broadband connectivity when the terrestrial network is not available.

H.R. _____, the Mystic Alert Act

As a Texas-based company, where a significant number of our employees live, we take the need for improved emergency services seriously. The recent flooding in Texas is yet another tragic reminder of how critical it is to always have constant access to communications. I am pleased that because of AST SpaceMobile's coverage and capabilities we are well-positioned to partner with first responders and governmental stakeholders to advance public safety for Americans across the country, including the public safety community. It is for this reason that we fully support the intent and purpose of the Mystic Alerting Act, which will provide consumers with information to ensure that their satellite-based connectivity to their mobile device is always on. We never want to see a day again in Texas or anywhere in America like we did on July 4, 2025.

H.R. 6505, the Next Generation 9-1-1 Act

We are also pleased to see Congress considering the Next Generation 9-1-1 Act to provide the public safety community with the resources it needs to make Next Generation 9-1-1 a reality across the country.

But we don't want the action to end here. We are working with our MNO partners, AT&T and Verizon, to ensure that they can meet their public safety requirements to subscribers of our space-based services. Because our capacity supports our partners networks, we are working together to integrate our technologies as our network is launched and deployed to enable these critical emergency services. This will of course take time and funding, but we are committed to this important initiative and look forward to continuing to work with Congress and the Administration to make this a reality.

H.R. 1519, the Public Safety Communications Act

Finally, I want to address the important role of our network for first responders across the country, including FirstNet. I am simply amazed at how far we have come. I was Deputy Chief of Public Safety and Homeland Security at the Federal Communications Commission when FirstNet was being created by Congress. During that time, we foresaw the need for broadband satellite connectivity, but space-based mobile broadband connectivity was not even being considered at that time. Therefore, the plan was to have regional supplies of transportable satellite broadband equipment available to FirstNet. While this was an important step, it was not ideal as it required pre-planning to use the equipment. Now, a little later, because of U.S. innovation, AST SpaceMobile working with FirstNet and the public safety community, will

ensure every first responder has broadband capability in their mobile device, enabling an always best-connected experience. To this end, we look forward to passage of the Public Safety Communications Act and working in closer collaboration with the National Telecommunications and Information Administration and other U.S. government agencies to ensure public safety has access to space-based mobile broadband connectivity.

Conclusion

It is my honor to be included in today's hearing and to collaborate on how we can work together to make a truly generational impact on public safety communications for all Americans using AST SpaceMobile's space-based mobile broadband network. Thank you for your attention and dedication to this critical issue. I look forward to answering any questions you may have today, and to continuing to support your efforts to improve public safety communications for all Americans.

Mr. HUDSON. Thank you.

Mr. Gerst, you are recognized for 5 minutes for your opening statement.

STATEMENT OF MATTHEW GERST

Mr. GERST. Chairman Hudson, Ranking Member Matsui, Chairman Guthrie, Ranking Member Pallone, and members of the subcommittee, on behalf of CTIA and the U.S. wireless industry, thank you for holding this important hearing. Your longstanding bipartisan leadership continues to strengthen our Nation's emergency communications, alerting, and resiliency capabilities.

As outside counsel on public safety matters to CTIA and a former vice president for the association, we know that Americans rely on wireless in the moments that matter most. When we are calling or texting 9-1-1 or 9-8-8 for help in a moment of crisis, or when our phones are buzzing with warnings to help save us from a disaster, wireless services and devices are the first and sometimes the only connection between Americans and the emergency response heroes that keep us safe every day.

The U.S. wireless industry is committed to building and delivering the most robust wireless networks in the world. Last year, wireless providers invested nearly \$30 billion to expand capacity and coverage, strengthen infrastructure, and deploy innovative technologies that can maintain wireless service under extraordinary and challenging conditions. For example, we have deployed nearly 450,000 cell sites that provide overlapping coverage to maintain connectivity even when some cell sites go out of service during a disaster.

Since I last appeared before this committee in 2020, we have also followed through on our commitment to build new relationships with electric power companies that enhance our ability to maintain wireless service and speed restoration efforts during disasters. These investments continue to deliver results. It is typical for the vast majority of cell sites to remain operational during a disaster. Of course, those efforts do not diminish the real challenges faced in the hardest-hit areas of a disaster, like those faced by those in the path of Hurricane Helene.

We agree with Ranking Member Matsui and Representative Bilirakis that tasking the FCC with developing a comprehensive view of disaster responses in the Emergency Reporting Act can help us better prepare and respond for the next event. Our investments in resiliency ensure that wireless is there for every American who needs to reach 9-1-1 or receive wireless emergency alerts. In fact, wireless is the primary on-ramp to 9-1-1 for U.S. consumers, with four out of every five 9-1-1 call originating on a wireless device.

Wireless providers have spent much of the last decade investing and deploying the most innovative solutions to ensure that emergency responders have actionable information that they need to help. Today, more than 80 percent of all wireless 9-1-1 calls to 9-1-1 can produce a location estimate that is within one city block and within a few floors in multistory buildings. This information improves response times and situational awareness for first responders.

The transition to a modern, interoperable, and resilient next generation 9-1-1 system, it is the next step. After more than a decade of planning, technology development, and testing, the transition to NG 9-1-1 is well underway. Under a new framework adopted by the FCC, wireless providers are actively partnering with 9-1-1 authorities to deliver wireless 9-1-1 traffic in the NG 9-1-1 formats that they request. Chairman Hudson and Representative Carter's Next Generation 9-1-1 Act, as well as Representative Cammack's Public Safety Communications Act, these bills demonstrate the leadership this committee can bring to ensure that the Federal Government can help to expedite the nationwide adoption of 9-1-1.

Wireless Emergency Alerts, or WEAs, are another public safety solution produced by this committee's leadership. These short emergency alerts, delivered in realtime to your wireless device, are now among the most powerful tools in our Nation's alert system. And since they launched in 2012, alert originators—that is the Federal, State, local government officials authorized by FEMA to send these messages—they have issued more than 96,000 wireless emergency alerts. Whether these alerts are telling us to take shelter from severe weather, evacuate from a fast-moving wildfire, or help to locate a missing child, wireless emergency alerts save lives.

Alert originators. They decide whether to send a WEA, where it goes, and what it says. For our part, the wireless industry delivers WEAs with geographic precision, and we enable flexibility for the alert originators to convey the relevant and timely information that meets the needs of their communities. Representative Pfluger and the Mystic Alert Act and Representative Palmer's Lulu's Law, these recognize the importance of alert originators effectively using WEAs to keep Americans safe from a wide array of emergency events, particularly in rural and remote areas.

In closing, wireless is central to our Nation's emergency communications ecosystem. The work that the U.S. wireless industry undertakes to invest in network resiliency, enhance the capabilities of 9-1-1, and support timely and effective use of WEA reflects our shared commitment with this committee and public safety officials across the U.S. to ensure that all Americans can access our Nation's emergency resources when help is most urgently needed.

Thank you again for the opportunity to appear today. I look forward to your questions.

[The prepared statement of Mr. Gerst follows:]

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Testimony of

Matthew Gerst

Partner, Wilkinson Barker Knauer, LLP

on Behalf of CTIA

on

Legislative Improvements to Public Safety Communications in the United States

Before the

House Energy and Commerce Committee

Subcommittee on Communications and Technology

December 16, 2025

Chairman Hudson, Ranking Member Matsui, Chairman Guthrie, Ranking Member Pallone, and Members of the Subcommittee, thank you for the opportunity to testify today on behalf of CTIA and the U.S. wireless communications industry. As a former Vice President of Regulatory Affairs at CTIA who presently serves as outside counsel to the association on public safety issues, I know how grateful the U.S. wireless industry is for your longstanding, bipartisan leadership to strengthen our nation's emergency communications, alerting, and resiliency capabilities.

Americans rely on wireless in the moments that matter most. Whether we need help responding to a life-threatening situation or we are reacting to a lifesaving alert during a fast-changing disaster event, wireless communications are often the first and sometimes the only connection between Americans and the emergency response heroes that keep us safe every day.

Wireless communications are at the center of our nation's public safety infrastructure and reinforce why resiliency, reliability, and continuous investment and innovation remain core priorities for the U.S. wireless industry. We are proud of our role in providing critical public safety communications across America and continue to invest in technology, tools, and solutions that will further enhance our nation's public safety services.

Today, we welcome the opportunity to highlight a few of the U.S. wireless industry's recent achievements in public safety, as well as our thoughts on how the bills you will consider during this hearing can enhance our efforts to continue delivering innovative and reliable emergency connections when Americans need it most.

* * *

The Wireless Industry Is Committed to Reliable and Resilient Communications

The U.S. wireless industry is committed to building and delivering the most robust wireless networks in the world. Last year alone, wireless providers invested nearly \$30 billion in their networks to expand capacity and coverage, strengthen infrastructure, deploy innovative technologies, and install more backup power to help maintain wireless service under extraordinary conditions.ⁱ

Wireless providers prepare extensively for the challenges of hurricane season, wildfires, and other major events. Before a disaster hits, wireless providers' preparedness and response teams fortify critical cell sites with backup power to maintain services and ensure portable cell sites and power generators are available to be deployed. To support communities recovering from a disaster, providers work side-by-side with local emergency officials and electric power companies to restore power and fiber backhaul services to cell sites, deploy innovative solutions, like "Flying COWs," to provide connectivity in hard-hit areas, and support communities with free-charging stations and other resources. These efforts are closely aligned with the Federal Communications Commission's ("FCC") Mandatory Disaster Response Initiative, which codified the 2016 Wireless Resiliency Cooperative Framework developed by CTIA and wireless providers to enhance wireless network resiliency through industry-led preparation and collaboration.

One of the most effective ways to maintain wireless services throughout a disaster is ensuring the availability of fiber backhaul connections and access to re-fuel portable generators at critical cell sites during extended power outages. Through direct engagement and collaboration with federal, state, and local officials, electric power companies and other communications providers, wireless providers are continuing to build relationships and develop

best practices that are enhancing our ability to maintain wireless services and speed restoration efforts during disaster events.

With more than 447,000 active cell sites across the U.S. providing overlapping coverage and diverse resiliency solutions, it is typical for the vast majority of cell sites to remain online throughout a disaster event.ⁱⁱ This resiliency and redundancy is the result of sustained planning, collaboration, and investments designed to ensure that wireless service is available when Americans need it most to connect with emergency responders.

Wireless Connects Americans to 911 and 988

Wireless is Americans' primary on-ramp to 911 emergency services nationwide. There are more than 240 million calls to 911 each year and four out of five of them originate from wireless devices—making wireless a central element of the nation's 911 ecosystem.ⁱⁱⁱ Wireless providers have spent much of the last decade investing and deploying the most innovative, commercially available solutions to ensure that emergency responders have the actionable information they need to help. Today, wireless providers deliver location information estimates to local emergency communications centers ("ECC") within one city block and within three floors of multi-story buildings for more than 80 percent of all wireless 911 calls, improving response times and situational awareness for first responders.

As Americans' use of wireless communications continues to evolve, wireless providers have delivered new solutions, like text-to-911, that expand the availability of 911 services—oftentimes when voice calls are not safe, accessible, or available. After more than a decade of planning, technology development, and testing, the transition to Next Generation 911 ("NG911") is also well underway. Under a uniform, nationwide deployment framework adopted by the FCC,

wireless providers are actively partnering with 911 Authorities and local ECCs to deliver wireless 911 traffic in formats that can enhance the reliability and interoperability of our nation's 911 system.

Wireless providers are also proud to support nationwide access to 988, the Suicide and Crisis Lifeline ("Lifeline"). This service is a profound example of Congressional leadership. The National Suicide Hotline Designation Act of 2020, championed by this Committee, created a simple, memorable number that connects people in crisis with trained counselors through voice or text. According to the Substance Abuse and Mental Health Services Administration, nearly 20 million contacts have been made to crisis centers since its launch in 2022. And in October 2025, approximately 550,000 contacts were made to 988 via calls and texts.^{iv}

Most recently, the wireless industry successfully developed a georouting framework in collaboration with the Lifeline Administrator that enables the Lifeline to more accurately route wireless 988 voice calls to appropriate local crisis centers. Nationwide wireless providers are now providing georouting information to the Lifeline with wireless 988 voice calls, and non-nationwide wireless providers will do so by December 14, 2026. CTIA appreciates the Committee's foresight in making 988 a reality and is committed to supporting its continued success for people in crisis.

Wireless Emergency Alerts Keep American Communities Safe

Wireless Emergency Alerts ("WEA") are among the most powerful alert and warning tools available to protect the public when emergencies unfold. Since their launch in 2012, alert originators—the federal, state, and local emergency officials authorized by the Federal Emergency Management Agency ("FEMA")—have issued more than 96,000 WEAs, each one

intended to give people the time and information they need to stay safe, whether that involves taking shelter from severe weather, evacuating from a fast-moving wildfire, or helping locate a missing child.^v WEAs have saved lives, and as wireless networks and alerting systems have continued to evolve, WEAs' reach and effectiveness have continued to grow, too.

WEA is a one-way cell broadcast system designed to maximize the likelihood that alerts are delivered to all capable devices in an area targeted by an alert originator. This simple but effective design enables alert originators to rapidly and reliably deliver emergency information that saves lives, even when demand on the network is at its highest. In fact, FCC test data demonstrates that WEA alert receipt rates exceed 90% and continue to increase year-over-year.^{vi}

With respect to whether to send WEAs, where to send WEAs, and what to say in WEA messages, those decisions are made by authorized federal, state, or local alert originators, and wireless companies provide the means for alert originators to distribute those messages. Recognizing the importance of WEA to our nation's emergency alert system, the wireless industry works closely with FEMA and the FCC to improve geographic precision of WEAs, enabling clearer and more detailed messages, and providing alert originators with the flexibility to convey relevant and timely information that is specific to the emergency.

We know how critical WEA messages can be, and the consequences can be devastating when WEA messages are delayed or not sent at all. To that end, CTIA strongly supports ongoing alert originator training, coordination, and best-practice development, as well as innovative solutions that alert originators can use to ensure that WEA continues to be a reliable, trusted, and life-saving tool for communities nationwide.

Legislation in Today's Hearing

The transition to a modern, interoperable, and resilient NG911 system is essential to maintaining and enhancing public safety, as Congress, federal and state agencies, local public safety officials, and the wireless industry have recognized for over a decade. The Next Gen 9-1-1 Act, sponsored by Chairman Hudson and Representative Carter, and the Public Safety Communications Act, sponsored by Representative Cammack, offer roadmaps to ensure the federal government has the expertise and resources necessary to help state and local public safety stakeholders expedite and complete the transition to NG911. CTIA supports the goals of these bills and welcomes Congressional leadership to establish a national, uniform framework for the NG911 transition.

LuLu's Law, sponsored by Representative Palmer, and the Mystic Alert Act, sponsored by Representative Pfluger, recognize the importance of alert originators using WEAs to keep us safe from a wide array of emergency events, including in rural and remote areas. The wireless industry stands ready to support the Committee's legislative efforts and further enable alert originators to address evolving threats by effectively using WEA.

Finally, the Emergency Reporting Act, sponsored by Ranking Member Matsui and Representative Billirakis, would require the FCC to produce an annual report that highlights the efforts and best practices of communications providers to respond to disaster events, as well as evaluate the feasibility of enhancing public safety agencies' situational awareness of reportable outages impacting communication services. As resiliency is a core priority of the wireless industry, CTIA and its member companies welcome the opportunity to engage in a collaborative

discussion with the Committee to ensure that the FCC's evaluations of these issues are reflective of the full scope and scale of the wireless industry's ability to respond to diverse disaster events.

* * *

Wireless is central to our nation's emergency communications ecosystem. The work that the U.S. wireless industry undertakes to invest in network resiliency, enhance the capabilities of 911 and 988, and support the timely and effective use of WEA reflects our shared commitment with the Committee and public safety officials across the U.S. to ensure that all Americans can access help and critical information when that help is most urgently needed. CTIA and its member companies are grateful for the Subcommittee's continued leadership on these issues and welcome the opportunity to work with Congress and our federal, state, and local partners in public safety to further strengthen and modernize the systems that protect American communities nationwide.

ⁱ *Summary of CTIA's Annual Wireless Industry Survey*, CTIA, at 1 (2025), <https://api.ctia.org/wp-content/uploads/2025/08/2025-CTIA-Survey-Summary-and-Background.pdf>.

ⁱⁱ *Id.*

ⁱⁱⁱ *The Wireless Industry: Industry Data*, CTIA, <https://www.ctia.org/the-wireless-industry/infographics-library> (last visited Dec. 13, 2025).

^{iv} *988 Lifeline Performance Metrics*, SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION, <https://www.samhsa.gov/mental-health/988/performance-metrics> (Nov. 14, 2025).

^v See *Wireless Emergency Alerts (WEA)*, FCC (Sept. 25, 2025), <https://www.fcc.gov/consumers/guides/wireless-emergency-alerts>.

^{vi} *Report: October 4, 2023 Nationwide Emergency Alert Test*, FCC, at 5 (June 27, 2024); *Wireless Emergency Alerts: September 2022 WEA Performance Exercise*, FCC, at 2 (Apr. 24, 2023); *Wireless Emergency Alerts: August 11, 2021 Nationwide WEA Test Report*, FCC, at 9 (Dec. 30, 2021).

Mr. HUDSON. Thank you.

Dr. Sutton, you are recognized for 5 minutes for an opening statement.

STATEMENT OF JEANNETTE SUTTON, Ph.D.

Dr. SUTTON. Good morning, and thank you, Chairman Hudson, Chairman Guthrie, Ranking Member Pallone, and Ranking Member Matsui, for having me here today.

My name is Jeannette Sutton. I have a Ph.D. in sociology, and I am an associate professor in the College of Emergency Preparedness, Homeland Security, and Cybersecurity at the University at Albany. I have spent my entire academic career focused on effective warning messages. I have been funded by the National Science Foundation, NOAA, USGS, and, most recently, FEMA's Integrated Public Alert and Warning System, IPAWS.

My comments today focus on three things: first, what makes an alert and warning message effective; second, why evidence-based practices are not followed; and third, the impacts of poor messaging.

I would like to begin by saying merely deploying a message does not guarantee that it will be effective. With more than 70 years of social and behavioral science research, we know how to motivate people in emergencies, and it centers on the message.

Every warning, regardless of hazard type, should include five primary elements: the source, who the message is from; the hazard and its impacts; the location affected by the threat; the time of the threat; and guidance and instructions on how to protect oneself. A review of the first decade of wireless emergency alerts from 2012 to 2022 found that only 8.5 percent of messages issued by local jurisdictions included all 5 of these elements.

Warnings should also use plain language descriptions of hazards and the actions people should take to protect themselves. One study on public understanding of the use of the technical language "evacuation warning" and "evacuation order" found that a significant portion of respondents were unable to determine the relevant associated actions: to prepare to evacuate, or to evacuate now.

There has also been a dramatic increase in the use of jargon for missing and endangered persons. Across the country, different State legislatures have created more than 40 additional types of named alerts. Examples of State-specific alerts include the Athena Alert, Levi's Call, and the Purple Alert. Our research has found that named alerts are unfamiliar and result in confusion. Furthermore, IPAWS does not restrict organizations from sending any type of message through the WEA system.

Why are evidence-based messages and practices not followed? I have suggested three reasons.

First, there are deficient requirements. The IPAWS program within FEMA is the only resource that provides the technological capability for jurisdictions to broadcast wireless emergency alerts. However, there are no requirements for an organization to have an internal policy or procedures on how to use the system to show a minimal capability of effective messages or to establish a training plan. Alert origination software companies do not provide prompts

for effective messaging as a routine service to their customers, nor has IPAWS made this a requirement.

Second, there is an absence of national standards. The Federal Communications Commission creates rules for broadcasters and cellular companies. It does not create rules that directly apply to the alerting authorities. Technological changes have been made to improve the messages delivered, but no requirements are directed to alerting authorities as they make use of new capabilities.

Third, there are insufficient training opportunities. There are general training opportunities for alerts and warnings provided by FEMA IPAWS, the National Disaster Emergency Management University, and Hawaii Center for Disaster Preparedness. However, none focus on effective message design. In 2022, with funding from FEMA IPAWS, my team at the University of Albany developed the Message Design Dashboard and trained more than 500 emergency managers across the U.S. We found this led to a significant improvement in their knowledge, skills, and abilities. That training concluded in May of 2025, and I continue to provide independent training and consultation through my small business called the Warn Room.

There are clear consequences of poor messaging. It results in concerns about over-alerting, warning fatigue, and its impacts on WEA use. One national study conducted in 2023 found that WEA opt-out rates are correlated with States that issue AMBER alerts and messages that are sent statewide. The State with the highest opt-out rates is Texas.

In conclusion, I have three recommendations. We need additional funding for research to support the design of effective warning systems, including messages. We need national standards for evidence-based messaging to be adopted and implemented into training programs. And we can require third-party emergency notifications to include message prompts within their software to ensure complete and actionable messages.

Thank you again for inviting me to speak, and I welcome your questions.

[The prepared statement of Dr. Sutton follows:]

Congress of the United States

House of Representatives

Committee on Energy and Commerce

Subcommittee on Communications Technology

“Legislative Improvements to Public Safety Communications in the United States”

December 16, 2025

10:15 am EST

Written Testimony

Effective Alerts and Warnings: Applying the Evidence to Improve Public Communications
in Emergencies and Disasters.

Prepared by Dr. Jeannette Sutton

Associate Professor

Department of Emergency Management and Homeland Security

College of Emergency Preparedness, Homeland Security, and Cybersecurity

University at Albany, State University of New York

Summary

Disaster scholars have conducted research on alerts and warnings for more than 70 years. Alert and warning message effectiveness is not solely a result of technology; the message must include five key contents necessary to motivate action (source, hazard, location, time, and guidance). Fewer than 8.5% of Wireless Emergency Alerts issued from 2012-2022 were complete messages that align with evidence-based practices. This is unacceptable for communicating directly with the public when lives are at risk.

Evidence-based practices are not followed because there are deficient requirements for the use of IPAWS, absence of national standards for alerting authorities, and insufficient training opportunities. Alerting authorities presently have no requirements or obligations to change their practices to align with those that have been demonstrated to motivate action among the public.

The consequences of poor messaging include public experiences of over-alerting and warning fatigue, which can lead to individuals opting out of alerts and warnings. The individual actions of each alerting authority are part of a broader communication ecosystem with public alerting impacts beyond their jurisdiction.

Recommendations for improvement include additional research funding; establishing national standards for evidence-based messaging and training; requiring third-party emergency notification system software to include user prompts that will ensure complete and actionable messages.

Introduction

Good morning and thank you, Chairman Guthrie and Ranking Member Pallone for having me here today. It is an honor to testify before the committee today. This is such an important issue; I am grateful for a hearing on this topic.

My name is Jeannette Sutton. I have a PhD in sociology and am an associate professor in the College of Emergency Preparedness, Homeland Security and Cybersecurity at the University of Albany. My research focus is on effective warning messages for hazards, and I have been funded by the National Science Foundation, National Oceanic and Atmospheric Administration, US Geological Survey, Department of Homeland Security Science and Technology Directorate, and most recently FEMA's Integrated Public Alert and Warning System (IPAWS). As the Principal Investigator for the FEMA-IPAWS project, I co-designed a software platform called the Message Design Dashboard, that provides the contents and a systematic workflow for any alerting authority to use to write a complete and actionable message.

My comments today focus on three things: 1) what makes an alert and warning message effective; 2) why evidence-based practices are not followed and 3) the impacts of poor messaging.

Alert and Warning Effectiveness

One of the most difficult tasks of an alert and warning provider is to convince people that they are at risk and they need to take action to protect themselves. Our biases and experiences tell us that we are generally safe. Alerting people to inform them when they are

not safe is one of the most important tasks of an emergency manager. And yet the focus has primarily been on technology and technological systems. **Merely deploying a message does not guarantee that it will be effective.**

With more than 70 years of social and behavioral science research we know how to motivate people to take action without delay. It centers on the message and its contents.

Every warning, regardless of hazard type, should include **five primary elements**: the source – who the message is from; the hazard and its impacts; the location affected by the threat; the time of the threat; and guidance and instruction on how to protect oneself.¹ A review of the first decade of Wireless Emergency Alerts from 2012-2022 found that only 8.5% of messages issued included all five of these elements.²

Within the first decade of WEA messages, we also found a **significant use of technical language**, or jargon, that stands in for plain language descriptions of hazards and the actions people should take to protect themselves.³ For instance, threat levels – level 1, level 2, and level 3 – are used to convey the severity of wildfire and flood, while also indicating actions such as be aware, prepare to evacuate, and evacuate. However, we also find neighboring jurisdictions using their own operational language to mean similar things such as Ready Status, Set Status, and Go Status; voluntary and mandatory evacuation; and

¹ Sutton, J., Olson, M. K., & Waugh, N. A. (2024). The Warning Lexicon: A multiphased study to identify, design, and develop content for warning messages. *Natural Hazards Review*, 25(1), 04023055.

² Olson, M. K., Sutton, J., Cain, L. B., & Waugh, N. (2024). A decade of wireless emergency alerts: A longitudinal assessment of message content and completeness. *Journal of Contingencies and Crisis Management*, 32(1), e12518.

³ Kuligowski, E. D., Waugh, N. A., Sutton, J., & Cova, T. J. (2023). Ember alerts: Assessing wireless emergency alert messages in wildfires using the warning response model. *Natural hazards review*, 24(2), 04023009.

evacuation warning and evacuation order. Our study on public understanding of the terms evacuation warning and evacuation order found that a significant portion of respondents were unable to determine the relevant associated actions – prepare to evacuate or evacuate now.⁴

In addition to the technical language used to communicate about natural hazards, there has been a dramatic increase in the use of jargon for missing and endangered persons. Nationally, there are two recognized alerts for missing and endangered persons; the AMBER Alert and the Ashanti Alert. The AMBER Alert is designed for children under the age of 18 who have been abducted and are in imminent danger of serious bodily injury or death. The Ashanti Alert is designed for adults aged 18 and older who are missing due to abduction or other circumstances that put them in serious danger. Across the country, **different state legislatures have created more than 40 additional types of named alerts**, with more being added. Examples of state-specific alerts include the Athena Alert, Levi's Call, Purple Alert, Silver Alert, Senior Alert, CLEAR Alert, Ebony Alert, and Gold Alert. There is no consistency between the different alerts in the different states. In one state you can have a Gold Alert for a specific population and a few miles away, just across state lines it could be called a different alert.⁵ Furthermore, IPAWS does not restrict organizations from sending any type of message through the WEA system.

⁴ Walpole, H. D., Olson, M., Sutton, J., Wood, M. M., & Cain, L. B. (2025). Burning Doubts: Effects of Jargon in Wildfire Emergency Messaging on Receivers With Differing Experience. *Risk Analysis*.

⁵ Cain, L. B., Sutton, J., Olson, M., Waugh, N., & Bertola, E. (2025). Missing information: A content analysis of US missing persons alerts using the missing and endangered persons message framework. *Police Practice and Research*, 1-28.

While every missing person alert type that is created originates from an incident where a person has become lost or has been abducted, as named alerts they are unfamiliar and result in confusion when issued without the benefit of a plain language explanation about the person, or hazard, and the actions to take.⁶

Why are evidence-based messaging practices not followed?

Deficient requirements

The IPAWS program within FEMA is the only resource that provides the technological capability for federal, state, local, tribal, and territorial jurisdictions to broadcast geotargeted WEA messages to WEA-capable devices like cellular phones.

To access IPAWS, jurisdictions must purchase alert origination software from a third-party company. Then one person in the jurisdiction needs to complete a two-hour online course, and one person must demonstrate how to send a message through the IPAWS training environment. There are no requirements for an organization to have an internal policy or procedures on how to use the system, nor are there requirements for demonstrating a minimal capability of effective message writing, the creation of comprehensive templates, or establishing a training plan. This is most troubling because while multiple people within a jurisdiction may have access to the system, only one is required to complete the online training and send a test message, suggesting there will be a gap in individual capabilities.

⁶ Cain, L.B., Sutton, J., Walpole, H.D., & Olson, M. (under review) Improving AMBER Alerts: Results from a National Experimental Study of Wireless Emergency Alerts. *Police Practice and Research*.

While the updated IPAWS independent study curriculum now includes a section on effective messaging, it remains limited in scope and relies on the student to proactively apply the principles within their jurisdiction. Furthermore, IPAWS monthly proficiency demonstrations require alerting authorities to test their software capabilities, not their ability to communicate their message. A test message can be sent that simply states, ‘Test, Test, Test.’

Notably, to date, alert origination software companies have not integrated the most recent message design research into their platforms as a routine service to their customers,⁷ nor has IPAWS made this a requirement.

Absence of national standards

The Federal Communications Commission (FCC) creates rules for stakeholders involved in the message delivery process. These include broadcasters and cellular companies. **The FCC does not create rules that directly apply to the alerting authorities.** To improve technological dimensions of WEA, the FCC required cellular companies to increase WEA message length from 90-characters to 360-characters, to more narrowly geotarget message polygons, to present messages in English and Spanish, and add capabilities for including a URL. These changes made it possible for alerting authorities to significantly improve the messages they deliver to persons at risk; however no requirements were directed to alerting authorities as they make use of these new capabilities. In fact, many

⁷ University at Albany. (2022) *Alert and Warning Software: A Current Practices Review Report*. [Unpublished Manuscript] Center for Technology and Government, University at Albany, SUNY.

messages are still issued only as 90-character alerts, a message length demonstrated to delay action among message receivers due to their incomplete nature.⁸

Insufficient training opportunities.

General training opportunities for alerts and warnings have been limited to those provided by FEMA IPAWS, the National Disaster Emergency Management University (NDEMU), Hawaii's Center for Disaster Preparedness (HCDP), and private consultants. The NDEMU and HCDP focus training on public information and external affairs officers and are delivered by advanced crisis communication practitioners and Public Information Officers. Alerts and Warnings are mentioned in the training, but only account for one sliver of what is provided. FEMA IPAWS and private consultants offer general training, but without consistency, and it is not widespread.

In 2022, with funding from FEMA IPAWS, my team at the University at Albany developed specialized software to help practitioners create messages that include the key communication elements described previously. This software is called the Message Design Dashboard and my team trained more than 500 emergency managers across the U.S. We taught them about the social and behavioral science of alerts and warnings and trained them how to use the software to write complete and effective messages. Our pre-post training analysis shows significant improvement in knowledge, skills, and abilities

⁸ Bean, H., Liu, B. F., Madden, S., Sutton, J., Wood, M. M., & Mileti, D. S. (2016). Disaster warnings in your pocket: How audiences interpret mobile alerts for an unfamiliar hazard. *Journal of Contingencies and Crisis Management*, 24(3), 136-147.

among emergency managers who completed the training.⁹ That training concluded in May 2025 when our contract ended.

I continue to provide training and consultation to jurisdictions across the country and internationally through my small business, The Warn Room.¹⁰

Consequences of poor messaging

I would like to conclude by briefly describing what can happen when evidence-based practices are not followed. This is centered on concerns about warning fatigue. While we do not know if fatigue is the reason that individuals choose to opt out of alerts and warnings, there is one national study that provides evidence that they are closely related. This study, conducted by the Rand Corporation, followed the nationwide test of the WEA system in 2023 and found that the state with the highest opt-out rates is Texas.¹¹ It is important to note that each state is currently allowed to set their own standards and rules on how alerts are sent by those that fall within their jurisdiction. As such, even though Texas is the largest state in the contiguous United States, it activates the most AMBER Alerts which are routinely issued statewide.

Two technological fixes have been approved by the FCC to address these issues: first is to allow alerts to be sent without the signature alarm tone; the second is to create a new

⁹ Sutton, J., Olson, M., Walpole, H., Cain, L.B., Stanford, Z., Olivas, S., & Pollock, B. (In Press). Effective Alerts and Warnings: An Assessment of Knowledge, Skills, and Abilities Among Public Safety Communicators. *Journal of Emergency Management*.

¹⁰ Sutton, J. (2025). *The Warn Room*. <https://www.thewarnroom.com>

¹¹ Parker, A.M., Steratore, R., Bradley, M.A., LaForce S., Woods, D., Setodji, C.M., Hassler, G.W., Tierney, D., Villegas, C.A., Cecchine, G. et al. (2024). Assessing Public Reach of the 2023 National Test of the Wireless Emergency Alerts (WEA) System: Results of a National Survey. Homeland Security Operational Analysis Center operated by the RAND Corporation.

Missing and Endangered Person event code (separate from AMBER Alert).¹² This new event code applies only to the Emergency Alert System (EAS), not WEA and the dates when both technological fixes will be fully adopted and applied at the user level are uncertain.

A second study conducted by me and my colleague Dr. Michele Wood, identified and defined the dimensions most relevant to over-alerting and warning fatigue. Practitioners and the public alike define alert relevancy, frequency, and content as the primary antecedents leading to various forms of fatigue, the consequences of which may be opting out of alerts altogether.¹³

These findings are important because every alerting authority who taps into IPAWS is using the same alerting ecosystem – if a poorly constructed message is issued statewide in the middle of the night in one state and people from that state choose to turn off WEA, they will not receive a WEA for an emergency when traveling in another state. In some instances, this can become a matter of life and death.

Recommendations

With this, I would like to propose three recommendations for the future of alerts and warnings in the United States. First, **funding for research to support the design of effective warning systems, including messages, remains vital.** In particular, researchers have yet to develop a deep knowledge of how to better reach and

¹² Federal Communications Commission. (2025). *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*. Washington, D.C. Retrieved from <https://www.fcc.gov/document/fcc-makes-weas-more-responsive-public-safety-and-consumer-needs>

¹³ Sutton, J., & Wood, M. M. (2025). Opting Out: Over-Alerting and Warning Fatigue in the Era of Wireless Emergency Alerts. *Journal of Contingencies and Crisis Management*, 33(3), e70076.

communicate dangers to persons with access and functional needs and language barriers. Furthermore, some sectors, like institutions of higher education, which routinely issue active threat messages to their campuses and systems, have had limited research attention.

Second, **national standards for evidence-based messaging** need to be adopted and implemented into training programs that are required for every person accessing the IPAWS system. With this type of attention, we can ensure the public receives messages that are complete and actionable when seconds and minutes matter.

And third, **third-party emergency notification systems can be required to include prompts within their software** directing alerting authorities to write messages that adhere to evidence-based practices. This guidance, even if it is not followed, will promote practices that elevate the quality of messages, to motivate action and reduce the loss of lives in emergencies and disasters.

Again, thank you for inviting me to speak before this committee, and I welcome your questions.

Mr. HUDSON. Thank you.

We will now begin questioning, and I recognize myself for 5 minutes.

As I mentioned in my opening statement, next gen 9-1-1 technology is a top priority for me. I am very proud of my home State of North Carolina and the way we have deployed 9-1-1 statewide. Captain Varnado, I understand you are—you said you were overseeing the transition that—your parish to NG 9-1-1 technology, and you have talked in your testimony about why it is so important. I want to give you a little more time to talk about why it is so important that all call centers across the country upgrade to this technology, and maybe how are call centers that are running on this legacy technology at a disadvantage?

Mr. VARNADO. Thank you so much, Chairman Hudson.

The issue that we are having in the industry is that we are—there is a—we are building a system of haves and have nots, and we can't do that because 9-1-1 is—needs to be for every single person: local, Tribal, State, and Federal.

Mr. HUDSON. So what is the—talk a little bit more about sort of the—how the experience works with the new technology versus the legacy technology, and why that is such a disadvantage for folks that aren't upgraded.

Mr. VARNADO. There are several disadvantages there. Number one, we can't share data in an interoperable manner. The 9-1-1 calls now are rich with data, including voice, video, text, all of that. In the legacy system there is no opportunity for that. Location data is very, very limited in the legacy systems, where in the next gen 9-1-1 system we can utilize many different sources of location to compare and accurately find those individuals.

Mr. HUDSON. That is great. And so, obviously, when someone is in trouble, the ability to locate them with real-time location data, the ability for them to share video technology, that sort of thing, it speeds up the time for emergency responders to get to them, enables them to find that person faster.

Mr. VARNADO. That location is key. That is the very first piece of information we need. And by getting that location, we can serve that person, that caller better, whatever the situation is. It may be someone lost in the woods, it may be somebody having a heart attack or, God forbid, an active shooter. We can find the location. That is key in these instances.

All of the data is great, but that location data is key. And in next generation 9-1-1 we can leverage that so much different.

Mr. HUDSON. Absolutely. So after so many States and localities have deployed this technology, what factors need to be considered when determining the amount of funds appropriate for this program?

You know, a lot of folks like in my State have already upgraded. Your parish is in the process of upgrading. The last cost estimates we had are pretty outdated.

I mean, what do you think the appropriate amount of funds is for this program? Do you have an updated number in mind?

Mr. VARNADO. I don't have an updated number, to be honest with you. I think that we are still looking at that number. We have been talking about 15 billion. But we need to—and forgive me, I don't—

I speak pretty plain, OK? We are—we don't need to kick the can down the road anymore. We need to start this process. We need to get this going in a much more organized manner, because what we are doing is we are leaving the smaller, more rural, less funded centers behind, and those people are the ones that need to be brought into this.

Larger jurisdictions, well-funded jurisdictions, they have some of the resources to begin this. But in many cases it is the smaller ones that don't have those resources. They don't have the personnel and the ability to have the technical expertise that is needed in this. We need to start moving on this.

Mr. HUDSON. I agree with you. And, you know, but the challenge for us, as policy makers, is we have finite resources and we want to make sure we are deploying them efficiently. And if APCO can help us in this, we are trying to figure out what is the cost so that we can meet that need. You know, it may be less than 15 because a lot of other folks have upgraded. It might be more than 15 because the technology is more expensive than it was a few years ago. You know, so as much as APCO can help us drill down and figure out what exactly that need is, the better we can define it, I think, the more successful we will be in garnering those resources.

Mr. VARNADO. We will be glad to work with you on that——

Mr. HUDSON. I appreciate that.

Mr. VARNADO [continuing]. Chairman, thank you.

Mr. HUDSON. I am about out of time. So if I run over, then I can't call down my colleagues if they run over.

[Laughter.]

Mr. HUDSON. So with that I will recognize the ranking member on the committee, the gentlelady from California, Ms. Matsui, for 5 minutes for her questions.

Ms. MATSUI. Thank you very much, Mr. Chairman.

Our Nation's 9-1-1 infrastructure has remained largely unchanged since its inception in 1968. More than ever, we need to expand access to lifesaving technologies such as next gen 9-1-1 for faster and more accurate emergency responses.

Mr. Gerst, a majority of calls to 9-1-1 originate on wireless phones, and most wireless phones today include substantially more capabilities than traditional landlines.

How can the capabilities of today's smartphones be leveraged to enhance calls to 9-1-1?

Mr. GERST. Thank you, Member. Thank you so much for the question. You are absolutely right about how critical NG 9-1-1 is for our emergency communications ecosystem and for consumers, because 9-1-1 is the most important call you are probably going to make at any point in your lifetime. And we know that 80 percent of calls to 9-1-1 originate on wireless. So for that reason we have been investing for well over the last decade in new solutions that can better locate people and bring the advances the way that consumers expect to be using wireless services.

They call, they text, they use it—they send pictures, right? They want to be able to get that information to 9-1-1, and that is what NG 9-1-1 can help us with.

With respect to location, about 10 years ago we were asked the question, Hey, why can Uber locate me but 9-1-1 can't, right? And that is because we had built purposely 9-1-1 location proprietary solutions to meet certain regulatory obligations. And we were missing the commercial solutions that everybody was using. We are actually able to leverage those solutions. And today 80 percent of all calls to 9-1-1 are using the same type of mapping technologies that we use in our phones.

We are locating people within a one-city block and within a few floors of their—if they are in a high-rise building. This is information that is improving response times for public safety, situational awareness for them, making them safer when they are responding to help.

Ms. MATSUI. OK. Thank you very much.

The Kari's Law Reporting Act directs the FCC to report on companies on compliance with Kari's Law. Congress passed Kari's Law in 2018 to ensure the public can directly access 9-1-1 for multiline telephone systems such as those used in schools, hotels, and offices. Unfortunately, according to market research, nearly 40 percent of organizations who should be compliant with this law are not.

Kari's Law was enacted after tragic circumstances led to a young child being unable to reach 9-1-1 from a hotel phone. This legislation would ensure that the critical protections Congress enacted are working as intended, and that no American is ever prevented from reaching 9-1-1 in their time of need.

Captain Varnado, what are the risks today if manufacturers or vendors fail to comply?

And how would this new reporting requirement for the FCC help ensure that the public can reliably reach emergency services?

Mr. VARNADO. Well, I think your first question—and thank you for the question—I think your first question is the most poignant, is people will lose lives—

Ms. MATSUI. Yes.

Mr. VARNADO [continuing]. If we do not force these carriers and vendors to actually comply with the law. We hear reports regularly that people delayed by not knowing that they needed to dial a specific digit to get out of a specific phone line to call 9-1-1.

Ms. MATSUI. Right. The report also asks for recommendations to Congress on whether additional legislation is needed.

In your view, what gaps or enforcement challenges might require additional congressional action?

Mr. VARNADO. To be honest, I don't know. I would have to get back with you on that.

Ms. MATSUI. Oh, certainly. That is fine.

You know, the Emergency Reporting Act aims to improve the information 9-1-1 centers receive during a service outage, which can affect the public's ability to reach 9-1-1.

Captain Varnado, what types of information do 9-1-1 centers currently receive during an outage?

And how can we improve this information to improve the response to service disruptions?

Mr. VARNADO. First of all, we get very generic data that could encompass many States, and it doesn't apply to the jurisdiction that is being affected, or it is very broad data.

A representation of—a visual representation of a map that shows us the specific location of the outage, then we can target notifications to those areas that there is a communications challenge in that area. Those are the challenges that we have on the ground.

Ms. MATSUI. Right, absolutely. And we are talking about better technology and enhancing this, so that is great.

I am going to—I can't ask a question in a short time, so I will yield back, Mr. Chairman, thank you.

Mr. HUDSON. Thank you. I now recognize the chairman of the full committee, Mr. Guthrie, for 5 minutes for your questions.

Mr. GUTHRIE. Thank you, Chairman Hudson. I appreciate the recognition and thank our witnesses for being here again.

In this committee we spent a lot of time this past year discussing artificial intelligence and how much artificial intelligence is emerging, and how it touches everywhere, and particularly all of our jurisdictions. We famously say in Energy and Commerce, "If it moves it is energy. If it is not moving it is commerce." We have jurisdiction over about everything, and the one consistent across all of them is artificial intelligence.

So to start with, Captain Varnado, are you currently or do you plan to use AI in your 9-1-1 call center?

And if so, how does it benefit public safety, and if not, how do you think you could use it?

Mr. VARNADO. Currently—thank you for the question and thank you for being here.

First of all, we are not currently using AI in our ECC, but we are planning to. And one of the most important ways is translation of foreign languages. That is a big topic for us in our area, to be able to translate quickly. It takes us 2 to 4 minutes to get a translator on a phone during a 9-1-1 call, and that is just not acceptable. So we are looking for that to be an advantage for us.

Mr. GUTHRIE. OK, thank you.

And then, Mr. Gerst, as I mentioned in my opening statement, Kentucky has had floods and tornadoes. In 2021, actually, in my neighborhood my neighbors right behind me lost their homes. We were blessed, but they were—it was right behind them. And it comes with—I can tell you it came with little warnings like we saw it coming and from—well, you did see it coming for a while, but before you knew it was going to come your area, it is just a few minutes, and sometimes they just develop, particularly if you are west of where I was.

And so my question is, How do wireless emergency alerts help officials deliver lifesaving information more quickly than traditional communications channels?

Mr. GERST. Mr. Chairman, thank you so much for the question. And you know, as you just mentioned, when you get a wireless emergency alert, you know it, right? Your phone is going to light up, somebody else's phone who you are with, they are lighting up too, and they are conveying in there, hopefully, critical information that you need to be able to react very—in a timely fashion.

We—this committee helped us usher in this service that we are now broadcasting these messages to any device that can receive them. It doesn't matter what service you are on, you can receive

these WEA messages if alert originators send them out with the information that they need.

And over the years we have invested in new capabilities that they have wanted. They wanted better geotargeting. They wanted the ability to embed links so that you can go to a website to get more information. And actually, next year we are going to be introducing new location-aware mapping technologies. So when you get that alert, it is going to pop up and show you a map of where the alert is targeted at so you know how relevant it really is for you and how much action you need to take.

So these alerts are critical. We know that when they are sent, they save lives.

Mr. GUTHRIE. And it is the geography. You know, Kentucky has small counties, but sometimes my county will get a tornado warning. And if you see it on television you can see where it is going. South of Bowling Green, where—I live in the town of—called Bowling Green, or city. If it goes north, and even though our whole county is on alert, you can know where it is going if you are alerted to the specific geo level.

So Dr. Sutton, I know your work focuses on what should be included in the content of wireless emergency alert messages. I think Mr. Gerst kind of pointed to you when he was making his comment on the alert messages.

So what components of an alert message makes it effective?

Dr. SUTTON. A wireless emergency alert should include five components: It should say who the message is from, the source; information about the hazard itself, what the hazard is and what it is doing; the location of the threat and where it is occurring; the time that the threat is occurring at; and most importantly, what people should do to protect themselves. We frequently find that there are contents missing from these messages, and hope to see some significant improvement in that.

Mr. GUTHRIE. OK, thank you. And that—it is good that you do your research and work because it is helpful. When I first got on this committee, one of these hearings on this similar topic, we had a 9-1-1 hearing and a child had been in a home—in a—her mother, the child's mother—I think it was a boy—his mother had escaped an abusive—I don't know if it was a husband or a male, and he found her in a hotel, was—came in and was abusive, and the kid dialed 9-1-1, and they knew it was in the hotel but they had no idea which room. And so they show up to—I guess it was a motel, but they—by the time they got to the actual room it was too late.

So the more we can target and we can nail it down, the better. I think then we added something where, even if there is an extension, you have to kind of identify where the extension is coming from.

So, unfortunately, tragic incidences sometimes, that is where we learn lessons that we can hopefully apply to help other people in their lives.

So thank you for your testimony today. This is important, and I will yield back.

Mr. HUDSON. Thank you.

I now recognize the ranking member of the full committee, Mr. Pallone, for 5 minutes for your questions.

Mr. PALLONE. Thank you, Mr. Chairman.

Next generation 9-1-1 capabilities allow public safety telecommunications, first responders, and the public to share and exchange important data such as GPS location and patient health information in the course of responding to an emergency. And the use cases for these kinds of capabilities would seem to be endless.

I have four questions, two of Captain Varnado and two of Dr. Sutton. So if you could, quickly respond.

So Captain Varnado, can you describe some real-world examples of what is possible in an end-to-end, next generation 9-1-1 environment? How might these capabilities help a firefighter or an emergency room doctor in the course of an emergency response?

One minute to respond.

Mr. VARNADO. Thank you, sir. I will tell you this. I was on a motor vehicle accident a couple of years ago, and a emergency room physician—we were in the process of cutting this victim out of the car. During the process an emergency room physician from the local trauma center in New Orleans showed up on his way to work. He took pictures of that and were sending it via text message to his counterpart, working to know what the patient was going to be coming in with, and so forth. I sat there and I looked at that and I said, “That is next generation 9-1-1.”

That is what the 9-1-1 should be doing here. We can take that picture, put it into the system, send it through to the firefighters, the medics, the emergency room physicians, the trauma surgeons.

That is just one small case, but those are the types of data, but it is able to be interoperable and shared across jurisdictions.

Mr. PALLONE. That is important. I know you made me think of “NCIS New Orleans,” which I watch in repeats almost every night.

But let me ask you a second question: Do you think we need another cost study for next generation 9-1-1?

Mr. VARNADO. No, sir. I think we are ready to move forward. Even if we take small steps, we can move forward.

Mr. PALLONE. All right. Well, thank you.

Now, when disaster strikes the ability to disseminate information and communicate clearly with the impacted community can be a matter of life and death, as you just, you know, suggested. So let me ask Dr. Sutton two questions.

First, your testimony highlights the five key elements of an effective alert message: who sent the alert, the hazard and its impacts, location, time, and instructions on how to stay safe. And these sound simple and reasonable, yet your testimony also notes that only about 8.5 percent of all wireless emergency alert messages sent from 2012 to 2022 included all 5 elements.

So, Dr. Sutton, what information is the most often missing from alert messages, and how do we—how do incomplete messages hinder efforts to maintain public trust in a crisis environment, if you would?

Dr. SUTTON. Thank you for the question. We know that the most often—most frequently missing content from a wireless emergency alert is the time and the source of the message.

But I think that is—what is very important here is to notice that the contents that people most need is the guidance and the name of the hazard itself. Without those two things, people do not know why they should be taking action and the specific actions they should be taking to protect themselves.

Mr. PALLONE. OK. And then the last question. I believe that access to emergency alerts is critical for all Americans. But I do worry that access means nothing if our alert infrastructure is used frivolously for events that are not relevant to the recipient.

So, Dr. Sutton, what is this concept of alert fatigue? How do some alerting practices like those requiring statewide dissemination across large States contribute to widespread opt-outs from the wireless emergency alerts and erode trust when it matters most? I am concerned about this.

Dr. SUTTON. Many emergency managers across the United States are also concerned about this, which is one of the reasons they are hesitant to push the button when they need to. Overalerting is one of their primary concerns, that if they issue too many alerts too frequently for things that are frivolous or not considered to be severe and certain, that they will be penalized by their community, certainly questioned very strongly about why they chose to send something.

However, when you do not use the alert system, it does also erode trust, because when a message is not sent, that is when people are in the gravest danger. The overalerting issues that we are currently seeing are related to warning fatigue, and also concerns about opting out of messages.

In the State of Texas what we found in the study following the 2023 national test of the Wireless Emergency Alert System that the State of Texas has the most number of opt-outs, and that is related to the geographical scope of the message that they send, and also the type of hazards they send messages for.

So we have seen that in Texas they send the most statewide alerts and the most AMBER alerts. And perhaps the most famous alert that they sent at 4:00 in the morning was for a blue alert, which—the FCC received more than 6,000 phone calls following that alert from people who were very frustrated by being woken in the morning for something they could not do anything about.

Mr. PALLONE. That is tough decisions that have to be made.

Dr. SUTTON. Yes.

Mr. PALLONE. Thank you, Mr. Chairman. Thank you.

Mr. ALLEN [presiding]. I thank the ranking member for yielding. Now I would recognize myself for 5 minutes of questioning.

More than a year ago Hurricane Helene, with over-100-mile-per-hour winds, ran through the entire stretch of my district and caused widespread damage and loss. We suffered multiple deaths and a loss of the power for weeks in some areas. I remember the first press conference that we held in the district, you know, there was no—you know, nobody had power, nobody had communications. And people asked, “Where do we get, you know, shelter? Where do we get water? And where can we get food?” And our Disaster Director said, “Just go to our website, and it will tell you everything.” We had no communications. And I realized then that something—we needed desperately do something about this.

I do want to thank several groups that came together: obviously the generosity of Starlink, it pretty quickly got at least our disaster centers up; Georgia Power with Southern Link, at least, so we could communicate and start the cleanup and get power back on. And—but their communications with Southern Link was critical. And then the efforts of our cell services putting in temporary facilities and generators to at least give some limited cell service.

But we all learned the importance of resilient communication networks when commercial networks were severely disrupted. And it was next to impossible for constituents to access information and resources during approximately 10 to 12 days.

I want to thank Chairman Hudson for holding this important hearing today and to our expert witnesses, and I want to thank you for joining us.

Mr. Gerst, from a cost-benefit perspective, how does investment in Wireless Emergency Alerts compare to other public safety communication tools?

Mr. GERST. Mr. Vice Chairman, thank you for the question, and thank you, your experience in Hurricane Helene was, I am sure, challenging. But I can say that networks are stronger than they were before because we have spent billions of dollars deploying cell sites with overlapping coverage and capabilities.

Every communication in a disaster situation is important. Whether it is a 9-1-1 communication or Wireless Emergency Alert, we want to make sure that service is there. And so, you know, we invest in both, you know, at equal efforts, making sure that our networks are available to get the emergency alerts out so people can know what to do in an emergency, and we make—invest in solutions to make sure that the 9-1-1 capabilities are what consumers would expect. They can text, they can call, and they take advantage of the commercial solutions that we use every day.

Mr. ALLEN. To follow up, if we want to have Wireless Emergency Alerts delivered everywhere, we need coverage everywhere. Isn't that a good reason why Congress should improve the permitting process, so that providers can more easily extend their coverage?

Mr. GERST. Mr. Vice Chairman, absolutely. We appreciate this committee's leadership on that issue of making sure that we can deploy wireless services, wireless infrastructure in more places, right? We have deployed 450,000 cell sites with overlapping coverage so that if some cell sites go out we still try to maintain services.

You noted that we also have temporary capabilities. We call it the barnyard—the cows, the goats, the flying cows we can bring in. But overall, if we can reduce red tape and be able to get more infrastructure out into more places, we are going to have more resilient networks.

Mr. ALLEN. Thank you.

Captain, do first responders have the communication tools necessary to do their jobs effectively?

Mr. VARNADO. In some instances, yes, we do. In many we do not. We need a new reimagining of next generation 9-1-1 and the communications possibilities that they can bring to us.

Mr. ALLEN. As far as—and this is for any of the witnesses, I got about 42 seconds—so what improvements can be made to the pub-

lic safety communications ecosystem? Would anybody like to offer a suggestion?

Yes, Ms. Manner.

Ms. MANNER. Thank you very much, and thank you for the question.

I think that is where space comes in, and satellite. And you saw it yourself when you were talking about the recent example with Starlink. Like Starlink, AST SpaceMobile actually provides—will be providing broadband, and that will give first responders the ability when the networks are down to communicate, but also for users across the country to reach emergency services like 9–1–1.

Mr. ALLEN. Great.

Ms. MANNER. Thank you.

Mr. ALLEN. Thank you very much. Again, thank you to the witnesses.

And with that, I am out of time. I will yield back and call on Representative Soto for his 5 minutes of questioning.

Mr. SOTO. Thank you, Chairman.

Nine-one-one is a lifeline for every American. Hurricanes, medical emergencies, violent crimes, accidents: At one point or another, every central Floridian will experience one of these emergencies, unfortunately. Cops and firefighters, EMTs, our heroes, are ready to come to the rescue, but only if that call comes through.

Unfortunately, we have seen Republicans took away a key funding source for 9–1–1 with a spectrum sale, using proceeds to help fund their Big Ugly Law that was helping billionaire tax breaks. But here we are, trying to get this done finally, and next generation 9–1–1 will be critical, a grant program to upgrade legacy communications infrastructure for local 9–1–1 systems.

The key is redundancy. Cellular, broadband, satellite. When one fails, another picks up the call. We have seen this over and over again in Florida. We launch a lot of those satellites from the Cape, the district right next to mine. When everything else fails, that has been a helpful part of it, although we need to continue to increase speeds.

Ms. Manner, how do you think we are doing on—it fills the gap, speeds are starting to improve. How do you think low Earth orbit satellites can help with a disaster recovery during those first couple of hours to days where we may struggle? And how is the speed improving?

Ms. MANNER. So I thank you for the question. Yes, we are launching many of our satellites from Florida.

And one of the things I think that would help is there is a great constraint on launch capability today. So I think you would see more satellites being launched as launch capabilities increased.

Our system is somewhat different than what is up today, which is we are starting to launch and will have deployed in the next year—we will be able to provide broadband speeds. We have already tested it, 120 megabits, which is comparable to what you get with your cellular system. So with that you are going to be able to have the ability for first responders to communicate using broadband.

So our partner, FirstNet, for instance, or other first responders are using our partners' networks—AT&T and Verizon—will be able

to have broadband communications. So downloading plans of a house if you are fighting a fire, knowing where things are.

We are also working with our partners—our system is capable for the public safety requirements, 9–1–1 and emergency alerting, so as that gets integrated into our partners’ networks—this will take a little bit of time, it is a brand-new technology—you will have those services available, and I think that will make everything much easier for users, as well, to get the help they need.

Mr. SOTO. Thank you, Ms. Manner, and we have had a record number of launches, over 100 this year, at Cape Canaveral. We see it twice a week from our backyard, so we know we will be getting there.

Ms. Sutton, you know, in central Florida we have a very diverse community. We have folks who speak Spanish, Portuguese, Haitian Creole. You add in a million tourists at any given time to central Florida who could come from around the world.

How can we make emergency alerts more accessible to constituents and tourists in central Florida—especially during a hurricane—who may not speak English as a first language?

Dr. SUTTON. Thank you for the question, and you are raising one that is very important and very difficult for local emergency managers to address.

We do not have good strategies for translation to other languages. While AI solutions have been proposed, a more reliable strategy is to have in-office personnel who have the ability to do that translation activity. However, it is very limited across the States. I appreciate that Florida has a more robust activity in that area and has supported the efforts within the hurricane area of helping to do translation using AI, but it is a problem that we need more research and more resources to address.

Mr. SOTO. Thank you, Ms. Sutton. And you mentioned if we have translators, professionals to be able to help, that is ideal. But as—Captain Varnado, you mentioned if we don’t have those, AI may be the best that we can do.

What has been your experience in any tests that you may have seen with attempts to use AI to improve different languages for 9–1–1?

Mr. VARNADO. What we have seen—and I have only seen it in beta tests so far—we are going to be beta testing it here in the near future in our center in Livingston. But there are many ways to leverage AI, to leverage new technologies that are out there to improve the notifications, language translations, also transcriptions of calls that we can actually see the transcription coming across and even translated at that point.

Mr. SOTO. Thank you.

My time is expired.

Mr. HUDSON [presiding]. Thank you. The Chair now recognizes the gentleman from Virginia, Mr. Griffith, for 5 minutes for your questions.

Mr. GRIFFITH. Thank you very much, Mr. Chairman, and I appreciate you calling this important hearing, and I appreciate all of our witnesses for being here today.

Ms. Manner, your company, AST SpaceMobile, recently seems to—really seems to have a great use case in rural and mountainous areas like the area I represent in southwest Virginia.

Can you speak to the reasons why a mobile service provider currently may not allow for satellite alert capabilities? Does that make sense to you?

Ms. MANNER. Let me try. So thank you for the question.

So I think, first off, it takes a little while to get networks integrated. So one of the things we are doing—our partners here in the United States are AT&T and Verizon, so we are working them. This is a first time that you are ever integrating satellite into the emergency alert system, so we are working with testing with AT&T and Verizon. So you will see it, it is just going to take a little bit of time for it to get to a place. We don't want to deploy before it is reliable and people can depend on the service.

Mr. GRIFFITH. And I do appreciate that. I will tell you that this is of great concern to me because when Hurricane Helene hit—I am just over the border from North Carolina—two—one county in particular and part of one county were hit not quite as hard as the worst of North Carolina but pretty darn close. Most of my district was hit in some heavy fashion.

And for various reasons—and I checked into it afterwards and it was different stuff in different parts and different carriers—in at least five of my counties we lost cell service completely. We lost land lines because of the disruptions, the flooding, and the wind, and then we lost cell service. And if it wasn't for space-based technologies being brought in, we would have been, really, literally up the creek without a paddle.

And so I am really excited about this because, you know, in those emergencies where everything is lost, you got to have something. I can remember being in Grayson County at the command center where they did—for some reason they did have WiFi working there, and one of the guys had to leave to go check on his mother. He told her to stay home, but she wanted to go out and see what was going on.

As it turned out, she was fine, but he had no way of getting in touch with her, and he didn't know where she was. He lost track of where his mother was, so he had to go look for her.

I was driving separately from my district director. He went into a hole. Literally, a small opening happened in the road and his car went into it, the back end of his car went in. This will tell you about my district. A farmer saw him go in, got a tractor out there, and they pulled him out. But for over 2 hours, nearly 3 hours, I had no idea why he didn't show up at the rendezvous point because we had no way to communicate.

So having, you know, all the technologies working together seamlessly is important. And then that raises the question, What prevents the seamless transfer between terrestrial and satellite coverage for first responders?

Ms. MANNER. So I think for us, we are just putting up our satellites. So we will—as I said, we will have full, continuous coverage. So we have to get—our FCC approval is still pending, we have to get the satellites up. But once we have that, and once we get through the testing process and the integration, I don't think

there is really much of anything that will prevent it. But it does take a little bit of time.

I agree how urgently—I have been working on this issue for 30 years of my career, so I am happy to say that I do think we are there and it will start to become more pervasive across the United States very quickly.

Mr. GRIFFITH. And I think that is great. I mean, I just have to tell you that I know there are a lot of people who want fiber run to every house. In my district in some areas, to get to that house at the end of the last mile or the last mile and a half or the last two-and-a-half miles, you are talking about more than \$100,000, maybe a couple hundred thousand dollars to get to 1, 2, or 3 houses. Those folks would be thrilled to have space-based of any type available to them.

I know that is not what we are here about today, but it is extremely important. And competition always lowers prices, which is important to my district, as well.

Captain, let me ask you a question, and I appreciate you being here today.

So, you know, I am a little biased towards the space stuff, but what type of mobile network outage information would be helpful to first responders during a natural disaster?

Mr. VARNADO. Knowing what—a visual knowing of what is out. Right now I can look at my power companies and I can tell what power lines are out, where power is not being provided, but I can't tell where my telecommunications infrastructure is not working.

Mr. GRIFFITH. And I have run out of time, and the chairman is going to beat me down. So I appreciate that answer, but that is extremely important because I didn't know why my district director wasn't responding. And if we had had some way when I was at the command center in Independence, Virginia, for Grayson County, if we had had some way of knowing that we were out—the only reason I know that there were 5 or 6 counties out is I was traveling in those counties and didn't have service. That is the only way I knew that.

I yield back.

Mr. HUDSON. Thank you. The Chair now recognizes the gentleman from California, Mr. Ruiz, for 5 minutes for your questions.

Dr. RUIZ. Thank you, Mr. Chairman.

As an emergency medicine physician and previous command physician for the City of Pittsburgh during my residency at the University of Pittsburgh, affiliated residency in emergency medicine, I understand that when someone dials 9-1-1 they are often experiencing the worst moment of their life. They expect their call to go through, that the dispatcher can locate them, understand the situation, and send help immediately.

Unfortunately, in too many communities across this country, including parts in my district in the Coachella Valley and Imperial Valley that I represent, the expectation is not always met. In my district first responders cover vast rural areas, agricultural communities, Tribal lands, and desert terrain. During extreme heat events, wildfires, flash floods, or medical emergencies, reliable communications can mean the difference between life and death. You all know that speed is a factor during emergencies, and yet many

9-1-1 centers still operate on legacy systems that cannot handle modern data, are vulnerable during disasters, and struggle to interoperate across jurisdictions.

Copper wire theft has compounded these challenges, leaving some communities without reliable landline service and further jeopardizing access to emergency help. That is why next generation 9-1-1 is so critical. NG 9-1-1 allows text, images, video, and precise location data to reach dispatchers, capabilities increasingly necessary when a caller cannot speak, does not know their exact location, or is calling from a mobile device.

But technology alone is not enough. Congress must ensure that policy, funding, and governance structures allow these systems to function when they are needed most.

Captain Varnado, what are the main barriers—financial, regulatory, technical, or all of the above—preventing rural and underserved communities like the Coachella and Imperial Valleys from fully adopting next generation 9-1-1?

Mr. VARNADO. I think the largest is funding, especially in the rural areas, because they don't have the infrastructure to have the resilient and redundant features of next generation 9-1-1.

Mr. SOTO. Thank you. And at the end of the day, this is about fair allocation of resources and safety. A family in rural Imperial or Coachella Valleys deserve the same reliable access to emergency services as someone in a major metropolitan area. Satellite-enabled connectivity has the potential to fill gaps where traditional networks fail, especially in the desert and agricultural communities.

Mr. Gerst, first you and then Ms. Manner: How can satellite technology support wireless customers' access to public safety communications and improve reliability during outages and disasters?

Mr. GERST. Congressman, thank you for that question. I think it is safe to say that wireless has reset consumers' expectations on public safety. They expect to be able to reach 9-1-1 and get those emergency alerts everywhere they are at all times.

We have been working for years to build out our networks and—as far as they can go. But, you know, there have been areas that we just can't reach, particularly in rural and remote areas. We are very excited about the new partnerships that the wireless industry is entering into with satellite companies to be able to extend those services, to extend the reach of 9-1-1 communications and emergency alerts out to those areas.

Dr. RUIZ. Thank you.

Ms. Manner?

Ms. MANNER. So thank you. I think it is—one important thing to know, it is not just when the terrestrial network isn't available, it is when the terrestrial network isn't adequate, isn't of a high-enough quality. And satellite can complement the terrestrial wireless stations to provide that additional connectivity, especially in areas where maybe you don't have the best of service. So I would add that that is an important consideration.

And I really do—I worked on the creation of FirstNet, and I was quite serious when I talked about we were looking for a way we—I know—I did the funding analysis for FirstNet for how it was funded, and we knew there was only enough money to provide service to a certain percentage of population coverage across the

U.S. So to get hand-held service, direct-to-device broadband service out to the first responders——

Dr. RUIZ. Thank you.

Ms. MANNER [continuing]. In areas like your district, I think, is critical. And you are never going to get there with terrestrial alone.

Dr. RUIZ. Thank you.

Ms. MANNER. Thank you.

Dr. RUIZ. You know, this is a continuum of emergency care that we need, all the way from recognizing the emergency, calling, having the first responders respond quickly, having an emergency department—potentially an ICU—and saving a person's life, keeping them alive, and seeing them walk out of the hospital. This is one component of that continuum of emergency care.

Thank you.

Mr. HUDSON. Thank you. I like that phrase, Doctor, “continuum of emergency care.” I like the application there, very good.

The Chair now recognizes the gentleman from Texas, Mr. Goldman, for 5 minutes for your questions.

Mr. GOLDMAN. Thank you, Mr. Chairman, very much.

Ms. Manner, since you are Texas-based, I am going to focus on that. Tell us more about your company and what your goals are in the future. I mean, it is very interesting what you are doing, but how big do you plan to get? And is it only to fill in a gap of what is not there or to expand even further?

Ms. MANNER. So thank you, and we are very proud to be located in the great State of Texas.

Mr. GOLDMAN. Where are you based, by the way?

Ms. MANNER. In Midland.

Mr. GOLDMAN. OK.

Ms. MANNER. So—and we have our manufacturing facilities there. And just to give you an idea, I joined in May of this year, and the company has already grown exponentially. We are now manufacturing six satellites a day in our facility.

[After the hearing, Ms. Manner submitted the following update for the record:]

Unfortunately, I misspoke on one issue during the question and answer period. Specifically, at 1:33:10 in the hearing record, I stated that AST SpaceMobile “is manufacturing six satellites a day.” This was an error. I meant to state “We are now manufacturing six satellites a month.”

Mr. GOLDMAN. And how many employees?

Ms. MANNER. About 1,800 across the company, and we continue to grow. I actually have a number of openings, if you know of anyone.

Mr. GOLDMAN. OK, good. Everyone now knows.

[Laughter.]

Ms. MANNER. So——

Mr. GOLDMAN. I hope my staff is not listening.

[Laughter.]

Ms. MANNER. So I think, you know, our vision of our CEO, Abel Avellan, who founded the company, was to really solve the digital divide. When I went to meet with him when I was first joining, he really recognized the only way you are going to solve the digital divide is to get broadband into people's devices. And so I think our

goal is to make sure that anyone who needs to be connected is connected.

We find being headquartered here and working in Texas, that we have the skills and the staff that we need to help meet that goal. And working with our partners here, we are also deploying globally so it is a global service. We have over 50 partners around the world today, as well as our strategic investors. So we are well on the path to getting there.

Mr. GOLDMAN. So you mentioned that you are trying to get those who are connected connected—not connected connected. Is the future, though, to compete in the open market with those who are connected?

Ms. MANNER. We are partnering with the MNOs. I think that was one of the important visions of our founder, of Abel Avellan, was to work with the wireless partners to bring the service to subscribers across the globe. So, for instance, we are unique. If you think about it, we brought together AT&T and Verizon to work together with us as a—in a partnership.

Mr. GOLDMAN. And is there any discussions or any 9–1–1 or any emergency services? Talk to us about that.

Ms. MANNER. It is a tremendous focus of our company, is making sure that our part—that we have the capabilities, which we will in our network, to provide all the required public safety—meet all the required public safety requirements of our partners like AT&T and Verizon. So whether that is 9–1–1, emergency alerts, we are working with them to bring that to their subscribers.

Mr. GOLDMAN. OK. Thank you very much.

Ms. MANNER. Thank you.

Mr. GOLDMAN. Mr. Chairman, thank you for the time. Let me brag on a great Texas company.

I yield back the rest of my time.

Mr. HUDSON. Thank you. The Chair now recognizes the gentleman from California, Mr. Peters, for 5 minutes for your questions.

Mr. PETERS. Thank you, Mr. Chairman and Chairman, for holding this important hearing.

Congress has the responsibility to empower our first responders locally with the tools they need to make informed decisions that keep our communities safe. Federal investments in public safety communications will provide police officers and firefighters in San Diego and across the country with the most up-to-date information. And this ensures that they are prepared to aid the community in times of trouble.

One thing I would say too about our police department is it is very large, and it is difficult to make big changes all at once. And so the Federal participation in terms of funding is really a smart strategy for communities like ours. And I applaud the chairman for his legislation.

One of the ways Congress can help public safety authorities be even more responsive is through generation—next generation 9–1–1, so I am glad to see we are considering the H.R. 6505. We did have an opportunity to fund this from spectrum auctions. The majority went a different way, and we will have to find money for that, but I do appreciate the opportunity to discuss this.

I had an opportunity recently to participate in a ride-along with my local police department, and one of the things that was most striking about it was how antiquated the technology was in the car and to respond to.

And so I wanted to ask Captain Varnado and then Mr. Gerst: What sort of technological improvements have been made? What sort of upgrades would next generation 9-1-1 enable? What can we expect to see in the next 5 or 10 years as a result of this innovation?

Mr. VARNADO. As a communications technology advances, we are going to see major changes. But right now we are seeing very small steps. We need to have major change in our networks specifically so that it can run the types of technology that is needed in our systems.

Mr. PETERS. Yes. Mr. Gerst?

Mr. GERST. Thank you, Congressman. You know, for our part, the wireless industry, the connection to deliver the communications to the public safety community, we want to deliver services the way that consumers expect to be able to reach 9-1-1. That is through voice, that is through text, that is through using all of the great commercial applications we use on our devices almost every day.

And so for the better part of the last decade we have invested in these solutions. We can do multiple new things now that we didn't used to be able to do. We have text to 9-1-1 available nationwide by the providers and for the public safety community PSAPs that receive it. We have location-based services that allow us to pinpoint, based on within a city block, within a few floors of a building. And we also are able now to route calls based on that information. Previously, we were doing that based on the cell site that was resulting in some of the calls going to the wrong PSAP, and now we are using location-based information to make sure that all those calls are getting to the right PSAP.

So all these technologies that are in our phones, use every day, we are using them for public safety services too.

Mr. PETERS. Right, and I guess the hardware follows the network, right? So once the network is available, you expect people to respond with hardware that can go in each police car, for instance, right?

Mr. GERST. Yes, absolutely. I mean, the availability of—the innovation that we have seen on wireless networks, the investments in 5G technology, the investments—the, you know, innovation and the devices that we get, you know, almost on an annual basis, a new device that has got all these new features, we integrate all of those capabilities for public safety purposes too.

Mr. PETERS. Right. I am proud to represent Qualcomm in my district. They are developing advanced public safety solutions leveraging 5G technology. And also Qualcomm is a central part of developing the 6G technology. That is direct voice, video, text communications even when cellular networks are unavailable, as with regions that are devastated by hurricanes or by wildfires.

Captain Varnado, are you hearing about technology that is out there that would be helpful for our first responders already for deployment?

And how will next gen 9-1-1 expedite the ability of first responders to adopt emerging technologies?

Mr. VARNADO. I think the biggest is that we are currently using yesterday's technology.

Mr. PETERS. Right.

Mr. VARNADO. We are utilizing technology from the 1960s and 1970s—

Mr. PETERS. Right, right.

Mr. VARNADO [continuing]. To run the 9-1-1 systems currently today. So there is innovation, but we have got to have that improvement in the networks so that that information can be shared, it can be interoperable.

And interoperable is really the key word there. We have got to be able to share that data from beginning to end, as Congressman Ruiz said, that continuum of care.

Mr. PETERS. Right, right.

Mr. VARNADO. That is what we really need.

Mr. PETERS. What is sort of the timeline? If everything went great for you, how long do you see the network being in such a condition that we are really going to see different hardware in police cars?

Mr. VARNADO. I would find a hard time giving you a specific timeline. I would say in the next 2 to 5 years we would see a total transformation of that. We are already seeing it with AI coming. APCO and iCERT are working together on AI innovation and things, so I think it is coming.

Mr. PETERS. My time has expired, Mr. Chairman. I yield back. Thank you.

Mr. HUDSON. Thank you. The Chair now recognizes the gentleman from Texas Mr. Pfluger, for 5 minutes to ask your questions.

Mr. PFLUGER. Thank you, Mr. Chairman. At the most recent hearing on public safety, we heard about the critical role that wireless emergency alerts play in public safety and how low Earth orbit and satellites with direct-to-device capabilities for mobile carriers can enhance that.

During natural disasters, when communication infrastructure is damaged, or in rural areas where it doesn't exist at all, like in my district, mobile service can be inconsistent. Not having access to emergency alerts can also mean the difference between life and death. And every member of this committee has learned this all too well, whether it was during wildfires that we have talked about today or the flooding in central Texas at Camp Mystic, for which the bill I am going to talk about is named after.

And on July 4 the devastating floods swept through my hometown and throughout much of central Texas, where two of my daughters were attending camp. Gosh, it is even hard to talk about it now. But these alerts can be lifesaving and, you know, you see the damage that was done at that time there, and I think this is why it is really important what you all are talking about today.

So we have decided to name my bill the Mystic Alert Act, which would incorporate satellite into the wireless emergency alert process to close the divide to deliver timelier alerts via satellite. And I appreciate both sides of the aisle coming together to discuss this.

And we know that low Earth orbit satellite partnering with commercial services to provide that direct-to-device capabilities will help to not only close that digital divide but also provide the emergency services when you are in a situation where it is needed.

And it is neat to have a home district company, AST, that offers this exact service. So Ms. Manner, I will get to you in just a second.

But Mr. Gerst, in your written testimony you described WEAs as among the most powerful alert and warning tools available to protect the public when emergencies unfold.

Can you discuss how incorporating the space-based mobile broadband into the WEA system would improve this, and especially in areas where that infrastructure is damaged or in rural areas?

Mr. GERST. Congressman, thank you so much for your question. I know this is a personal issue for you. It is personal for me, too, as a dad of kids who go to summer camp.

WEAs work. When they go, when they are sent, they save lives. And so our goal is to get those messages out as quickly as possible with the capabilities that our networks, wireless networks, can reach.

But we know that they don't reach all areas right now, despite all of our efforts and investment and deployment. So we are very excited about the opportunity to partner with satellite companies. We are in the very early stages of that right now, but there are some advancements we are seeing already.

Your bill is—shows real leadership to help us move that forward. So thank you for that.

Mr. PFLUGER. Well, thank you.

And Ms. Manner, we are very proud of AST and have been following the progress for many years since my very first visit in Midland, Texas, to watch what you all are doing with satellites. But can you talk about the work that you are doing, that AST is doing to support the emergency alerting system, and how incorporating space-based mobile broadband into the WEAs would help first responders in their preparedness?

Ms. MANNER. So thank you very much, Congressman, and we are very proud to be a Midland-based company.

So I think going back to basics in our network ensures that we have space—that we have emergency alert capability. That is part of our DNA, part of our recipe. So right now we are working with our partners here in the U.S.—AT&T and Verizon—to make those services available.

But I do want to say it is going to take a little bit of time and a little bit of money because we have to make sure we have sufficient satellites up and operational. And as you know, Congressman, we are on our way there, planning to launch 45 to 60 satellites this year so we will have full coverage of the U.S. And we must complete network integration with our partners.

But when it is deployed—that is where we get exciting—is that U.S. subscribers will be able to receive emergency alerts even on the most tragic days in the U.S. when the terrestrial network is not available. And that is why we do support the purpose and intent of the Mystic Act.

So thank you very much.

Mr. PFLUGER. Well, thank you. Thank you for the work that you do.

Captain Varnado, I am going to have to submit a question for the record on my Amateur Radio Emergency Preparedness Act.

But I just want to say that this, you know, this event, I think, it was—it is tragic. You know, there is—the loss of life along the Guadalupe River, where, you know, I have grown up as a kid. And now, you know, having kids that are attending that camp was just so tragic. And this is something, technologically speaking, that you all have a solution for that I am very hopeful that our Congress can come together to utilize this to prevent that from happening not just there but in any area, in any circumstance, that we can have that information at our fingertips.

And Mr. Chairman, thank you for holding this hearing. I yield back.

Mr. HUDSON. Thank you.

The Chair now recognizes the gentlelady from California, Ms. Barragán, for 5 minutes for your questions.

Ms. BARRAGÁN. Thank you, Mr. Chairman. I think this is an important hearing, but I have to say I am extremely disappointed that it would be held in conflict with a classified briefing in which they are talking about possible military strikes and a war that we would get into. So it is just shocking to me that that would be done.

The Wireless Emergency Alerts are one of the fastest ways to get lifesaving information to the public. And so I am so grateful for the work that everybody on this panel has done on that work. They give families the critical seconds they need to stay alive during fires and earthquakes and other emergencies. I know when I see an alert I immediately look at it and then ask myself, Did my family get it? Do people I know get it? This is so important.

Recently—there are recent events in my district like a container ship fire at the Port of Los Angeles happened where a shelter-in-place alert was not put in place for nearly 6 hours. It demonstrates how human error puts lives at risk.

So Dr. Sutton, I want to ask you. Los Angeles communities have seen repeated emergency alerting failures over the past year, including alerts accidentally sent hours too late or missing critical details about where and when the emergency is taking place.

Where do you see the largest gaps in training for the public safety officials who send emergency alerts? And what can Congress do to address them?

Dr. SUTTON. Thank you for that question.

The gaps in training are linked to standards, that there are no specific standards for training for emergency alert providers beyond being trained to utilize the system itself. Monthly tests are simply issued as test messages within a closed system, not requiring individuals to practice writing messages or sending them to live locations.

Training would significantly improve, but the standards need to be set requiring authorized alerting providers to take additional training on how to write complete and actionable messages. And currently those things do not exist.

Training also is not complete in that area. Most of the times, public information officers are trained on crisis communications and not on alerts and warnings.

Ms. BARRAGÁN. Great, thank you.

Mr. Gerst, I found your testimony to be pretty powerful and very important. I want to thank you and the wireless industry for the important and often the lifesaving role they play in delivering emergency alerts to the public.

Now, when I was reading your testimony I think what really struck me is when you talk about, you know, during these life-threatening situations you say wireless communications are often the first and sometimes the only connection between Americans and the emergency response heroes that keep everybody safe. And so I think that just highlights the critical role that the wireless industry plays.

You also write in your testimony about how the wireless industry works to ensure that all Americans can get access to critical information when help is needed the most, and I think the critical word there is “all Americans.” I think about people like my mom. I think about people like neighbors that I know who may not have English as a first language.

And making sure that people in my district that speak Korean and Tagalog and Vietnamese also can get those emergency alerts, you would agree they too should be able to receive these wireless emergency alerts in a language they can understand, yes?

Mr. GERST. Absolutely.

Ms. BARRAGÁN. Well, thank you. The FCC recently published a rule on December 10, 2025. It is called the Wireless Emergency Alerts in the Emergency Alert System. This summary talks about the implementation of parameters for multilingual Wireless Emergency Alerts. It states in here it is requiring commercial mobile service providers who participate in WEA to support multilingual templates for the most commonly issued and most time-sensitive types of alerts in English, the next 13 most commonly spoken languages in the United States, and American Sign Language.

Mr. Gerst, I think this is progress. I think this is real progress. It is why I worked with the Congressional Hispanic Caucus, I worked with the Congressional Black Caucus, and the Asian Pacific American Caucuses to support moving forward with something like this immediately because we know that once the wireless industry implements its plan, alerts sent by public safety officials in English will automatically show up in your phone’s default language. The innovation will save lives.

Mr. Gerst, will you commit on behalf of CTIA that a wireless industry representative will meet with me in my office to discuss how the industry will implement the FCC’s 30-month plan to ensure that wireless emergency alerts reach all Americans, as you say, including my constituents who don’t speak English?

Mr. GERST. Congresswoman, we are happy to meet with FEMA. We work with the FCC. We work with FEMA to—and all agencies to enhance Wireless Emergency Alerts. We are working to implement multilingual alerting, as well. In fact, today alert originators can use an embedded link in a device to get multilingual information out. So in the meantime, we encourage alert readers to do that

so they can get the information they need to the communities they serve, but we are happy to meet with government officials on this issue.

Ms. BARRAGÁN. Great. I look forward to hearing about your wireless—the wireless plan done in 30 months.

Thank you.

Mr. HUDSON. Thank you. The Chair now recognizes the gentlelady from Indiana, Mrs. Houchin, for 5 minutes for your questions.

Mrs. HOUCHIN. Thank you, Mr. Chairman. Thank you to the ranking member for—and the witnesses for being here today for your testimony.

I am glad to see this committee is taking up a slate of bipartisan bills. Public safety communications is one of those rare areas where the technology is moving fast, the stakes are high, and Congress has a real opportunity to make systems work better in the moments that matter most.

When I have met with first responders in my district in south-east Indiana, I consistently hear that clear, coordinated systems allow them to share information quickly, direct resources effectively, and keep both first responders and the public safe in very, very critical moments.

We have heard today how much the landscape has changed. Wireless networks now carry more than 80 percent of 9–1–1 calls, and providers are investing heavily in resiliency and backup power. But at the same time, our 9–1–1 professionals are still operating on infrastructure that traces back to the 1970s. Without Federal standards or directed funding, adoption of next generation 9–1–1 remains an uneven and fragmented process across multiple States and localities.

Against that backdrop, the bills before us today, ranging from the NG 9–1–1 Act to the Mystic Alert Act, the Emergency Reporting Act, and others, represent a chance to build a modern, interoperable, and resilient public safety ecosystem.

Mr. Varnado and Mr. Gerst, several bills today aim to strengthen interoperability across public safety ecosystems. What should Congress prioritize to ensure that 9–1–1 systems, alerting platforms, wireless networks, and emerging satellite services function as a unified network across State and local boundaries?

Mr. VARNADO. I think Congress should adopt a comprehensive framework for next generation 9–1–1 to ensure all communities have access to modern, reliable, and interoperable emergency communications.

Mr. GERST. Congresswoman, thank you for the question. We are working every day right now to work with 9–1–1 authorities to implement next generation 9–1–1 for our part. Our part is delivering the calls to the call centers.

We completely agree that the Federal Government should marshal its forces, its resources to help State and local governments move to the next generation 9–1–1 services as quickly as possible, given the interoperability, the redundancy, all the capabilities that consumers who place calls on our networks expect our public safety services to have.

Mrs. HOUCHIN. And it is really, honestly, unbelievable to me that we are here in this—at this point, when we are 20-plus years post-9–1–1, when we have had—we saw those interoperability problems exacerbated to tragic levels, and we are still yet talking about next generation 9–1–1. So I do hope that this hearing will move our work forward to completion.

Mr. Gerst, as NG 9–1–1 systems come online, AI tools are already being tested for call triage, translation, and identifying high-risk situations. What opportunities and risks do you see in applying AI inside 9–1–1 call centers?

And what safeguards should we consider if those capabilities become standard elements?

Mr. GERST. We are very excited about AI overall, whether it is network optimization and better speeds and services for the consumers we serve, and we are also seeing how AI can be helpful, as you mentioned, in triage processes. I believe NTIA put out a report just a couple of weeks ago that their analysis, or analysis that was provided to them, showed that AI using—triaging nonemergency calls reduced, you know, those calls by 40 percent. That helps our telecommunicators, the folks who actually take the calls, have the ability to respond to the calls that they need—actually need help.

I will defer to Captain Jack Varnado on the specifics of the operations, but overall we are very excited about what AI can do in that space.

Mrs. HOUCHIN. Thank you. And as a Member of Congress, I have visited my—some of my dispatch centers, fielded a call or two for the dispatch system, and really am grateful for the work that they do, and the support that we can give them is critical. I would encourage lots of Members of Congress to go take the time to visit the dispatch center to see what they deal with on a daily basis and the difficulties engaged in that.

Thank you again to the witnesses. Today's hearing makes one thing unmistakably clear: First responders cannot do their jobs without communication systems that are trustworthy, interoperable, and resilient. This bipartisan work in front of us is an opportunity to close those gaps. I look forward to continuing this effort with our colleagues on both sides of the aisle.

Thank you, Mr. Chairman, and I yield back.

Mr. HUDSON. Thank you. The Chair now recognizes the gentleman from Louisiana, my partner in 9–1–1, Mr. Carter, for 5 minutes for your questions.

Mr. CARTER OF LOUISIANA. Thank you, Mr. Chairman, and thank you for your leadership. Thank you to our witnesses for being here today.

Across the United States, hundreds of millions of calls are made to 9–1–1 every year. However, there are 9–1–1 call centers in Louisiana and across the country that still lack modern 21st century communication infrastructure. This can significantly delay emergency response times and put lives at risk.

This is why I am proud to colead this bipartisan legislation with Chairman Hudson to modernize our 9–1–1 systems infrastructure. This legislation will ensure dispatchers and first responders have the best digital tools at their disposal and are well prepared and

equipped to respond when disasters or emergencies strike our communities.

Captain Varnado, as you know, Louisiana has faced some of the most—some of the Nation's most devastating natural disasters, including hurricanes that stressed our 9-1-1 system. How can improving our interoperability between emergency communications centers across parishes help ensure that first responders can coordinate effectively during these events and maintain reliable access to 9-1-1 for all Louisianians?

Mr. VARNADO. Congressman, thank you so much for that, and thank you for the work that we have done in the past at the State legislature.

But I can tell you, you know, during hurricanes, especially the hurricanes that we have had come ashore in the last 25 years, we have seen evacuations needing to occur, call volumes increasing on call centers in upper inland Louisiana. And we—right now we don't have the ability to be able to transfer our 9-1-1 operations to a different center in the legacy network. We need that ability to be able to transfer that and get them out of harm's way for being able to be the resource during times of emergency.

So a resilient, robust, and secure network is what we need to be able to function for our citizens. We don't take everybody out of the cone of damage, we are staying—

Mr. CARTER OF LOUISIANA. There are a lot of pieces of this puzzle that people never see.

Mr. VARNADO. Yes.

Mr. CARTER OF LOUISIANA. The challenges that you undertake are grave, and we greatly appreciate the heroic acts that you and your men and women perform.

Captain Varnado, as you know, my district includes both urban areas and smaller rural communities. Many of the rural and underserved areas in my district face unique challenges, including continued reliance on outdated 9-1-1 legacy systems. How would funding from proposals like the Next Generation 9-1-1 Act improve and enhance emergency response capabilities in rural and underserved communities that might lack adequate communication infrastructure?

Mr. VARNADO. It is going to give them a level playing field to be able to access those high-speed internet networks. They need the ability—in many of those rural areas there is one internet provider. There is one. There is no resiliency there. That is why we are glad to see the satellite companies coming in to be able to—here in the near future be able to do that. But we need to have resilient and redundant communication networks.

Mr. CARTER OF LOUISIANA. Any small gap in communication means precious minutes, seconds, which translates to, in many cases, a person's life or death.

Mr. VARNADO. Yes.

Mr. CARTER OF LOUISIANA. If a person has a stroke or a heart attack, in need of instruction, those precious seconds that a lack of state-of-the-art technology provides could mean the difference between life and death. Is that correct?

Mr. VARNADO. Yes, they—absolutely.

Mr. CARTER OF LOUISIANA. So can you describe the importance of cybersecurity in the transition of next gen 9–1–1?

Mr. VARNADO. In your—

Mr. CARTER OF LOUISIANA. Can these upgrades alleviate some of the security vulnerabilities that might exist across the antiquated legacy systems?

Mr. VARNADO. In yours and Chairman Hudson's bill, it does that. It sets up a cybersecurity resource center that we can share data about threats. But in our current legacy systems, the operating systems on a lot of these are so old they cannot even take some of the new cybersecurity measures into place. So there is a huge vulnerability right there. But in your bills, they actually have that cyber resource center that we need so badly because we are not the experts in cybersecurity.

Mr. CARTER OF LOUISIANA. But you are the experts in saving lives.

Mr. VARNADO. We are.

Mr. CARTER OF LOUISIANA. And as we conclude my portion of this and pass on to my other colleagues, I want to say thank you. Thank you to you all for the incredible work that you do, the unsung heroes that often people don't see. They don't see the voice behind 9–1–1, the person that offers the help, the person that administers the resources. So we have never said it before. Let us be very clear: We greatly appreciate you. Thank you.

I yield back.

Mr. HUDSON. I thank the gentleman. The Chair now recognizes the gentlelady from Virginia, Ms. McClellan, for 5 minutes to ask your questions.

Ms. MCCLELLAN. Thank you, Mr. Chairman and Ranking Member Matsui, for holding this very important topic—hearing on a topic that impacts all of our communities.

As we have heard today, communities rely on 9–1–1 systems not only in moments of crisis but for the trust and confidence that comes from knowing that help is on the way. As we confront school shootings, hurricanes, flooding, wildfires, and other emergencies, we have to ensure that our first responders have reliable and operable and modern communication tools. That is a necessity, not a luxury.

It is critically important that no community gets left behind in the transition to next gen 9–1–1, yet the latest data available shows—and as Captain Varnado has so eloquently stated many times today—many communities, particularly our rural ones, are in fact being left behind. The most recently available data from 2021 shows that only 12 States have 100 percent of their population served by next gen 9–1–1-capable PSAPs, or—11 States have 0 percent of their population so served.

Our September hearing on this issue made clear that funding is a primary challenge to PSAPs making this transition, and we have heard that here today. It is important to note that, generally, it is our local governments that own and operate and therefore have to pay for the establishment, operation, maintenance, and transition of these PSAPs through their general funds and, in some cases, local- and State-imposed E9–1–1 surcharges. That is not enough.

Our local governments face numerous fiscal challenges, and that is why I am so pleased to see Chairman Hudson and Representative Carter's bipartisan leadership to establish a funding mechanism to help upgrade legacy 9-1-1 systems to NG 9-1-1. But as the conversation here today, particularly with Captain Varnado, has illustrated, the rub will come in how much money gets appropriated for these grants.

Congress last estimated the cost to transition all 5,700 PSAPs, primary and secondary, to next gen 9-1-1 in 2018, but the costs have likely gone up in the past 7 years through inflation, through the cost of labor, increases in costs and fiber optic components, PVC, and other insulation materials used as a result of tariffs. So the total cost to upgrade all 5,700 primary and secondary PSAPs is likely—has likely gone up.

So today's discussion and the associated bills are critical to ensuring that these benefits are realized nationwide and no community is left behind. But whether these bills are successful in closing those gaps is going to depend on how much funding Congress makes available. So far, we failed the mark.

So let me ask all witnesses: How do these uneven levels of NG 9-1-1 capability and deployment undermine emergency response when Federal responders and law enforcement operate across multiple State and local jurisdictions, particularly during large-scale or cross-border emergencies?

And I will start with you, Captain.

Mr. VARNADO. I think that we are talking about two different types of things. Locals and States usually handle 9-1-1 calls and emergencies, planned events at the Federal level. So they are a little bit different there. But the need to be able to coordinate those responses is very much so needed.

Ms. MCCLELLAN. And do you think that having different levels of capability to receive emergency calls in different jurisdictions that have to coordinate in a multijurisdictional event, particularly with Federal officials, makes that coordination more complicated?

Mr. VARNADO. It does make it more complicated. We need to be a seamless, resilient network together that we can share data back and forth, one to the other.

Ms. MCCLELLAN. Thank you. And I don't have much time left, but if anybody would like to add on to that.

All right. No? And then I had one question that I may need to have Ms. Sutton to answer on the record.

You talked about how one of the biggest hurdles we have to overcome is also the language we use to communicate. What is the top actionable change you would like to see in how emergency systems communicate with the public?

Dr. SUTTON. I would like—thank you for that question, and I would like to see training required for every authorized alerting provider who touches the system. That means everyone who writes messages, who has the authority to push the button, they need to be trained and not have just a single person within the office have that required training. Instead, it should go through every single person who has the ability to push the button.

Ms. MCCLELLAN. Thank you, and I yield back.

Mr. HUDSON. Thank you. The Chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes to ask your questions.

Mr. CARTER OF GEORGIA. Well, thank you, Mr. Chairman, and thank all of you for being here. Mr. Chairman, this is such an important hearing. The public safety debate is so very important.

It is also very personal for me. I had two granddaughters at Camp Mystic and, unfortunately, one of their cousins didn't make it. And Janie Hunt is now in heaven. So this is certainly, certainly something that is very important to me and to everyone who was involved at Camp Mystic.

We come a long way with Wireless Emergency Alerts and especially at critical times. But sometimes the system doesn't work like we want it to. And unfortunately, that was one of those times.

Mr. Gerst, I am curious. And this was kind of just alluded to by the doctor, but I am curious as to how we can make sure alert originators are providing the right information in a way our constituents can digest it quickly.

In other words, do we need more training programs? Would you agree?

Mr. GERST. Congressman, yes, absolutely.

Mr. CARTER OF GEORGIA. You know, one of the things that I have done in my district is—and I represent south Georgia, I represent the coast of Georgia and south Georgia. We have a lot of hurricanes. And one thing that we have—we try to do every spring before the hurricane season starts is get all the emergency personnel together and start communicating and sharing ideas, making sure everybody knows everybody and that everybody is—because the hurricane doesn't know county boundaries, and every county has got different public service personnel and groups. So we try to make sure that we are communicating, and certainly making sure that we are training is very important.

How can we improve some of these alerts that we have, Mr. Gerst?

Mr. GERST. Well, Congressman, again, on the—your personal experience, you know, I know this is an issue for—personal issue for you. It is also a personal issue for, I think, all of us who want to make sure that Wireless Emergency Alerts get out to the people that need them when they need them.

For our part, we deliver the message that alert originators send. They decide where it goes, when it goes, what it says. We have new capabilities, new—we have included geotargeting. We enable different features within the devices. We are going to have location-aware mapping capabilities coming out next year. The FCC continues to encourage the industry and push the industry to add new features. Alert originators need to know how to use those features so that they can effectively serve their communities.

The work Dr. Sutton is doing in trying to help train alert originators is critical to make sure that they can use those as effectively and maintain WEA as a powerful tool.

Mr. CARTER OF GEORGIA. What about sending emergency signals with satellite technology? I know in western North Carolina after Hurricane Helene, that was something that was—certainly something that would have been useful.

Mr. GERST. Congressman, absolutely. We believe our networks are stronger than they have ever been, with billions of dollars we have invested, with redundancy, with all the capabilities to make sure that our cell sites are up and running when they need them.

We have two challenges to that. That is the availability of power and the availability of fiber backhaul. And that is why we are really excited about satellite technology, because in those situations where it is hard to get the power back on, it is hard to get to those areas to deploy that fiber, if we can rely on satellite technologies to make sure that the public can—and consumers can reach 9–1–1 or they can get Wireless Emergency Alerts, it is going to make them ultimately safer.

We are already seeing some examples of that today, you know, hikers in a rural area being able to reach 9–1–1 and, you know, challenges of the 9–1–1 community now having to serve those areas that they didn't have to serve before. So we are working through all these issues, but we are in—and we are in the early stages. It is a very exciting opportunity, though, to serve the public.

Mr. CARTER OF GEORGIA. You know, I am proud to be the cosponsor of the Mystic Alert Act with Congressman Pfluger, who had daughters at Camp Mystic, as well. And it is in honor of Janie Hunt and the other victims of the Camp Mystic flood. This bill, it would direct the FCC to undertake a formal rulemaking to establish technical standards to establish protocols and operational requirements to allow commercial mobile service providers to deliver emergency alerts via satellite connectivity.

If this bill were signed into law, Mr. Gerst, how should the FCC balance flexibility for innovation with the need to uniform national alerting standards?

Mr. GERST. Congressman, thank you for that question because, you know, this committee helped to usher in Wireless Emergency Alerts from the beginning and put in a flexible framework to be able to use the technology that we have available. And we settled on cell broadcast technology so that anybody, no matter what service they are subscribed to, can get access to Wireless Emergency Alerts if they have a WEA-capable device. So we think that that system works well. We want to make sure that, as we are integrating new capabilities, we are able to preserve those capabilities going forward.

I am happy to work with you and the congressman on your bill.

Mr. CARTER OF GEORGIA. OK. Well, and I am out of time, but I want to ask you real quickly: What kind of timeline is realistic for the FCC to establish something like this?

Mr. GERST. Congressman, it is a great question and something that I am sure we are happy to work with you on.

Mr. CARTER OF GEORGIA. OK. Thank you very much. Thank all of you for everything you are doing. Thank you from the bottom of my heart.

Mr. HUDSON. I thank the gentleman.

I ask unanimous consent to insert in the record the documents included on the staff hearing documents list.

Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. HUDSON. Seeing there are no further questions, I would like to thank our witnesses for being here today. This was a fantastic hearing. We have learned a lot of good information. Thank you for making the time to be here.

I will remind Members they have 10 business days to submit questions for the record, and I ask the witnesses to respond to these questions promptly. Members should submit their questions by the close of business on Tuesday, December 30.

Without objection, the subcommittee is adjourned.

[Whereupon, at 12:15 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

Documents for the Record – 12.16.25

1. A November 13, 2025, letter from public safety organizations.
2. Statements titled, “Public Radio Provides Lifesaving Public Safety Services”
3. A December 16, 2025, letter from the National Fraternal Order of Police to committee leadership.
4. A December 16, 2025, letter from National Call for Safe Technology.



November 13, 2025

VIA ELECTRONIC FILING

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street NE
Washington, DC 20554

RE: *Wireless Telecommunications Bureau and Office of Engineering and Technology Seek Comment on NextNav Petition for Rulemaking* (WT Docket No. 24-240); *Promoting the Development of Positioning, Navigation, and Timing Technologies and Solutions* (WT Docket No. 25-110)

Dear Ms. Dortch:

On behalf of the membership of the International Association of Fire Chiefs (IAFC), the International Association of Chiefs of Police (IACP), the Association of Public-Safety Communications Officials-International (APCO), and the National Sheriffs' Association (NSA), we thank the Federal Communications Commission (FCC) for the opportunity to provide a public safety perspective on NextNav's Petition for Rulemaking ("*NextNav Petition*") seeking to alter the rules on the 902-928 MHz band (Lower 900 MHz Band) and the related Notice of Inquiry on Promoting the Development of Positioning, Navigation, and Timing Technologies and Solutions.¹

We recognize NextNav as a leader in determining the accurate location of a caller in a building and acknowledge their work in developing technology to ascertain the location of public safety responders in buildings.

However, as the leadership of America's public safety services, we believe NextNav's proposed PNT solutions could negatively affect existing incumbent operations essential to the preservation of life and safety. Thus, as explained below, we respectfully urge the FCC to deny the *NextNav Petition* and refrain from further action on proposals outlined in the *PNT NOI* to the extent they would require changes to the Lower 900 MHz band.²

Evidence from recent reports and studies, such as the engineering review submitted into the record by Pericle,³ highlight potential risks of NextNav's proposal to critical life safety systems. These systems are prevalent throughout our country, especially in Americans' homes and businesses. The rule changes requested in the *NextNav Petition* could have significant negative consequences for public safety.

Currently, unlicensed devices operate in the Lower 900 MHz Band, including many types of life safety technology that are used by public safety agencies and homeowners on a daily basis. Altering the rules for this band, as NextNav proposes, risks creating interference with these devices, which could compromise the reliable

¹ NextNav Petition for Rulemaking, Enabling Next-Generation Terrestrial Positioning, Navigation, and Timing and 5G: A Plan for the Lower 900 MHz Band (902-928 MHz) (filed Apr. 16, 2024) ("*NextNav Petition*"); *Promoting the Development of Positioning, Navigation, and Timing Technologies and Solutions*, WT Docket No. 25-110, Notice of Inquiry, FCC 25-20 (Mar. 28, 2025) ("*PNT NOI*").

² *PNT NOI* at para. 29 (seeking comment on PNT technologies that rely on or incorporate solutions provided by NextNav).

³ See Radio Coexistence Study Between Lower 900 MHz Incumbents and Potential 5G Network, Pericle Communications Company (September 9, 2025).

operation of technologies relied upon for public safety and emergency response. The following are examples of devices that could be affected if NextNav's proposals were allowed to proceed:

- **Man down systems/solutions.** These devices and solutions help provide public safety agencies with the location of first responders and other pertinent life-safety data while on the scene of an incident. They are especially critical for public safety personnel, because they provide critical tracking data for first responders in unfamiliar settings.
- **Self-Contained Breathing Apparatus (SCBA) systems.** SCBA systems provide respiratory protection for first responders in hazardous environments, including fire and areas with toxic gas. These devices may incorporate connectivity features over the Lower 900 MHz band to monitor firefighter status, air supply levels, and environmental conditions. This enables remote monitoring of air cylinder pressures, automatic alerts if a wearer is in distress or immobile, and integration with incident management software for real-time safety oversight.
- **IoT wildfire sensing and wind profile radars.** Connected cameras and sensors equipped with AI use the Lower 900 MHz band to detect environmental conditions conducive to wildfires and create wind predictions for wildfire mitigation. These systems provide early warning and situational awareness to inform public safety decision-making and resource deployment.
- **Preemption of traffic signals.** These devices help emergency vehicles override typical traffic signal operations. They ensure that emergency vehicles have the right-of-way and can reach the incident scene in a quick and timely manner.
- **Automatic utility gas/electric shut off capabilities.** When first responders encounter a scene where live electricity or a gas leak is present, often their first call is to utility companies. Remote shut-off systems operate on the Lower 900 MHz Band. If gas and electric companies cannot operate their remote shut off systems, first responders' lives and safety could be at risk.
- **Smoke and carbon monoxide detectors:** These detectors can be found in the homes of most American citizens. These devices alert people to unsafe levels of smoke or carbon monoxide present in residences or businesses, so that people can evacuate safely. These detectors are often connected directly to alarm companies to allow first responders to arrive on the scene more quickly.

The IAFC, IACP, APCO, and NSA appreciate the opportunity to comment on NextNav's proposal for the Lower 900 MHz band. If the rules governing the use of devices in the Lower 900 MHz band are changed in accordance with NextNav's proposal, many unlicensed life-safety devices may experience reduced functionality or operational limitations that place first responders and the public at risk. Furthermore, NextNav has not presented any proposals that we believe will prevent these potential impacts to critical life-safety systems or measures to mitigate these disruptions should they occur.

In summary, while we appreciate the Commission's ongoing exploration of PNT technologies and acknowledge the potential of the various approaches outlined in the *PNT NOI*, we urge the FCC to consider the critical implications of NextNav's proposal and deny their petition for rulemaking, as well as any proposals in the *PNT NOI* that would require changes to the Lower 900 MHz band. Instead, we encourage the FCC to continue pursuing alternative PNT solutions to support public safety while ensuring that incumbent life-safety systems remain fully protected.

Respectfully,

International Association of Fire Chiefs (IAFC)

International Association of Chiefs of Police (IACP)

Association of Public-Safety Communications Officials-International (APCO)

National Sheriffs' Association (NSA)

Public Radio Provides Lifesaving Public Safety Services

Public broadcasters are committed to their public safety mission and maximizing their broadcast spectrum and infrastructure for the public good.

The Public Radio Satellite System (PRSS) – which connects over 1300 public radio stations for the distribution of programming – also enables national emergency alerting. **Without public radio, the federal or state governments would have to decide between funding replacement emergency alerting systems or forgo ensuring that all residents have access to life-saving information.** For rural communities, large expanses and low population density would raise substantial financial barriers.

PRSS receives a national EAS feed directly from FEMA to send Presidential-level emergency alerts to local public radio stations, in the event of a national emergency. On February 15, 2019 the FEMA National Advisory Council issued a report on Modernizing the Nation's Public Alert and Warning System, which clearly recognizes the importance of public broadcasting's role in public safety and identifies a need for continued partnerships, recommending that FEMA encourage "use of public broadcast capabilities to expand alert, warning, and interoperable communications capabilities to fill gaps in rural and underserved areas."

NPR/PRSS has been named as a resource in at least 20 states' emergency plans, for example, in Florida, "The National Test will be relayed to the three Primary Entry Point stations in Florida: WOKV (690 AM) – Jacksonville, WFLF (540 AM) – Orlando, WAQI (710 AM) – Miami. The National EAS Test will also be relayed to Florida Public Radio via the National Public Radio "squawk" channel. LP-1 and LP-2 stations MUST monitor two National EAS sources – PEP stations or NPR. PEP and NPR are the Participating National sources for this national EAS test. All broadcast stations and cable operators should monitor their respective LP-1 and LP-2 stations, and/or a PEP station and/or NPR station."

Public radio stations are included in more than 35 states' emergency plans, for example, "Texas' EAS State Plan will utilize (for the Primary EAS Distribution Method) the resources of the four national Primary Entry Point (PEP) stations located in the state, the National Weather Service, a web of State Relay (SR) entities, and Local Primary (LP1, LP2 and in some cases LP Spanish) stations in 25 geographic areas, a satellite delivered radio news service (Texas State Networks), participating National Public Radio (NPR) affiliate radio stations located in the state and the Texas Department of Public Safety and the DPS Division of Emergency

Management, to disseminate emergency messages to the public throughout the state's 254 counties." Many stations also serve as their state's Primary Entry Point (PEP) for alert and warnings.

From wildfires, to hurricanes, ice storms, tornadoes and more...public radio stations keep communities safe. As key local news providers, public radio stations leverage their reporting resources to offer live news and information on disasters and other emergencies, providing real-time information on where local audiences can access resources and safe locations.

This is even more important when the power goes out, and cell networks or the internet go down. Radio is the most reliable form of communication in an emergency, and public radio provides essential backstopping for all other emergency alerting services and activities across the public media system.

Hurricanes Helene & Milton

For a week after Hurricane Helene hit the East Coast, 500,000 people did not have power. Internet and cell service remained spotty. Asheville's Blue Ridge Public Radio (BPR) was at the epicenter of this disaster.

With four reporters on staff at the station, this small but mighty team provided the most reliable source of information for the surrounding counties, particularly because other sources of information could not be accessed without power. BPR changed its format and schedule completely for nine days with up to 15 hours of local programming, filling the air with public information and anchoring the day with the twice-daily live County/Regional briefings from public officials followed by the two-way analysis. The station translated the briefings into Spanish and aired them at 8:00 pm each night through a partnership with a non-profit news start-up.

BPR worked with partners to create a text-only version of its website for slow



cellular and internet connection, launched a daily update via newsletter, and focused on community outreach and engagement via social media. BPR's low-bandwidth friendly, text-only website was [endorsed](#) by the North Carolina Attorney General as a resource for affected communities. Because the station maintained a power supply and internet connection when few others did, it also lent its space as a hub for local journalists at non-profit start-ups, the *Charlotte Observer*, *Associated Press* and other news organizations.

NPR and other organizations stepped up to provide editorial support for the small newsroom. Reporters at stations affiliated with NPR's Collaborative Journalism Network across the country—as far away as California and Alaska—signed up to volunteer in shifts to provide digital editing, social media editing and audio editing support.

In Florida, the [Florida Public Radio Emergency Network \(FPREN\)](#), a collective of 14 public media stations that reach 99% of Florida's population, began tracking the potential of Hurricane Helene a week prior to the Florida Big Bend landfall and worked closely with the Florida Division of Emergency Management to provide emergency preparedness information to statewide audiences. This network has been supported by the Florida state government in recognition of the valuable services it provides, as well as the Corporation for Public Broadcasting (CPB). It provides audiences with highly targeted public safety and weather information, for example, moving up the coast with alerts as a major storm advances and issuing news and weather alerts across every platform, including social media, to reach audiences wherever they are.

[Listen here to a testimonial from a Gainesville, FL audience member following Hurricane Helene.](#)

One week later, FPREN again supported Florida public media stations and audiences with alerts and information ahead of Hurricane Milton's landfall, including providing updates in English and Spanish.

Milton pounded the Tampa area, a region served by joint radio and

television licensee [WUSF](#), with torrential rain, high winds, tornadoes, and flooding. Like Helene, the public media system leapt into action to support WUSF's 24-hour coverage and response to the storm, with volunteers from stations and national organizations offering editing support for news, digital media and broadcast. WUSF offered live call-in shows, aired local briefings, and updated the live blog on its website regularly.

WUSF has been able to extend its FPREN service to other NPR Members. South Carolina Education Television also [utilizes](#) FPREN's capabilities to provide comprehensive weather coverage and extreme weather alerts statewide.

CPB's funding of a shared technical infrastructure for public radio ensures that stations across the nation remain online even when crises strike. NPR maintains the Grove Content Management System (CMS) that supports more than 200 station websites. During Hurricane Helene, [NPR created a text-only, low bandwidth feature available to WUSF](#) (and other NPR stations across Florida) to enable its website to be accessible in areas with poor cell service or Internet access – to keep residents informed and safe before and after the storm. This low bandwidth feature is now available to any of the more than 200 stations on the Grove CMS during a public safety emergency.

These sorts of services, including public radio stations' ability to broadcast emergency alerts nationwide, are particularly vulnerable to any disruptions in the federal investment in public broadcasting. **Because these services depend on the national interconnectivity provided by NPR's operation of the Public Radio Satellite System, there is no state-level replacement for the current national network of emergency alerts and digital services that keep Americans safe.**

NorCal Public Media serves a rural community in the hill country between the county seat of Santa Rosa and the Pacific Coast. Many of these people do not have broadband or even reliable internet access. Our free over-the-air information is crucial. In addition, Sonoma/Napa/Mendocino/Marin counties have essential farmworkers who rely on public media for information and updates about wildfire risk, flooding, and air quality updates.

- NorCal Public Media, a joint licensee based in Rohnert Park, CA

As a station serving a predominantly rural region in East Central Indiana, the loss of federal funding would disproportionately harm rural citizens who depend on Ball State Public Media for critical services that are often unavailable elsewhere. For many rural families, BSPM is a primary source of weather and emergency information, providing timely and reliable updates during severe storms, floods, and other crises that threaten their safety. Additionally, rural pre-K children and their families rely on our educational programming, such as PBS KIDS, to access free, high-quality early learning resources in areas where preschools and other educational opportunities are scarce. Without federal support, these essential services would be significantly reduced or eliminated, leaving vulnerable rural populations with fewer options to stay informed, safe, and prepared for lifelong learning.

- Ball State Public Media, a joint licensee in Muncie, IN

I first moved to Galveston for medical training and was here for Hurricanes Rita, Katrina and Ike (and still live here to this day, so have lived through other storms). Without the infrastructure and information shared by Houston Public Media, (our only available media source for a while when power was out and cellphone lines clogged) our family could have been in dire straits. We were able to communicate and find friends and colleagues during evacuation, and we had up-to-the-minute information. Later, when I began working in the Houston Medical Center and commuted from Galveston, the high-quality programming taught me so much about the greater Houston community, resources available, how Houston's role in energy production leads the world. It made what is often an extended and horrible-feeling commute much more pleasant. Please, I urge you to continue to invest in the programming that helps provide education, arts, resources and thoughtful discussion.

- Karen F., Texas



PATRICK YOE
NATIONAL PRESIDENT

**NATIONAL
FRATERNAL ORDER OF POLICE®**

328 MASSACHUSETTS AVE., N.E.
WASHINGTON, DC 20002

JIM PASCO
EXECUTIVE DIRECTOR

16 December 2025

The Honorable S. Brett Guthrie
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Frank J. Pallone
Ranking Member
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Guthrie and Representative Pallone,

I am writing on behalf of the members of the Fraternal Order of Police to share our serious concerns about certain provisions in H.R. 1519, the "Public Safety Communications Act," related to the administration of the First Responders Network Authority (FirstNet).

Since its establishment, FirstNet has built and operated a nationwide broadband network that prioritizes first responders, ensuring priority and preemption over commercial traffic. Our members have seen firsthand how FirstNet enhances officer safety and response efficiency, and law enforcement plays a direct role in its governance through the FirstNet Board and Public Safety Advisory Committee (PSAC), the latter of which includes a member of the FOP.

Any changes to the governance of FirstNet absolutely must include input and consultation with the public safety community. The FOP wants to ensure the FirstNet Board of Directors continues to oversee FirstNet and make decisions about its future investments and network improvements because that Board has proven to be highly responsive to our input and that of the wider public safety community through regular communication and formally through the PSAC. We believe the provisions in his legislation would encroach on the Board's and PSAC's role by adding unnecessary and harmful layers of bureaucracy.

The law that established FirstNet makes clear that public safety should be in charge of their network and empowered to make decisions about the operation and ongoing improvement of the network. There are real consequences to America's law enforcement officers and other first responders if FirstNet is subject to administrative or bureaucratic delays that prevent it from making timely investments in network improvements or technological innovations. It is our officers whose lives depend on these communication systems, and we must ensure that their views are communicated clearly and directly without needing to fight through an Office of Public Safety

Communications within the National Telecommunications and Information Administration (NTIA).

On behalf of the 382,000 members of the FOP, I urge the Committee to reject these provisions and instead prioritize the reauthorization of FirstNet under its current governance. Should you require additional information about the FOP's stance on this issue, please do not hesitate to contact me or Executive Director Jim Pasco in our Washington, D.C. office.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Yoes", with a stylized flourish extending to the right.

Patrick Yoes
National President

cc: Berl Perdue, President, Kentucky State Lodge
 Dave Mutchler, National Trustee, Kentucky State Lodge
 Bob Fox, President, New Jersey State Lodge
 Kevin Vernon, National Trustee, New Jersey State Lodge



December 16, 2025

TO:

Hon. Brett Guthrie, Chair
House Committee on Energy & Commerce

Hon. Frank Pallone, Ranking Member
House Committee on Energy & Commerce

Hon. Richard Hudson, Chair
House Subcommittee on Communications &
Technology

Hon. Doris Matsui, Ranking Member
House Subcommittee on Communications &
Technology

CC:

Hon. Ted Cruz, Chair
Senate Committee on Commerce, Science &
Transportation

Hon. Maria Cantwell, Ranking Member
Senate Committee on Commerce, Science &
Transportation

Submitted to:

Mr. Noah Jackson
Legislative Clerk
House Energy and Commerce Committee Communications and Technology Subcommittee
Noah.Jackson@mail.house.gov

**Re: C&T Subcommittee: Legislative Improvements to Public Safety Communications in
the United States
Hearing, December 16, 2025**

Dear Chairs Guthrie and Hudson,

We are writing with regard to today's hearing, Legislative Improvements to Public Safety Communications in the United States.¹

We are a national coalition, with a reach of over 30,000 people across all parts of the country. Together with our coalition partner groups, we have a reach of approximately 1.35 million people. As your staff knows, we advocate for the safe deployment of broadband technology.

We urge all members to oppose HR 1094: Amateur Radio Emergency Preparedness Act

This bill would preempt local zoning authority over amateur radio antennas up to 43 feet in height and apply a deemed granted remedy. Essentially, this bill expands the preemption approach HR 2289 to include amateur radio antennas.

We refer the committee to our letter on March 5, 2025,² in which we highlighted the White House's Make America Healthy Again (MAHA) agenda, and its inclusion of electromagnetic radiation (EMR) as a contributing cause of chronic disease. EMR was expressly set out in the Executive Order in February,³ reiterated in the MAHA assessment in May 2025, and reiterated again in the MAHA strategy on September 2025.⁴

Therefore, we urge the committee to:

- Restore liability for manufacturers to allow the free market to operate
- Restore states' rights to make decisions about their own infrastructure
- Create safety limits and oversight to protect the public
- Ensure taxpayer broadband funding is spent only on futureproof wired broadband

Proposed legislative text

We urge the Committee to advance the legislative text set out below. We also urge that the Chairs to work with their Senate counterparts and include this text as an amendment to the NDAA of 2026.⁵

¹ <https://energycommerce.house.gov/events/c-and-t-subcommittee-legislative-improvements-to-public-safety-communications-in-the-united-states>

² National Call for Safe Technology, Written Testimony for the Hearing on Rural Broadband on March 5, 2025 <https://thenationalcall.org/wp-content/uploads/2025/03/NC4ST-to-House-EC-on-Broadband-Hearing-3-5-25-FINAL.pdf>

³ See §4a <https://www.federalregister.gov/documents/2025/02/19/2025-02871/establishing-the-presidents-make-america-healthy-again-commission>

⁴ <https://www.whitehouse.gov/wp-content/uploads/2025/09/The-MAHA-Strategy-WH.pdf>

⁵ <https://www.congress.gov/bills/119th-congress/senate-bill/2296>

Incentivize FCC compliance with Congressional mandates

The One Big Beautiful Bill Act (Public Law 119-21) is hereby amended by inserting the following text at the end of Section 40002:

Notwithstanding anything to the contrary in Act, this section 40002 shall have no force or effect and shall not go into effect until the FCC complies with, and satisfies the requirements contained in, the mandate issued October 5, 2021 by the U.S. Court of Appeals D.C. Circuit in case number 20-1025. Such compliance shall consider, without limitation, input from other federal agencies with relevant expertise and materials submitted at any time prior to [the enactment date of this amendment] in FCC Dockets 13-84, 03-137, and 19-226.

The Spectrum and Secure Technology and Innovation Act of 2024 (Public Law 118-159) is hereby amended as follows: by inserting the following text at the end of section 5403:

Notwithstanding anything to the contrary in this Act, subsections (a) and (b) of this section shall have no force or effect and shall not go into effect until the FCC complies with, and satisfies the requirements contained in, the mandate issued October 5, 2021 by the U.S. Court of Appeals D.C. Circuit in case number 20-1025. Such compliance shall consider, without limitation, input from other federal agencies with relevant expertise and materials submitted at any time prior to [the enactment date of this amendment] in FCC Dockets 13-84, 03-137, and 19-226.

Rationale:

Spectrum auction authority was inserted into the One Big Beautiful Bill Act (Public Law 119-21) and the “Spectrum and Secure Technology and Innovation Act of 2024” (Public Law 118-159), which was inserted in the National Defense Authorization Act (NDAA) of 2025 (HR 5009, 118th).⁶ The these acts granted FCC authority to auction the various bands of spectrum.

Both of these pieces of spectrum legislation had been previously introduced on their own and failed. They passed only thanks to their inclusion in larger, “must-pass” bills, leaving no opportunity for amendments to this legislation.

Background on exposure limits

⁶ Public “Spectrum and Secure Technology and Innovation Act of 2024, Title LIV
<https://www.congress.gov/118/bills/hr5009/BILLS-118hr5009enr.pdf>

Since 2021, the FCC has ignored the US Court of Appeals DC Circuit order, issued in the successful lawsuit *Environmental Health Trust et al. v. FCC*, to provide a “reasoned explanation” for why the FCC decided not to update its human exposure limits for wireless radiation.⁷ The FCC has not considered the latest science since 1996, as it is otherwise obligated to do under the law. Making more spectrum available while failing to update its exposure limits puts all Americans at risk, and is harming millions of Americans.^{8,9}

Petitioners in this case have filed multiple follow-on petitions with the FCC to comply with the court order, spelling out exactly what the FCC must do to comply with the court.¹⁰

Current wireless exposure standards are based largely on 11 monkeys and 12 rats, which were exposed for less than one hour, over 40 years ago, with no control group.¹¹ GAO first recommended that the FCC revisit these limits back in 2012 and the FCC has not yet done so.¹²

Our proposed legislative text would incentivize FCC to follow the law. Complying with laws passed by Congress and a court order is not optional for the FCC – this is an administrative agency acting with impunity, while 100% of its budget is paid for by the industry it is supposed to be regulating.¹³

Making spectrum available for commercial use will automatically trigger heavy-handed preemption of states’ rights over wireless facilities, known as Section 6409,¹⁴ a provision that would be dramatically expanded under legislation being proposed at today’s hearing. As soon as

⁷ *Environmental Health Trust, et al. v. FCC* (DC Circuit, 2021) <https://media.cadc.uscourts.gov/opinions/docs/2021/08/20-1025-1910111.pdf>

⁸ National Call for Safe Technology, Congressional Briefing, 5/19/24 <https://thenationalcall.org/wp-content/uploads/2024/05/Congressional-Briefing-5-19-24-FINAL.pdf>

⁹ See “Comments of Advocates for the EMS Disabled,” In the Matter of Advance Notice of Proposed Rulemaking- Public Comment on Changes to Requiring Accessibility and Prohibiting Discrimination on the Basis of Disability in HUD -Assisted Programs, Docket FR 6257-A-01, 7/24/23

<https://thenationalcall.org/wp-content/uploads/2023/09/HUD-Submission-7-24-23-Final.pdf>

¹⁰ Petition To Implement D.C. Circuit Judgment And Mandate, Reopen Notice Of Inquiry, And Perform Tasks Ordered By The Court, And Request For Prompt Administrative Action, Filed by Environmental Health Trust, August 6, 2025

<https://www.fcc.gov/ecfs/search/search-filings/filing/10806965028484>

Joinder In Environmental Health Trust Petition To Implement D.C. Circuit Judgment And Mandate, Reopen Notice Of Inquiry And Perform Tasks Ordered By The Court, And Request For Prompt Administrative Action And Renewed Separate Motion For Similar Relief, filed by Children's Health Defense, November 25, 2025

<https://www.fcc.gov/ecfs/search/search-filings/filing/112586420384>

¹¹ International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF). Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G. *Environ Health* 21, 92 (2022). <https://doi.org/10.1186/s12940-022-00900-9>

¹² Exposure and Testing Requirements for Mobile Phones Should Be Reassessed, GAO-12-771, Jul 24, 2012

<https://www.gao.gov/products/gao-12-771>

¹³ FCC Budget in Brief, FY 2025. <https://docs.fcc.gov/public/attachments/DOC-401129A1.pdf>

¹⁴ Section 6409 states:

“a State or local government may not deny, and shall approve, any eligible facilities request”

See Middle Class Tax Relief and Job Creation Act of 2012, Public Law 112–96, 47 USC 1455.

more spectrum is made available, carriers across the country can add almost unlimited additional antenna and additional power output on their existing facilities to emit radiofrequency radiation using the new spectrum – despite no US government agency assessing these emissions for safety.¹⁵ Hundreds of localities around the country have sued the FCC over its rules implementing section 6409.¹⁶

We would be happy to discuss this letter and related matters further with you.

Attachments:

- A. Congressional briefing on wireless infrastructure policy
- B. Science compendium on biological hazards of wireless radiation

Respectfully submitted,



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¹⁵ Testimony submitted to Senate Commerce Committee, March 27, 2024
<https://ehtrust.org/wp-content/uploads/EHT-Testimony-to-Senate-Commerce-Committee-on-S3909-03272024.pdf>

¹⁶ See, e.g., *Montgomery County et al. v. FCC* (Fourth Circuit, No. 15-1240, 2015)
T-Mobile v. San Francisco 658 F. Supp. 3d 773 (N.D. Cal. 2023)
League of California Cities et al. v. FCC (Ninth Circuit, No. 20-71765, 2024)

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Congressional Briefing: Wireless Infrastructure Policy

Americans are being exposed to the hazards of wireless technology, which are unnecessary to reap its benefits. We advocate for responsible policy.

Hazards of current and proposed policies on wireless deployment:

1. **Regulatory gap: lack of oversight** no US government agency is protecting Americans from exposure to wireless radiation
 - 1996: FCC issues exposure guidelines,¹ while ignoring input from EPA²
 - 2012: GAO report recommends FCC review its 1996 exposure limits³
 - 2013-19: FCC opens docket and receives 11,000 pages of scientific studies of harm⁴
 - 2019: FCC closes the docket and decides not to update its wireless limits⁵
 - 2021: US Court of Appeals DC Circuit rules that FCC's decision not to update exposure limits was "arbitrary and capricious";⁶ FCC has not yet complied with the court order to address long-term exposure effects, including on children
 - FCC responsible for exposure guidelines despite having no health or safety competency.
 - There is no independent safety body, like NTSB for transportation
2. **Evidence of biological harm is clear and convincing**, for human health (cancer and noncancer), children, plants, animals, insects, and microbes⁷
3. **Ignores millions of Americans disabled by wireless radiation**⁸
4. **Subverts the free market** by imposing federal government mandates that override the free market and force experimental technology on Americans⁹
5. **Shields industry from liability** rather than encouraging industry to compete on safety¹⁰
6. **Tramples states' rights and local government on cell tower zoning and placement**
 - 6.1. Tenth amendment issues: preempts states from regulating cell towers on the basis of radiofrequency emissions, while the federal government is not doing so.¹¹
 - 6.2. Fifth Amendment takings issues: federal preemption is a regulatory and physical taking of private property and public property in rights-of-way, and drops property values without compensation^{12,13}
 - 6.3. Commerce clause overreach: while one can choose to abstain from a regulated activity,¹⁴ federal policy essentially commands that all Americans suffer involuntary exposure and property devaluation.
7. **Farm yields and cattle lifespan** threatened by wireless radiation¹⁵
8. **Fire and wildfire risks** from cell towers, which are electrical installations and have already caused disasters, including damage of \$6 billion in one fire¹⁶
9. **Cybersecurity risks** are far greater with wireless networks, 5G being the least secure, as former FCC Chairman Tom Wheeler refers to "The 5G Cyber Paradox."¹⁷

Solutions: we ask Congress to:

- Restore liability for manufacturers to allow the free market to operate
- Restore states' rights to make decisions about their infrastructure
- Create safety limits and oversight to protect the public
- Ensure taxpayer broadband funding is spent only on futureproof wired broadband

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Wireless interferes with broadband policy goals

10. Waste of public funds:

- 10.1. Fiber infrastructure's lifespan is fifty years (or more); wireless infrastructure's lifespan is only 5 years, making it a poor use of taxpayer subsidies.¹⁸
- 10.2. Billions of dollars in subsidies to wireless have not provided the promised ubiquitous service.¹⁹
- 10.3. Wireless and wired are not functionally equivalent technologies and therefore should not be treated on a "technology neutral" basis:²⁰ wireless suffers from line-of-sight obstructions, slower speed, inclement weather, and lack of scalability, whereas fiber is sustainable, renewable and futureproof.²¹

11. Energy consumption is far higher with wireless networks; 5G expected to increase energy consumption up to 61x between 2020 and 2030.²²

12. Wireless will perpetuate the digital divide, not solve it²³

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¹ The limits were based largely on just a few animal studies with 11 monkeys and 12 rats, with no control group, in the 1970s and early 1980s.

International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF), (2022). [Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G](#). Environ Health. Oct 18;21(1):92

² See note 7 below, at footnote 31 of Environmental Health Trust testimony, 3/27/24.

³ Exposure and Testing Requirements for Mobile Phones Should Be Reassessed. US GAO, 2012 <https://www.gao.gov/products/gao-12-771>

⁴ <https://ehtrust.org/environmental-health-trust-et-al-v-fcc-key-documents/>

⁵ Resolution Of Notice Of Inquiry, Docket 13-84, 12/4/19 <https://www.fcc.gov/document/fcc-maintains-current-rf-exposure-safety-standards>

⁶ *Environmental Health Trust et al. v. FCC*, 2021, DC Circuit

- The D.C. Circuit Court of Appeals ruled against the FCC for its failure to provide a reasoned explanation under the Administrative Procedures Act to maintain its 1996 wireless exposure limits without addressing extensive evidence of harm. The docket contained 11,000 pages of scientific, peer-reviewed studies showing harm below the FCC limits, including accounts of injury. The court wrote that the FCC failed to respond to “record evidence that exposure to RF radiation at levels below the Commission’s current limits may cause negative health effects unrelated to cancer.”
- The Court ordered the FCC to address impacts on children, long-term exposure effects on health, and the environment. To date, the FCC has failed to comply with the court order. Therefore, its 1996 limits cannot be relied upon to protect the public.

[https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFD7/\\$file/20-1025-1910111.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/FB976465BF00F8BD85258730004EFD7/$file/20-1025-1910111.pdf)

⁷ See testimony submitted by Environmental Health Trust to Senate Commerce Committee, 3/27/24, regarding spectrum policy and harms from radiofrequency radiation

<https://ehtrust.org/wp-content/uploads/EHT-Testimony-to-Senate-Commerce-Committee-on-S3909-03272024.pdf>

National Toxicology Program 2018: clear evidence of cancer (highest level of evidence)

<https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones#studies>

Woman living near cell tower diagnosed with 51 strokes,

https://www.momsacrossamerica.com/woman_living_near_cell_tower

⁸ See Reply Comments of Advocates for the EMS Disabled, FCC Docket 22-69

<https://thenationalcall.org/wp-content/uploads/2023/09/FCC-Reply-Comments-EMS-Disabled-Docket-22-69-DEI-NPRM-4-20-23-FINAL.pdf>

⁹ If wireless were so safe and desirable, why does the federal government need to trample on local governments to force deployment? As an example of federal preemption mandating deployments, section 6409 of the 2012 Middle Class Tax Relief and Jobs Act (47 USC §1455), under which the majority of wireless facilities are deployed today, mandates that: “a State or local government may not deny, and shall approve, any eligible facilities request.”

¹⁰ The plain text of 47 USC §332(c)(7)(B)(iv) preempts zoning decisions on the placement of cell towers on the basis of environmental effects of radiofrequency emissions within FCC regulations. Courts have inappropriately expanded deference to FCC’s limits resulting in shielding industry from tort liability, in effect creating a safe harbor for industry, while leaving the public exposed. For example, in *Cohen v. Apple* (2022, Ninth Circuit, No. 20-17307, petition for certiorari denied), the court wrote: “FCC’s regulations...preempted state laws that imposed liability premised on levels of radiation below the limits set by the FCC.” See amicus brief by Children’s Health Defense (2023) https://www.supremecourt.gov/DocketPDF/22/22-698/263539/20230414130203673_22-698%20%20Amicus%20Brief.pdf

Walker v. Motorola Mobility, 2:21-CV-00923 (W.D. La. 2023). The court wrote (at 22): “state law claims attacking the safety of the SAR Standard are preempted by federal law. Though the FCC disclaimed any expertise in health

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or safety, it set the SAR standard under a congressional mandate and in service of its broad statutory mandate to provide a uniform, efficient network.” [Emphasis added] <https://casetext.com/case/walker-v-motorola-mobility-llc> While companies are shielded from tort liability, at the same time the insurance industry does not insure these risks. Swiss Re calls 5G an “off the leash” insurance risk (see p.10-11). Telecoms [warn shareholders](#) of potential liability from health effect claims. Companies should compete on safety; some already recognize this. E.g., Swisscom patent to reduce wireless radiation because of the risk of cancer and neurological disorders, Int’l Pub’n No. WO 2004/075583 A1 2 Sept 2004 PCT, <https://www.avaate.org/spip.php?article2061> and by [cell phone manufacturers](#).

¹¹ *Murphy v. NCAA* US 2018, https://www.supremecourt.gov/opinions/17pdf/16-476_dbfi.pdf

¹² Cell towers inflict wireless pollution on private property, reducing the habitability of that property, without just compensation. See memorandum on constitutional considerations, section 1.c, for a discussion of Fifth Amendment case law

<https://docs.google.com/document/d/1DBTngzDuZ9lBmze58gBXsJs1jXzU5dQZx0ycFQumUk/edit#heading=h.6cycqdt7korzI>

Cell towers decrease property values: Wireless Towers and Home Values: An Alternative Valuation Approach Using a Spatial Econometric Analysis, 2017, <https://link.springer.com/article/10.1007/s11146-017-9600-9>

¹³ <https://www.emfanalysis.com/property-values-declining-cell-towers/?iframe=1&iframe=1&iframe=1>

¹⁴ *Nat’l Fed’n of Indep. Bus. v. Sebelius*, 567 U.S. 519, 553-54, 573-74 (2012).

¹⁵ <https://ehtrust.org/wireless-radiofrequency-radiation-effects-on-agriculture/>

European Court [shut down](#) a cell tower for 20% reduction in cows’ milk yield and the death of 40 cows.

¹⁶ E.g., Woolsey Fire in CA 2018 caused \$6 billion in damages, destroyed 100,000 acres, 295,000 people evacuated, [three deaths]

<https://ehtrust.org/wp-content/uploads/wildfire-cell-tower-fact-sheet-EHT-2-11-24.pdf>

¹⁷ 5G, as a [software based system](#), is easily hacked.

<https://www.cyberforum.yale.edu/blog/2021/7/20/cybersecurity-risk-in-5g?iframe=1>

Tom Wheeler noted that the structure of 5G networks to provide for additional capability “also introduce[s] new security vulnerabilities.” <https://www.brookings.edu/articles/the-digital-future-requires-making-5g-secure/>

¹⁸ Tom Wheeler, former FCC chair and former CEO of CTIA, testified in 2021 that fiber is future proof with **wireless only as a last resort**, https://democrats-energycommerce.house.gov/sites/evo-subsites/democrats-energycommerce.house.gov/files/documents/Witness%20Testimony_Wheeler_FC_2021.03.22.pdf.

Fixed Wireless Technologies and Their Suitability for Broadband Delivery, June 2022

<https://www.benton.org/publications/FixedWireless>

¹⁹ In testimony to the House Energy and Commerce Committee, 3/ 2221, former FCC Chair and former CTIA CEO Tom Wheeler spoke disappointingly that despite approximately \$40 billion of government subsidies “over the last decade,” those subsidies “have failed to deliver the goal of universal access to high-speed broadband ... because it failed to insist on futureproof technology, ... and focused more on the companies being subsidized than the technology being used or the people who were supposed to be served.”

https://democrats-energycommerce.house.gov/sites/evo-subsites/democrats-energycommerce.house.gov/files/documents/Witness%20Testimony_Wheeler_FC_2021.03.22.pdf

²⁰ A principle of the Telecom Act of 1996 is nondiscrimination among functionally equivalent services. Correlatively, treating as the same services that are not functionally equivalent is discriminatory against services with superior service characteristics – in this case, discriminatory against wired broadband. For example, see 47 USC §160, §224(e)(1), §253(c), §332(c)(7)(B)(i)(I).

²¹ <https://www.benton.org/blog/how-fixed-wireless-technologies-compares-fiber>

²² <https://ehtrust.org/science/reports-on-power-consumption-and-increasing-energy-use-of-wireless-systems-and-digital-ecosystem/>

²³ House Energy & Commerce Committee, 1/29/20 testimony

<https://docs.house.gov/meetings/IF/IF16/20200129/110416/HHRG-116-IF16-Wstate-SieferA-20200129.pdf>

“House Energy & Commerce Committee, 9/21/23 witness, “Fiber is the most scalable, reliable, long-term, future proof strategy we have.”

https://www.youtube.com/watch?v=ptQJ_wbthYc&t=6029s



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Biological Hazards of Wireless Radiation – Executive Summary

The FCC's standards for wireless radiation were established back in 1996, and have not been reviewed, updated or verified despite significant changes in the wireless technology in use today. The FCC's standards relate solely to wireless radiation's thermal impacts on a body (e.g. how the body reacts to being heated), and do not consider other known adverse biological impacts of non-thermal levels of RF radiation (such as damage to DNA or other changes to cells). The FCC's limits were established long before the existence of 2G, 3G, 4G, or 5G technology.

Congress eliminated the EPA's funding for electromagnetic research in 1996, knee capping the EPA from studying biological impacts of RF radiation for nearly 30 years. *At the very least, the FCC's standards should be reconsidered (FCC is under federal court order to do so, but has not) given current technology.*

Wireless radiation, also referred to as radio frequency (RF) radiation, produces biological effects and evidence of its hazards are clear and convincing, yet the hazards are not generally publicized, and the hazards are unnecessary to reap the benefits of wireless technology.

- **Industry Funded Research** – The wireless industry has funded studies that show adverse biological impacts. A 1990s \$28.5 million study found that RF radiation produces biological effects that are potentially hazardous to humans in ways that have nothing to do with heated tissue. A 2000 study for a major telecom carrier found RF radiation has links to cancer, neurological disorders and cognitive impairment. Insurance companies will not insure for personal injury from RF radiation, reflecting their concerns about the possible magnitude of their liability, e.g., that 5G is a high, "off the leash" risk.
- **Reports from Federal Agencies** – A 2018 \$30 million US National Toxicology Program (NTP) study found "clear evidence of cancer" in lab rats from wireless radiation. In 2019, the FCC admitted that RF radiation can have non-thermal impacts on humans, but it has conducted no studies to determine what those impacts might be or what changes should be made to its RF radiation emission limits. In 2021, the DC Circuit Court of Appeals ruled in *Environmental Health Trust, et al v. FCC* that the FCC's lack of action was arbitrary and capricious for failing to review its emission standards in light of new science and current technology and that it should consider non-cancer health impacts of wireless radiation. So far, the FCC has failed to comply with the Court order. As early as 1971, the US Naval Medical Research Academy concluded from 2300 studies that RF radiation, including millimeter (e.g. 5G), are linked to cardiac, neurological and other disorders.
- **Independent Studies** – Several major independent studies have concluded biological effects from RF radiation, including by the World Health Organization in 2025 (finding increased risk of cancer, along with its initial Class 2B carcinogen classification in 2011), the Ramazzini Institute in 2018 (clear evidence of cancer in lab rats, corroborating the NTP's results) and the New Hampshire Commission in 2020 (all forms of wireless radiation are harmful). The American Academy of Pediatrics warns that children are disproportionately affected by cell phone radiation. Studies concluded increased risk for ADHD, delayed motor skills, diabetes and demyelination of fetuses' brain neurons.
- **Chronic Diseases and Clusters near Cell Towers** – Illnesses near cell towers, e.g., nausea, rashes, stroke, atrial fibrillation and a variety of cancers, have been documented near Duluth, MN (51 strokes), Pittsfield, MA (17 residents fell ill and many evacuated, one resident who remained died), Ripon, CA (4 children and 4 teachers developed cancer; one child died) and Eagle, ID (atrial fibrillations from 5G cell towers).



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BIOLOGICAL HAZARDS OF WIRELESS RADIATION -- SOME HIGHLIGHTS

July 1, 2025

"The evidence presented to the Board includes well over one thousand peer-reviewed scientific and medical studies which consistently find that pulsed and modulated RFR has bio-effects and can lead to short- and long-term adverse health effects in humans, either directly or by aggravating other existing medical conditions. Credible, independent peer-reviewed scientific and medical studies show profoundly deleterious effects on human health, including but not limited to: neurological and dermatological effects; increased risk of cancer and brain tumors; DNA damage; oxidative stress; immune dysfunction; cognitive processing effects; altered brain development, sleep and memory disturbances, ADHD, abnormal behavior, sperm dysfunction, and damage to the blood-brain barrier."¹

~ Board of Health, Pittsfield, MA, Emergency Cease & Desist Order to remove cell tower that was sickening 17 residents simultaneously.

What the Industry Knows About the Biological Hazards of RF Radiation:

1. **Industry Funded Research Finds Biological Effects.** A 1990s research program funded by the wireless industry at \$28.5 million under the independent non-profit, Wireless Technology Research, LLC (WTR), found that wireless radiation (i.e., non-thermal radiation) is **biologically active producing biological effects and potentially hazardous to human health.**² That means the radiation does not need to heat human tissue. (Note that the FCC limits only account for thermal, not non-thermal, adverse effects.)
 - a) The research was peer-reviewed with scientific oversight by both an independent Peer Review Board at the Harvard School of Public Health and a U.S. Government Interagency Working Group, chaired by the FDA, and including EPA, OSHA, NIOSH, CDC, FCC, and NIH.³
 - b) Abruptly after these findings, the EPA was defunded from doing any further research on the biological effects of wireless radiation.⁴
2. **Industry Commissioned Study Finds Biological Effects.** A study in 2000 commissioned by a major telecom carrier found links to cancer, leukemia, neurological disorders and cognitive impairment, with special caution for children and an acknowledgement of those already disabled from the radiation.⁵

¹ <https://ehtrust.org/cease-and-desist-order-against-verizon-cell-tower-by-board-of-health-pittsfield-ma/>, see below the fold for link to the Order at 3, 2nd "Whereas" clause, paragraph #1.

² Wireless Phones and Health II: State of the Science 2002 Edition, edited by George L. Carlo; Wireless Phones and Health: Scientific Progress, edited by George L. Carlo.

³ Ibid.

⁴ Overpowered, What Science Tells Us About the Dangers of Cell Phones and Other WiFi-Age Devices, Martin Blank, PhD, 2014 at 110-112.

⁵ T-Mobil Deutsche Telekom commissioned study by the Ecolog-Institute, April 2000, "Mobile Telecommunications and Health Review of the Current Scientific Research in View of Precautionary Health Protection," <https://ehtrust.org/wp-content/uploads/ecolog2000.pdf>.



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3. **Industry Patents Point to Health Risks.** Telecom and cell phone manufacturers have filed patents to reduce the level of wireless exposure tied directly to health risks such as neurological disorders and cancer.⁶
4. **Risk Warnings of Litigation.** Industry annual reports warn their shareholders of litigation risk from potential personal injury claims from RF radiation and potential financial losses.⁷
5. **RF Radiation is a Pollutant.** The telecom industry characterizes RF radiation as a pollutant in their device protection plans and disclaim insurance liability.⁸
6. **Insurance Companies Exclude Injury Coverage for RF Radiation.** Insurance companies such as Lloyd's of London will not insure for personal injury from RF radiation because of the high risk of claims, with Swiss Re characterizing "5G" as "high," "off-the-leash" risk.⁹
7. **No 5G Pre-Market Testing.** Telecom executives during a Feb. 2019 Senate hearing confirmed no industry pre-market testing of 5G for public health or safety. Sen. Blumenthal (CT) criticized the FCC and FDA for inadequate answers on questions of public health, and concluded, "We're kind of flying blind here as far as health and safety is concerned."¹⁰
8. **"Why Tech Leaders Don't Let Their Kids Use Tech."**¹¹ The article reports that technology executives restrict or forbid their children's use of the very technology that they are providing to the public, including "the makers of smartphones and tablets, of social media channels and game boxes." Technology "titans" such as former Apple's Steve Jobs and Bill and Melinda Gates have admitted to placing restrictions on their children's use of technology. Chris Anderson, former Wired magazine

⁶ Swisscom patent, 2004 at <https://www.dropbox.com/scl/fi/nwdfklq7r7i2wwsivp7ws/SwissCom-Patent-application-2003-2004-WO2004075583A1-1-1.pdf?rlkey=liuy6175hamj24lbuszpe7vux&st=5p2oy0ji&dl=0>; "Manufacturers Own Patents to Cut Radiation," RCR Wireless, June 4, 2001 at <https://www.dropbox.com/scl/fi/0rfwys743dgeqpfwu3ua/Manufacturer-own-patents-to-cut-radiation-RCR-Wireless-News.pdf?rlkey=e5hm46nyp9an6ugu4y005ldm3&st=xr7ocreh&dl=0>.

⁷ AT&T, Inc., 2021 Annual Report, <https://investors.att.com/~media/Files/A/ATT-IR-V2/financial-reports/annual-reports/2021/complete-2021-annual-report.pdf> at 41.
 Verizon's 2021 U.S. SEC Form 10-K at 17, <https://www.verizon.com/about/sites/default/files/2020-Annual-Report-on-Form-10-K.PDF>.

⁸ Exclusions of loss from electromagnetic radiation from insurance coverage:

- Verizon, Sec B "Exclusions," Subsection 16 "Pollution," <https://ehtrust.org/wp-content/uploads/device-protection-brochure-nationwide.pdf>;
- AT&T, Sec II "Exclusions," Subsection H. Loss from "Pollutants," Sec IX.T. Definition of "Pollutants," <https://ehtrust.org/wp-content/uploads/ATT-Multi-Device-Protection-Pack-Insurance.pdf>;
- Sprint, Sec II "Exclusions," Subsection H. Loss from "Pollutants," Sec IX.P. Definition of "Pollutants," <https://ehtrust.org/wp-content/uploads/Sprint-Insurance-Terms-and-Conditions-Downloaded-2019.pdf>.

⁹ <https://ehtrust.org/key-issues/electromagnetic-field-insurance-policy-exclusions/>.

¹⁰ <https://ehtrust.org/health-effects-of-5g-wireless-technology-confirmed-at-us-senate-hearing-after-senator-blumenthal-questions-industry/>; see also, <https://mdsafetech.org/2019/02/13/no-research-on-5g-safety-senator-blumenthal-question-answered/>.

¹¹ "Why Tech Leaders Don't Let Their Kids Use Tech," <https://kidzu.co/health-wellbeing/why-tech-leaders-dont-let-their-kids-use-tech/>.



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editor and CEO of 3D Robotics, said that his kids “accuse me and my wife of being fascists and overly concerned about tech, and they say that none of their friends have the same rules. That’s because we have seen the dangers of technology firsthand. I’ve seen it in myself, I don’t want to see that happen to my kids.”¹²

What Federal Agencies Know About the Biological Effects of Wireless Radiation and Have Disregarded:

1. **Food and Drug Administration (FDA).** The U.S. National Toxicology Program’s (NTP) 2018 report concluded **clear evidence of cancer** in lab rats from wireless radiation (similar to 2G and 3G cell phones).¹³ NTP found malignant heart schwannomas and malignant brain gliomas.¹⁴ NTP is one of the most prestigious toxicology institutions in the world. In 1999, the FDA had nominated the NTP to conduct a \$30 million study of RF radiation “with a high priority,” to conduct animal studies, stating that it was “not scientifically possible to guarantee that non-thermal levels of microwave radiation . . . will not cause long-term adverse health effects.”¹⁵
 - a) Dr. Linda Birnbaum, former NIH and NTP director, has stated: “Every agent known to cause cancer in humans will also produce it in animals when adequately tested.”¹⁶ “Overall, the NTP findings demonstrate the potential for RFR to **cause cancer in humans**.”¹⁷ [Emphasis added.]
2. **Federal Communications Commission (FCC).**
 - a) The FCC admitted in 2019 that at least some types of RF radiation can cause instantaneous non-thermal adverse effects with RF radiation frequencies ranging between 3 KHz and 10 MHz.¹⁸ The FCC averages exposure levels over 30 minutes,¹⁹ which completely obscures the

¹² Ibid.

¹³ See letter of Dr. Birnbaum, former NIH and NTP Director, and hyperlinked amicus brief <https://www.dropbox.com/scl/fi/nc7100p8zrk8tj0l2a1yr/Dr.-Linda-Birnbaum-cell-tower-letter.pdf?rlkey=vq1i363i74umg9ybydrhmn5d&st=g9l49h88&dl=0> ; see also, <https://ehtrust.org/former-niehs-director-dr-linda-birnbaum-interviewed-about-cell-phone-radiation/>.

¹⁴ <https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones#studies> *Environmental Health Trust, et al v. FCC*, Motion for Leave to File Brief of Amicus Curiae Joseph Sandri in Support of Petitioners Urging Reversal, Aug. 5, 2020, <https://ehtrust.org/wp-content/uploads/20-1025-Amicus-Brief-Joe-Sandri.pdf>.

¹⁵ Note that the following letter is no longer available at the below URL, although it was originally accessed from there. Letter from the Dept of Health and Human Services to the National Toxicology Program at the National Institute for Environmental Health Studies, May 19, 1999, https://ntp.niehs.nih.gov/sites/default/files/ntp/htdocs/chem_background/exsumpdf/wireless051999_508.pdf.

¹⁶ Dr. Birnbaum’s statement in Attorney Joe Sandri’s Amicus Brief filed 8-5-2020 in connection with *Environmental Health Trust, et al v. FCC*, <https://ehtrust.org/fcc-amicus-briefs/> (below the fold, right column) at 9.

¹⁷ Ibid, 11.

¹⁸ Proposed Changes in the Commission’s Rule Regarding Human Exposure to Radiofrequency Electromagnetic Fields, 34 FCC Rcd 11687, 11743-11745, ¶¶122- 124 & nn. 322-335 (2019).

¹⁹ 47 CFR 1.1307(b)(2): “Time-averaging period is a time period not to exceed 30 minutes for fixed RF sources or a time period inherent from device transmission characteristics not to exceed 30 minutes for mobile and portable RF sources,” [https://www.ecfr.gov/current/title-47/chapter-I/subchapter-A/part-1/subpart-I/section-1.1307#p-1.1307\(b\)](https://www.ecfr.gov/current/title-47/chapter-I/subchapter-A/part-1/subpart-I/section-1.1307#p-1.1307(b)).



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effects of the constant peaking and pulsations of RF radiation which causes adverse health effects, and does not account for 24/7 exposure by the population.²⁰

- b) The FCC received in its docket, when requesting public comment on the adequacy of its 1996 RF radiation emission limits, 11,000 pages of peer-reviewed, scientific studies showing biological effects from RF radiation and a couple hundred personal submissions of injury. When the FCC closed the docket, it declined to update its limits. The FCC was sued and in 2021 the D.C. Circuit Court of Appeals ruled against the FCC and remanded the case back to the FCC because the FCC failed to provide a reasoned explanation for not updating its limits and ignoring the current science.²¹ The FCC has not yet complied.
- c) **FCC's Maximum Permissible Exposure Limit (MPEL)** are the limits of RF radiation for human exposure. MPEL allows for a very high human exposure limit of ten million microwatts per square meter.²² The FCC has acknowledged a "worst-case" scenario of transmitters "operating simultaneously and continuously" at the MPEL with an individual "in the main transmitting beam and within a few feet of the antenna for several minutes or longer."²³ While the FCC dismisses this scenario as "extremely remote," it is allowing 4G and 5G cell

²⁰ Human-made electromagnetic fields: Ion forced-oscillation and voltage-gated ion channel dysfunction, oxidative stress and DNA damage (Review) (2021) Pangopolous DJ, et al. International Journal of Oncology. August 23, 2021. <https://pubmed.ncbi.nlm.nih.gov/34617575/>.

Computational modeling investigation of pulsed high peak power microwaves and the potential for traumatic brain injury. Sci Adv. 2021 Oct; 7(44). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8555891/>. "These studies reveal that the MAE threshold depends on the energy in a single pulse (not the average power density) for sufficiently short pulses [e.g., 32 μs in (46)], and peak power densities of 102 to 105 mW/cm² have been known to cause auditory effects in human participants (45)."

"Diplomats' Mystery Illness and Pulsed Radiofrequency/Microwave Radiation," Dr. Beatrice Golomb. Neural Comput. 2018 Nov; 30(11):2882-2985. <https://pubmed.ncbi.nlm.nih.gov/30183509/>; "Reported facts appear consistent with pulsed RF/MW as the source of injury in affected diplomats."

"5G: Great risk for EU, U.S. and International Health! Compelling Evidence for Eight Distinct Types of Great Harm Caused by Electromagnetic Field (EMF) Exposures and the Mechanism that Causes Them," Martin L. Pall, PhD, <https://peaceinspace.blogs.com/files/5g-emf-hazards-dr-martin-l.-pall-eu-emf2018-6-11us3.pdf>.

Belyaev, I., Dean, A., Eger, H. et al. "EUROPAEM EMF Guideline 2016 for the prevention, diagnosis, and treatment of EMF-related health problems and illnesses." Rev environ Health. 2016;31(3):363-397. Doi:10.1515/reveh-2016-0011.

B. W. G. (2012). "Bioinitiative Report 2012: A Rationale for Biologically-based Exposure Standards for Low-Intensity Electromagnetic Radiation."

²¹ <https://media.cadc.uscourts.gov/opinions/docs/2021/08/20-1025-1910111.pdf>

²² 47 CFR 1.1310(e)(1)(II) shows 1 mW/cm², which is equivalent to 10 million uM/m², <https://www.ecfr.gov/current/title-47/chapter-I/subchapter-A/part-1/subpart-I/section-1.1310>.

²³ FCC's *Guidelines for Cellular Antenna Site Calculations*, <https://www.fcc.gov/consumers/guides/human-exposure-radio-frequency-fields-guidelines-cellular-and-pcs-sites#:~:text=In%201996%2C%20the%20FCC%20adopted,lower%2Dpowered%20cell%20site%20transmitters.>



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towers to be installed²⁴ just feet from a home, business or school where individuals and children are in the main transmitting beam for many hours a day.

- d) The FCC's MPEL is based on IEEE (Institute of Electrical and Electronic Engineers) guidelines²⁵ which "have not been changed since 1991 and do not consider children."²⁶ Testing was performed on "a model head with dimensions based [on] the 90th percentile of U.S. military recruits in the year 1989. The corresponding body of the head would be a six foot, two inches, 220 lb. male."²⁷ A Specific Absorption Rate (SAR) – rate of absorption of electromagnetic radiation -- is then calculated based on thermal effects (heating tissue) of that model head.²⁸ However, biological effects from RF radiation are also non-thermal, documented by the studies cited herein, yet neglected in FCC testing.
 - e) The FCC failed to disclose that in 2019 when it tested cell phones next to the body (which is the way that the public typically uses cell phones), the cell phones exceeded the limits of RF radiation for human exposure.²⁹
3. **A U.S. Naval Medical Academy Research** report from 1971 by Dr. Zory Glaser³⁰ linked 23 chronic diseases to RF radiation based on over 2300 studies.³¹ A Feb 2025 report correlates Dr. Glaser's findings from 1971 of biological effects of RF radiation and millimeter wave (5G) technology to reported cases of chronic disease.³² The 2025 report states that Dr. Glaser reported biological effects and diseases related to the central and autonomic nervous systems, genetic / chromosomal, vascular, blood, metabolic, endocrine and gastrointestinal disorders.³³ In 1976, Dr. Glaser updated the total bibliography to 3700 reports relating to the biological effects of RF radiation.³⁴

²⁴ *In re Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Inv.*, 33 F.C.C.R. 9088, 9104-05 (2018).

²⁵ FCC guidelines are set forth at 47 CFR 1.1310, see note at (d)(4); see also, <https://www.fcc.gov/consumers/guides/human-exposure-radio-frequency-fields-guidelines-cellular-and-pcs-sites#:~:text=In%201996%2C%20the%20FCC%20adopted,lower%2Dpowered%20cell%20site%20transmitters.>

²⁶ *The Effects of RF-EMF on the Child Brain*, Aaron Skaist, Vol 12, No. 2, 2019, at 2, *The Science Journal of the Lander College of Arts and Sciences*, <https://touro scholar.touro.edu/cgi/viewcontent.cgi?article=1218&context=sjlcas>.

²⁷ *Ibid* at 3.

²⁸ *Ibid*.

²⁹ <https://ehtrust.org/press-release-concealed-fcc-cell-phone-radiation-tests-show-human-exposure-limits-were-exceeded/>.

³⁰ About Dr. Zory Glaser, <https://zoryglaser.com/>.

³¹ https://www.magdahavas.com/wp-content/uploads/2010/06/Navy_Radiowave_Brief.pdf.

³² Report: "Safety of Wireless Radiation, a Scientific View, Feb 2025, Richard Lear and Camilla Rees, https://www.researchgate.net/publication/388763046_Safety_of_Wireless_Technologies_The_Scientific_View at 12-13.

³³ *Ibid* at 3.

³⁴ <https://ehtrust.org/wp-content/uploads/Naval-MRI-Glaser-Report-1976.pdf>.



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4. **A U.S. Air Force report** from 1994³⁵ states that “[i]t is known that electromagnetic radiation [EMR] has a biological effect on human tissue” covering a wide range including adverse cardiovascular, neurological and behavioral effects including the risk of cancer. Since 1956, the Dept. of Defense directed the Armed Forces (Army, Navy, Air Force) to study EMR. The report found that EMR can interact with human tissue’s bioelectrical function and Eastern Europe and the then Soviet Union found that human tissue may be more sensitive to EMR’s non-thermal effects.
5. **Central Intelligence Agency (CIA).** In 2012, the CIA declassified and approved for release a 1977 Russian study on the “Biological Effects of Millimeter Radiowaves” which found that while millimeter waves only penetrate the skin, they trigger a cascade of adverse biological effects within the body.³⁶
 - a) The study coins the term “**radiowave disease**” to describe these effects.³⁷ Adverse effects on the skin included demyelination of sections of nerve fibers (damage or destruction to the insulation around nerve fibers which disrupts normal nerve impulse transmission), fragmented neural conductors, and deformation of sensory receptors, leading to neurological disorders.
 - b) The people observed working with millimeter radio wave generators had disturbances in their blood and immuno-biology.³⁸
 - c) Exposure in lab animals caused many disorders including of the liver, spleen, heart and brain, inhibiting “oxygen consumption rate by the mitochondria of those organs.”³⁹
 - d) The degree of adverse effects **increased with more exposure**,⁴⁰ the lab animals had been exposed for 15 minutes a day for 60 days. It reported that when exposure ceases, disorders from low millimeter radio waves are reversible.⁴¹ However, if adverse effects depend on duration of exposure, then Americans exposed continuously 24/7, 365 days a year, would suffer adverse biological effects, but without reprieve and without the ability to recover.
6. **Chronology of Federal Agencies** expressing since at least the 1990s that the FCC’s wireless limits address only thermal (heating of human tissue), not non-thermal exposure, of RF radiation,⁴² despite the fact that non-thermal exposure produces biological effects and disease, as documented herein.

Independent Research on Biological Effects of RF Radiation, Disregarded by Federal Agencies:

1. **The World Health Organization’s (WHO) International EMF Project Review of April 2025** of animal studies found reliable evidence that RF radiation increases the risk of cancer.⁴³ This reinforces the 2018 findings of cancer from the National Toxicology Program and the Ramazzini Institute. The WHO’s results may lead scientists to call for the IARC to augment its carcinogenicity classification from “possible” Class 2B in humans set in 2011 to “probable” or “known” carcinogenicity in humans in

³⁵ *Radiofrequency / Microwave Radiation Biological Effects and Safety Standards, a Review (1994)*, Scott Bolen, Rome Laboratory, Griffiss Air Force Base, at 1, <https://youandemf.com/wp-content/uploads/2025/01/EMR-US-Military-Report.pdf>.

³⁶ <https://mdsafetech.org/wp-content/uploads/2019/02/biological-effects-of-millimeter-wavelengths-zalyubovskaya-declassif-by-cia-1977-biol-eff-mm-waves.pdf>.

³⁷ *Ibid* at 57.

³⁸ *Ibid* at 60.

³⁹ *Ibid* at 59.

⁴⁰ *Ibid* at 59.

⁴¹ *Ibid* at 58.

⁴² <https://ehtrust.org/timeline-of-development-of-safety-limits-for-wireless-radiation-in-us/>.

⁴³ <https://www.sciencedirect.com/science/article/pii/S0160412025002338>.



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2025.⁴⁴ The objective of the new review was to systematically evaluate the effects of RF EMF exposure on cancer.

- a) The WHO's IARC classified EMF as a **Class 2B possible human carcinogen** in 2011⁴⁵ (similar to lead, diesel fuel and gasoline engine exhaust). This was based on "epidemiological observations in humans which exhibited higher risks for the glioma-type of malignant brain cancer and of benign vestibular schwannoma of the vestibulocochlear nerve among heavy or long-term subscribers of cell or mobile phones."⁴⁶
- b) "[R]esults from animal experiments that the IARC was lacking were later provided by the U.S. National Toxicology Program (NTP) report of two types of cancers in laboratory rats that were exposed, lifelong, to 2G and 3G cell phone RF radiation frequencies below 6 GHz . . . did not exceed 1°C,⁴⁷ i.e., did not heat tissue.
- c) Since the WHO 2011 IARC cancer finding by independent scientists, other factions within the WHO have sought to produce industry-aligned pronouncements. For example, its website states a lack of causality of harm from wireless radiation.⁴⁸ However, over a decade later, a number of the IARC scientists are saying the opposite – that radiofrequency should be upgraded to a group 1 carcinogen (the highest level of evidence).⁴⁹ Dr. Miller, a former Senior Epidemiologist and Senior Scientist at the IARC has stated, "[t]here is sufficient evidence to **now classify radiofrequency radiation as a human carcinogen.**"⁵⁰ The WHO's April 2025 review reinforces that conclusion.
- i. The WHO recently commissioned a study by Karpidis, et al, which concluded in 2024 no hazards from wireless radiation,⁵¹ however, the study has been found to be severely flawed

⁴⁴ See, e.g., <https://icbe-emf.org/who-funded-study-reports-high-certainty-of-the-evidence-linking-cell-phone-radiation-to-cancer-in-animals/>.

⁴⁵ https://www.iarc.who.int/wp-content/uploads/2018/07/pr208_E.pdf.

⁴⁶ J. C. Lin, "RF Health Safety Limits and Recommendations [Health Matters]," in IEEE Microwave Magazine, vol. 24, no. 6, pp. 18-77, June 2023, doi: 10.1109/MMM.2023.3255659. keywords: {Radiation detectors;Human factors;Safety;Radiation effects;Cellular phones;Radio frequency}.

⁴⁷ J. C. Lin, "RF Health Safety Limits and Recommendations [Health Matters]," in IEEE Microwave Magazine, vol. 24, no. 6, pp. 18-77, June 2023, doi: 10.1109/MMM.2023.3255659. keywords: {Radiation detectors;Human factors;Safety;Radiation effects;Cellular phones;Radio frequency}.

⁴⁸ <https://www.who.int/news-room/questions-and-answers/item/radiation-5g-mobile-networks-and-health>.

⁴⁹ Hardell, L., Carlberg, M."Comments on the US National Toxicology Program technical reports on toxicology and carcinogenesis study in rats exposed to whole-body radiofrequency radiation at 900 MHz and in mice exposed to whole-body radiofrequency radiation at 1,900 MHz". International Journal of Oncology 54, no. 1 (2019): 111-127. <https://doi.org/10.3892/ijo.2018.4606>

⁵⁰ Professor Miller, MD, FRCP, FRCP (C), FFPH, FACE, is an eminent physician and expert in preventative medicine, a scientific advisor to various scientific and health authorities, and a former Senior Epidemiologist and Senior Scientist at the World Health Organization's (WHO) International Agency for Research on Cancer (IARC), <https://phiremedical.org/2020-nir-consensus-statement-press-release/>; see Prof. Miller's statement at 00:15:06 at <https://www.youtube.com/watch?v=S16QI6-w9I8>; see also Proceedings from a Symposium on the Impacts of Wireless Technology on Health, Prof. Miller at 8, https://www.womenscollegehospital.ca/wp-content/uploads/2022/06/Symposium_Document_Final_Jan_12.pdf.

⁵¹ K. Karpidis, D. Baaken, T. Loney, M. Blettner, C. Brzozek, M. Elwood, C. Narh, N. Orsini, M. Röösl, M.S. Paulo, S. Lagorio, The effect of exposure to radiofrequency fields on cancer risk in the general and working population: A systematic review of human observational studies - Part I: Most researched outcomes Environ Int., 191 (2024), Article 108983, 10.1016/j.envint.2024.108983.



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with no scientifically valid assessment,⁵² and its conclusion contradicted scientific evidence and was drawn from data showing hazards.⁵³ Researchers have called for a retraction of the study.⁵⁴

- ii. Another WHO study in 2024 on RF-induced oxidative stress identified 11,599 studies on oxidative stress within the 800-2450 MHz range, but discarded more than 99% of those studies.⁵⁵ Researchers have called for a retraction of that study, as well.⁵⁶

- 2. **The Ramazzini Institute** in Italy in 2018 found increased malignant heart schwannomas and malignant brain gliomas in lab animals from cell tower base stations, similar to what the NTP found from 2G/3G.⁵⁷

Note: “Since the IARC evaluation in 2011, the evidence on human cancer risks from RF radiation has been strengthened based on human cancer epidemiology reports [IARC Class 2B designation for RF radiation], animal carcinogenicity studies [NTP study finding clear evidence of cancer] and experimental findings on oxidative mechanisms [associated with increased DNA damage]⁵⁸ and genotoxicity [associated with increased DNA

⁵² John W. Frank, Joel M. Moskowitz, Ronald L. Melnick, Lennart Hardell, Alasdair Philips, Paul Héroux, Elizabeth Kelley, *The Systematic Review on RF-EMF Exposure and Cancer by Karipidis et al. (2024) has Serious Flaws that Undermine the Validity of the Study's Conclusions*, Environment International, Vol. 195, 2025, 109200, ISSN 0160-4120, <https://doi.org/10.1016/j.envint.2024.109200>.
<https://www.sciencedirect.com/science/article/pii/S0160412024007876>

⁵³ “WHO to build neglect of RF-EMF exposure hazards on flawed EHC reviews? Case study demonstrates how ‘no hazards’ conclusion is drawn from data showing hazards,” 7/10/24, <https://www.degruyter.com/document/doi/10.1515/reveh-2024-0089/html>;

“WHO’s EMF Project’s Systemic Reviews on the Association between RF Exposure and Health Effects Encounter Challenges,” James Lin, IEEE Microwave Magazine, Jan 2025, https://www.dropbox.com/scl/fi/xq492i5ha6f2431vyn3g/World_Health_Organizations_EMF_Projects_Systemic_Reviews_on_the_Association_Between_RF_Exposure_and_Health_Effects_Encounter_Challenges_Health_Matters.pdf?rlkey=o77i19den485rdo2k4ktdzhg&st=842p0rbv&dl=0.

⁵⁴ Lennart Hardell, Mona Nilsson. A Critical Analysis of the World Health Organization (WHO) Systematic Review 2024 on Radiofrequency Radiation Exposure and Cancer Risks. Journal of Cancer Science and Clinical Therapeutics. 9 (2025): 09-26., <https://cdn.fortunejournals.com/articles/a-critical-analysis-of-the-world-health-organization-who-systematic-review.pdf>.

⁵⁵ Frank, John W., Melnick, Ronald L. and Moskowitz, Joel M.. "A critical appraisal of the WHO 2024 systematic review of the effects of RF-EMF exposure on tinnitus, migraine/headache, and non-specific symptoms" Reviews on Environmental Health, 2024. <https://doi.org/10.1515/reveh-2024-0069>; “Another WHO RF Review Challenged, More than 99% of Studies on Oxidative Stress Discarded,” Microwave News, 8/21/24, <https://www.microwavenews.com/short-takes-archive/another-who-rf-systematic-review-challenged>.

⁵⁶ Ibid.

⁵⁷ <https://pubmed.ncbi.nlm.nih.gov/29530389/>; see also J. C. Lin, “RF Health Safety Limits and Recommendations [Health Matters],” in IEEE Microwave Magazine, vol. 24, no. 6, pp. 18-77, June 2023, doi: 10.1109/MMM.2023.3255659. keywords: {Radiation detectors;Human factors;Safety;Radiation effects;Cellular phones;Radio frequency}.

⁵⁸ Yakymenko I, Tsybulin O, Sidorik E, Henshel D, Kyrylenko O, Kyrylenko S. Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. Electromagn Biol Med. 2016;35:186–202. doi: 10.3109/15368378.2015.1043557.



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damage]⁵⁹. Therefore, the IARC Category should be upgraded from Group 2B to Group 1, a human carcinogen⁶⁰.⁶¹ [Some internal footnotes omitted]

3. **International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF).** “Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G.”⁶²
 - a) The FCC wireless radiation limits for human exposure are based **largely** on 1980s experiments “involving 40-60 minute exposures in 5 monkeys and 8 rats, and then applying arbitrary safety factors to an apparent threshold specific absorption rate (SAR) of 4 W/kg . . . Adverse effects observed at exposures below the assumed threshold SAR include non-thermal induction of reactive oxygen species, DNA damage, cardiomyopathy, carcinogenicity, sperm damage, and neurological effects . . .”⁶³
4. **Panagopoulos, et al, Review on human-made EMF’s ion forced-oscillation and voltage-gated ion channel dysfunction, oxidative stress and DNA damage (2021).** “[E]xtremely low frequency (ELF) band, and the microwave/radio frequency (RF) band which is always combined with ELF, may lead to DNA damage [which is] connected with cell death, infertility and other pathologies, including cancer.”⁶⁴
5. **New Hampshire Commission** studied the biological effects of wireless radiation and issued a report Nov. 2020⁶⁵ with former commissioner Dr. Kent Chamberlain explaining a “key finding being that exposure to wireless communication radiation is harmful to the health of humans and the environment. Those findings apply to all forms of wireless radiation, which include all generations of cellphone radiation.” (see Appendix A, Dr. Chamberlain’s letter explaining their findings).
6. **Thousands of scientific and medical studies** show neurological disorders; increased risk of cancer⁶⁶ and brain tumors; DNA damage; oxidative stress; immune dysfunction; cognitive processing effects; altered brain development, sleep and memory disturbances, ADHD, abnormal behavior, sperm dysfunction, and damage to the blood-brain barrier.⁶⁷

⁵⁹ Smith-Roe SL, Wyde ME, Stout MD, Winters JW, Hobbs CA, Shepard KG, Green AS, Kissling GE, Shockley KR, Tice RR, et al. Evaluation of the genotoxicity of cell phone radiofrequency radiation in male and female rats and mice following subchronic exposure. *Environ Mol Mutagen*. 2020;61:276–290. doi: 10.1002/em.22343.

⁶⁰ Carlberg M, Hardell L. Evaluation of mobile phone and cordless phone use and glioma risk using the Bradford Hill viewpoints from 1965 on association or causation. *BioMed Res Int*. 2017;2017:9218486. doi: 10.1155/2017/9218486.

⁶¹ Health risks from radiofrequency radiation, including 5G, should be assessed by experts with no conflicts of interest, LHardell, MCarlberg, *Oncol Lett*. 2020 Jul 15;20(4):15. doi: 10.3892/ol.2020.11876.

⁶² *EnvironHealth* 21, 92 (2022). <https://doi.org/10.1186/s12940-022-00900-9>.

⁶³ *Ibid*.

⁶⁴ <https://pmc.ncbi.nlm.nih.gov/articles/PMC8562392/> Dr. Dimitris J. Panagopoulos is an EMF-biophysicist at the Choremeion Research Laboratory, Medical School, University of Athens, Greece,
<https://www.researchgate.net/profile/Dimitris-Panagopoulos-3>.

⁶⁵ <http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf>.

⁶⁶ *Mobile phone radiation causes brain tumors and should be classified as a probable human carcinogen (Review)*, *Journal of Oncology*, <https://www.spandidos-publications.com/10.3892/ijo.2015.2908>.

⁶⁷ A Rationale for Biologically-based Exposure Standards for Low-Intensity Electromagnetic Radiation, 2022, <https://bioinitiative.org/conclusions/>; see also, Adverse health effects of 5G mobile networking technology under real-life conditions, May 1, 2020, <https://pubmed.ncbi.nlm.nih.gov/31991167/>; Wireless Radiation (RFR) – Is U.S. Government Ignoring Its Own Evidence for Risk? March, 28, 2019, <https://electromagnetichealth.org/electromagnetic-health-blog/u-s-gov-ignoring-own-evidence/>; Oxidative Mechanisms of Biological Activity of Low-Intensity Radiofrequency Radiation,



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7. **Eight case studies** since Jan 2023 in Sweden show adverse health impacts from exposure to 5G towers. Previously healthy individuals developed typical “microwave syndrome” symptoms shortly after the towers were installed: headaches, abnormal fatigue, heart arrhythmia, burning skin, trouble concentrating.⁶⁸ The significance of these reports is that non-ionizing radiation⁶⁹ from 5G — well below levels allowed by authorities — can cause health problems in individuals who had no prior history of electromagnetic sensitivity.⁷⁰ Dr. Lennart Hardell, lead author of the reports and world-renowned scientist on cancer risks from radiation, affirms these reports as “groundbreaking” because they serve as the “first warning of a health hazard.”⁷¹
8. **One-third of Americans suffer from symptoms from RF radiation**, based on a 2019 Bevington study which analyzed the prevalence of symptoms from RF radiation within any given population.⁷² Based on a population of 332.4 million people in the U.S.,⁷³ 120 million have symptoms, 2% of which (7 million) have severe symptoms or can’t work.
9. **The Bioinitiative Report’s** review of 1800 studies found biological effects of RF radiation which can occur within minutes of exposure,⁷⁴ and recommends no more than 0.1 microwatts per centimeter squared for human exposure⁷⁵ (compared to the FCC’s MPEL of 580 microwatts per centimeter squared). Chronic or prolonged exposure to cell towers can result in biological effects; RF radiation exposures “prevent the body from healing damaged DNA, produce immune system imbalances,

Electromagnetic Biology and Medicine, 35(2), 186-202, Yakymenko, I., Tsybulin, O., Sidorik, E., Henshel, D., Kyrylenko, O., & Kyrylenko, S. (2016), <https://pubmed.ncbi.nlm.nih.gov/26151230/>.

⁶⁸ <https://mdsafetech.org/2023/11/20/5g-health-effects-5-case-reports-of-health-symptoms-after-5g-cell-towers-placed-in-sweden/>; e.g., Jan 2023 study of 63 year old man and 62 year old woman where 5G antennas were installed on the rooftop of their home, https://www.gavinpublishers.com/assets/articles_pdf/Case-Report-The-Microwave-Syndrome-after-Installation-of-5G-Emphasizes-the-Need-for-Protection-from-Radiofrequency-Radiation.pdf and <https://childrenshealthdefense.org/defender/5g-radiation-microwave-syndrome-symptoms/>; Feb 2023 study of two

previously healthy men where 5G antennas were installed on the rooftop of their business, <https://www.anncaserep.com/open-access/development-of-the-microwave-syndrome-in-two-men-shortly-after-9589.pdf>; April 2023 study of 52 year old woman whose apartment was 60 meters from a 5G base station, <https://acmcasereport.com/pdf/ACMCR-v10-1926.pdf?fbclid=IwAR2J-mE3XeBxqaXPQdFxf9Q23bMCer9vgUBHnCvJXBrgBv-w7YdRUDwF0>; see also, “The microwave syndrome or electro-

hypersensitivity: historical background,” <https://pubmed.ncbi.nlm.nih.gov/26556835/>.

⁶⁹ <https://childrenshealthdefense.org/emr/emf-key-terms-descriptions/>.

⁷⁰ <https://childrenshealthdefense.org/emr/emf-wireless-health-impacts/>.

⁷¹ <https://www.stralskyddsstiftelsen.se/two-studies-show-that-5g-caused-the-microwave-syndrome-in-healthy-persons/>.

⁷² “The Prevalence of People with Restricted Access to Work in Manmade Electromagnetic Environments,” Journal of Environment and Health Science, <https://mdsafetech.files.wordpress.com/2019/10/2018-prevalence-of-electromagnetic-sensitivity.pdf>.

⁷³ <https://www.commerce.gov/news/blog/2022/01/us-population-estimated-332403650-jan-1-2022#:~:text=As%20our%20nation%20prepares%20to,since%20New%20Year's%20Day%202021.>

⁷⁴ *Key Scientific Evidence and Public Health Policy Recommendations*, Supplement 2012, at 4, David O. Carpenter, MD, Director, Institute for Health and the Environment University at Albany, Cindy Sage, MA, Sage Associates, https://bioinitiative.org/wp-content/uploads/pdfs/sec24_2012_Key_Scientific_Studies.pdf. <https://bioinitiative.org/>; see also, BioInitiative 2012 Conclusions, <https://bioinitiative.org/conclusions/>.

⁷⁵ *Key Scientific Evidence and Public Health Policy Recommendations* 2007, at 22-23, https://bioinitiative.org/wp-content/uploads/pdfs/sec24_2007_Key_Scientific_Studies.pdf.



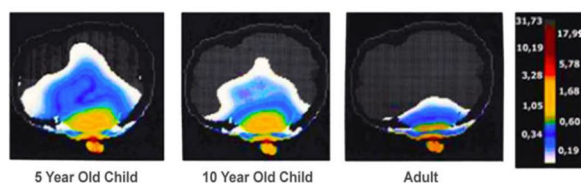
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metabolic disruption . . . lower resistance to disease . . . pervasive impairment of metabolic and reproductive functions.”⁷⁶

10. **Children absorb more RF radiation and are at greater risk than adults.**⁷⁷

a) **From cell phones:**⁷⁸

Children are more vulnerable
to RF microwave radiation.



Depth of absorption of cell phone radiation in a 5-year old child, a 10-year old child, and in an adult from GSM cell phone radiation at 900 MHz. Color scale on right shows the SAR in Watts per kilogram. Source: [Exposure limits: the underestimation of absorbed cell phone radiation, especially in children](#)

- b) **American Academy of Pediatrics:** children are disproportionately affected by cell phone radiation due to their lower bone density and amount of fluid in the brain allowing for absorption of greater quantities of RF radiation than in adults.⁷⁹
- c) **Greater risk for fetuses:** risk of “degeneration of the protective myelin sheath that surrounds brain neurons.”⁸⁰

⁷⁶ *Key Scientific Evidence and Public Health Policy Recommendations*, Supplement 2012, at 4, https://bioinitiative.org/wp-content/uploads/pdfs/sec24_2012_Key_Scientific_Studies.pdf; <https://bioinitiative.org/conclusions/>; see also, BioInitiative 2012 Conclusions, <https://bioinitiative.org/conclusions/>.

⁷⁷ Wireless technologies, non-ionizing electromagnetic fields and children: Identifying and reducing health risks,” Devra Davis PhD, MPH, Linda Birnbaum PhD, Paul Ben-Ishai PhD, Hugh Taylor MD, Meg Sears MEng, PhD, Tom Butler PhD, MSc, Theodora Scarato MSW, bCurr Probl Pediatr Adolesc Health Care, 2023 Feb;53(2):101374 <https://doi.org/10.1016/j.cppeds.2023.101374>; see also, *Children and Wireless Radiation*, <https://ehtrust.org/educate-yourself/children-and-wireless-fags/>.

⁷⁸ Exposure limits: the underestimation of absorbed cell phone radiation, especially in children, Gandhi, Morgan, Augusto de Salles, Han, Heberman, Davis, October 14, 2011, <https://pubmed.ncbi.nlm.nih.gov/21999884/>.

⁷⁹ *Key Scientific Evidence and Public Health Policy Recommendations*, Supplement 2012, at 21, David O. Carpenter, MD, Director, Institute for Health and the Environment University at Albany, Cindy Sage, MA, Sage Associates, https://bioinitiative.org/wp-content/uploads/pdfs/sec24_2012_Key_Scientific_Studies.pdf; <https://bioinitiative.org/>.

⁸⁰ *Why children absorb more microwave radiation than adults: The consequences*, Morgan, Kesar and Davis, Journal of Microscopy and Ultrastructure, Vol. 2, Issue 4, December 2014, 197-204, <https://www.sciencedirect.com/science/article/pii/S2213879X14000583>.



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- d) **School-age children:** risk of “[d]igital dementia.”⁸¹
 - e) **Childhood leukemia,** increased risk.⁸²
 - f) **Potential dangers of cell towers near schools.**⁸³
 - i. **Elementary school children** exposed to high RF radiation from mobile phone base stations 200 meters from their schools “had a significantly higher risk of type 2 diabetes mellitus” than those exposed to lower RF radiation.⁸⁴
 - ii. **Adolescent school children** exposed to high RF radiation from mobile phone base stations within 200 meters from their schools had “delayed fine and gross motor skills, spatial working memory and attention” than those exposed to lower RF radiation.⁸⁵
 - iii. **A ten-year old child** testified of his cardiac condition being caused by exposure to RF radiation from a router in the library where he was being tutored.⁸⁶
11. **Neurobehavioral Symptoms Near Cell Towers.** The following chart shows a worsening of symptoms when closer to a cell tower but a lessening of symptoms when farther away from a cell tower.⁸⁷

⁸¹ *Why children absorb more microwave radiation than adults: The consequences*, Morgan, Kesar and Davis, Journal of Microscopy and Ultrastructure, Vol. 2, Issue 4, December 2014, 197-204, <https://www.sciencedirect.com/science/article/pii/S2213879X14000583>.

⁸² *Key Scientific Evidence and Public Health Policy Recommendations*, 2007, at 19, David O. Carpenter, MD, Director, Institute for Health and the Environment University at Albany, Cindy Sage, MA, Sage Associates, https://bioinitiative.org/wp-content/uploads/pdfs/sec24_2007_Key_Scientific_Studies.pdf.

⁸³ Dr. Magda Havas: WiFi in Schools is Safe. True or False? <https://www.youtube.com/watch?v=6v75sKAUFdc>.

⁸⁴ *Association of Exposure to Radio-Frequency Electromagnetic Field Radiation (RF-EMFR) Generated by Mobile Phone Base Stations (MPBS) with Glycated Hemoglobin (HbA1c) and Risk of Type 2 Diabetes Mellitus*, Sultan Ayoub Meo et al, International Journal of Environmental Research and Public Health, 2015; https://www.researchgate.net/publication/283726472_Association_of_Exposure_to_Radio-Frequency_Electromagnetic_Field_Radiation_RF-EMFR_Generated_by_Mobile_Phone_Base_Stations_with_Glycated_Hemoglobin_HbA1c_and_Risk_of_Type_2_Diabetes_Mellitus.

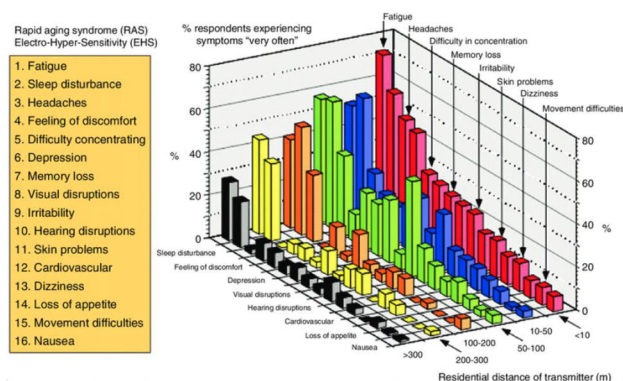
⁸⁵ Meo, S. A., Almahmoud, M., Alsultan, Q., Alotaibi, N., Alnajashi, I., & Hajjar, W. M. (2018). *Mobile Phone Base Station Tower Settings Adjacent to School Buildings: Impact on Students' Cognitive Health*, American Journal of Men's Health; <https://pubmed.ncbi.nlm.nih.gov/30526242/>.

⁸⁶ Child With Heart Problems From Wireless: 5G Health Risks California SB 649 Hearing, https://www.youtube.com/watch?v=OgNLR9fQOX4&list=PLT6DbkXhTGoDakSqp1i_7milpwGx4xMFq.

⁸⁷ *Cell Tower Health Effects*, Physicians for Safe Technology, <https://mdsafetech.org/cell-tower-health-effects/>.



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Symptoms experienced by people near cellular phone base stations; RF radiation affects the blood, heart and autonomic nervous system.⁸⁸ Source: Santini, et al (France): Pathol Biol. 2002;50:S369-73; Dr. Magda Havas, PhD.

12. **RF Radiation Effects.** A group of toxicology researchers from multiple universities concluded that overall, high frequency RF radiation even below the FCC limits "can result in: carcinogenicity (brain tumors/glioma, breast cancer, acoustic neuromas, leukemia, parotid gland tumors), genotoxicity (DNA damage, DNA repair inhibition, chromatin structure), mutagenicity, teratogenicity, neurodegenerative diseases (Alzheimer's Disease, Amyotrophic Lateral Sclerosis), neurobehavioral problems, autism, reproductive problems, pregnancy outcomes, excessive reactive oxygen species/oxidative stress, inflammation, apoptosis, blood-brain barrier disruption, pineal gland/melatonin production, sleep disturbance, headache, irritability, fatigue, concentration difficulties, depression, dizziness, tinnitus, burning and flushed skin, digestive disturbance, tremor, cardiac irregularities, adverse impacts on the neural, circulatory, immune, endocrine, and skeletal systems" and "from this perspective, **RF is a highly pervasive cause of disease.**"⁸⁹
13. **5G's Biological Effects.** Contrary to claims that 5G's higher frequencies (millimeter waves) simply "bounce" off the skin, researchers have documented that the coiled portion of the skin's sweat duct can be regarded as a helical antenna in the sub-THz band and the skin, our largest organ, can intensely absorb the higher 5G frequencies.⁹⁰ The millimeter wave technology of 5G will not only directly and adversely affect the skin and eyes [e.g., skin cancer, cataracts], but will, in turn, cascade into systemic signaling effects within the body, "on the nervous system, heart and immune system."⁹¹ The free

⁸⁸ Dr. Magda Havas, https://www.researchgate.net/figure/Symptoms-experienced-by-people-near-cellular-phone-base-stations-based-on-the-work-of_fig2_258313941.

⁸⁹ Ronald N. Kostoff, Paul Heroux, Michael Aschner, Aristides Tsatsakis, "Adverse health effects of 5G mobile networking technology under real-life conditions," Toxicology Letters, Vol 323, 2020, pp. 35-40, ISSN 0378-4274, <https://doi.org/10.1016/j.toxlet.2020.01.020>.

⁹⁰ N. Betzalel, Y. Feldman and P. B. Ishaï, "The Modeling of the Absorbance of Sub-THz Radiation by Human Skin," in IEEE Transactions on Terahertz Science and Technology, vol. 7, no. 5, pp. 521-528, Sept. 2017, doi: 10.1109/THZ.2017.2736345, <https://ieeexplore.ieee.org/document/8016593>.

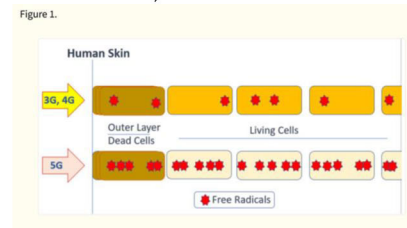
⁹¹ Ronald N. Kostoff, Paul Heroux, Michael Aschner, Aristides Tsatsakis, "Adverse health effects of 5G mobile networking technology under real-life conditions," Toxicology Letters, Vol 323, 2020, pp. 35-40, ISSN 0378-4274,



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radicals accumulating on the skin from 5G (see figure below) cause oxidative stress which can lead to DNA strand breaks, cancer and atherosclerosis.⁹²

Figure 1.



14. **Clumping of blood cells.** A Feb 2025 study found that when an otherwise healthy person is in close proximity to a cell phone red blood cells clumped together (rouleaux formation), which leads to blood abnormality, less oxygen transport, and potentially blockages, stroke and heart problems.⁹³
15. **“The 5G Appeal”** to the United Nations to halt the proliferation of 5G, warning of potential biological effects, was signed by 252 scientists and professionals from 43 countries, 40 scientists of which are from 15 U.S. states, including scientists and medical professionals from Columbia and Harvard.⁹⁴ Other scientists have joined in consensus statements.⁹⁵
16. **International Association of Fire Fighters** passed a resolution in 2004 that disapproved of cell towers on or near fire stations until safety can be proven.⁹⁶
17. **Increases in brain cancer** in the U.S. have been reported, with scientists attributing a high probability on RF radiation from cell phone use.⁹⁷

<https://doi.org/10.1016/j.toxlet.2020.01.020>; J J B, A R M, S M J M. A New Look at Three Potential Mechanisms Proposed for the Carcinogenesis of 5G Radiation. J Biomed Phys Eng. 2020 Dec 1;10(6):675-678. doi: 10.31661/jbpe.v0i0.2008-1157. PMID: 33364204; PMCID: PMC7753259, <https://pmc.ncbi.nlm.nih.gov/articles/PMC7753259/#ref7>.

⁹² J J B, A R M, S M J M. A New Look at Three Potential Mechanisms Proposed for the Carcinogenesis of 5G Radiation. J Biomed Phys Eng. 2020 Dec 1;10(6):675-678. doi: 10.31661/jbpe.v0i0.2008-1157. PMID: 33364204; PMCID: PMC7753259, <https://pmc.ncbi.nlm.nih.gov/articles/PMC7753259/#ref7>; Russell C L. 5 G wireless telecommunications expansion: Public health and environmental implications. EnvironMental Research. 2018;165:484–95. doi: 10.1016/j.envres.2018.01.016.

⁹³ “Hypothesis: ultrasonography can document dynamic in vivo rouleaux formation due to mobile phone exposure,” Robert R. Brown, Barbara Biebrich, Front. Cardiovasc. Med. , 10 February 2025 Sec. Atherosclerosis and Vascular Medicine, Volume 12 - 2025 | <https://doi.org/10.3389/fcvm.2025.1499499>; see also, <https://ehtrust.org/cellphones-and-your-blood-what-you-need-to-know/>.

⁹⁴ <http://www.5gappeal.eu/the-5g-appeal/>; see also, Dr. Martin Blank, PhD, Dept of Physiology and Cellular Biophysics, Columbia University, announcing the appeal early on and warning on wireless radiation, <https://www.youtube.com/watch?v=HgECRrabbuZQ>; see also, <https://childrenshealthdefense.org/defender/5g-rollout-harm-regulation-profit/>.

⁹⁵ <https://phiremedical.org/wp-content/uploads/2020/11/2020-Non-Ionising-Radiation-Consensus-Statement.pdf>.

⁹⁶ <https://www.iaff.org/cell-tower-radiation/>.

⁹⁷ See, e.g., [Brain Tumor Rates Are Rising in the US: The Role of Cellphone & Cordless Phone Use](#); [The Incidence of Meningioma, a Non-Malignant Brain Tumor, is Increasing in the U.S.](#); [New review study finds that heavier cell phone use increases tumor risk](#); Expert report by former U.S. govt. official: High probability RF radiation causes brain tumors; Cell phone and cordless phone use causes brain cancer: New review; and <https://ehtrust.org/scientific-documentation-cell-phone-radiation-associated-brain-tumor-rates-rising/>.



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18. **Comprehensive overview** of the adverse biological effects on people and the environment is provided at <https://ehtrust.org/wp-content/uploads/EHT-5G-Health-and-Environment-Open-Letter-3-2021-3.pdf>.

Chronic Disease and Clusters Near Cell Towers

1. **Near Duluth, MN**, a woman suffered 51 strokes after a nearby cell tower was “upgraded,” in addition to experiencing nausea, blind spots in her vision, orientation and balance difficulties.⁹⁸
2. **Clusters of sickness near cell towers (not exhaustive).**
 - a. **The Board of Health of Pittsfield, MA** issued an emergency cease and desist order in April 2022 to turn off a 4G cell tower that injured 17 residents, most of whom evacuated their homes.⁹⁹ One of those who remained has since died of cancer. The order cited residents having reported “headaches, ringing in the ears, dizziness, heart palpitations, nausea, and skin rashes,” and, e.g., a child who had “to sleep with a bucket next to her bed in case she needs to throw up.”¹⁰⁰ Because the telecom carrier threatened to sue, the Board of Health was compelled to rescind the order. The residents filed suit against the city but lost on federal preemption, i.e., no legal recourse for health claims.
 - b. **In Ripon, CA** when a cell tower was placed near an elementary school, 4 children (ages 6-11) got cancer (brain, liver, kidney) and 4 teachers got breast cancer.¹⁰¹ One of the children who contracted brain cancer (glioblastoma) when he was 10 years died in Aug 2024.¹⁰² After the 4th student was diagnosed with cancer, the tower was removed.¹⁰³ Since the tower was removed, it was reported that there were no more instances of cancer at the school.¹⁰⁴
 - c. **In an Idaho town** after 5G cell towers were installed, it was reported that a cluster of residents developed atrial fibrillation (a-fib). One of those residents who had undergone surgery for a-fib is a plaintiff in a lawsuit against the telecom carrier which refuses to provide accommodation under the Americans with Disabilities Act.¹⁰⁵

⁹⁸ <https://childrenshealthdefense.org/defender/marcia-haller-cell-tower-rf-radiation-sickness/>.

⁹⁹ <https://ehtrust.org/cease-and-desist-order-against-verizon-cell-tower-by-board-of-health-pittsfield-ma/>, see below the fold for link to the Order, p.12.

¹⁰⁰ <https://ehtrust.org/family-injured-by-cell-tower-radiation-in-pittsfield-massachusetts/>.

¹⁰¹ See beginning of video at https://www.youtube.com/watch?v=9TMTexPb_0&t=128s.

¹⁰² See the lists of treatments and surgeries that this child endured before he died,

<https://www.gofundme.com/f/support-the-ferrulli-family-in-memory-of-mason>.

¹⁰³ <https://mdsafetech.org/2019/03/25/cell-tower-to-be-removed-after-4th-ripon-student-diagnosed-with-cancer/>.

¹⁰⁴ See beginning of video at https://www.youtube.com/watch?v=9TMTexPb_0&t=128s.

¹⁰⁵ <https://childrenshealthdefense.org/press-release/chd-files-in-series-of-lawsuits-seeking-disability-accommodation-for-people-injured-by-rf-radiation-from-cell-towers/> and <https://childrenshealthdefense.org/defender/henry-hank-allen-chd-verizon-lawsuit-radiofrequency-radiation-cell-towers/>.



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APPENDIX A



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February 13, 2023

Queens Community Board No. 12
 90-28 161st Street
 Jamaica, New York 11432

Dear Community Board Members:

I am writing you as a former member of the New Hampshire State Commission that was tasked with exploring the Environmental and Health Effects of Evolving Wireless and 5G Technology. This Commission was formed through [bipartisan legislation](#) and was supported by the governor. The Commission was comprised of unbiased experts in fields relating to health and radiation and were highly qualified to evaluate the issue in a fair and in-depth manner. The Commission submitted its [final report](#) in November 2020, with a key finding being that exposure to wireless communication radiation is harmful to the health of humans and the environment. Those findings apply to all forms of wireless radiation, which include all generations of cellphone radiation.

My purpose in writing is to alert you to the dangers of siting a cell tower near to where people, particularly young people, live, work or recreate. I provide relevant details about the New Hampshire Commission's findings on this issue in a [presentation](#) I gave to the Lenox, MA Board of Health. Please know that the International Association of Fire Fighters (IAFF) in 2004 adopted a [position statement](#) still in effect today forbidding wireless communication facilities on or near fire stations as firefighters were being injured by the radiation. Many of the firefighters exposed to the wireless radiation could not remember where they were going during emergencies, nor how to administer CPR. As Dr. Gunnar Heuser indicates at the [EMF Medical Conference](#), functional MRIs showed damage to the gray matter of their brains from the radiofrequency radiation exposure.

Scientists, physicians, environmental and public health physicians, epidemiologists, pediatricians along with engineers such as myself have been calling for state and local governments to be proactive in protecting your citizens against radiation exposure. I realize that providing such protection may seem challenging. However, initiatives such as the New Hampshire Commission and the [successful lawsuit](#) brought about by the Environmental Health Trust and others are exposing the dubious claims by the FCC



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that wireless radiation is harmless. Given the mounting evidence regarding the clear harm of radiation, it is only a matter of time before meaningful protective regulations are put in place.

While telecom companies currently have the upper hand in that they seem to be able to force communities to accept whatever tower sites they mandate, there are actions that those communities can take to delay or stop installations where people will be excessively exposed. For example, citizens in York, Maine have delayed the installation of antennas positioned close to a neighborhood. The Board of Health in Pittsfield, Massachusetts issued a [cease-and-desist order](#) against Verizon regarding a cell tower that was causing illness in a surrounding neighborhood. There are many other examples where citizens and administrators have worked together to protect people against cell tower radiation. Those examples can be used to strengthen your ordinances to help protect against inappropriate cell tower siting.

I am currently working with my state legislators to pass legislation that would provide protections against excessive radiation exposure. The original legislation called for a 1,640-foot setback for all new cell towers; this setback is one of the recommendations made by the New Hampshire Commission, and the rationale for picking that distance is explained [here](#). The legislation is currently being revised so that it can be acted on in the next legislative session.

Wireless radiation dangers are real, and they can be significant in their impact on human health and the environment. I encourage you to do whatever is within your power to protect your constituents against it.

Sincerely,

A handwritten signature in blue ink that reads "Kent Chamberlin".

Kent Chamberlin, PhD
 Professor & Chair Emeritus
 Fulbright Distinguished Chair



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January 23, 2026

Noah Jackson
Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Jackson,

Thank you for the additional Questions for the Record in connection with the December 16, 2025 hearing, "Legislative Improvements to Public Safety Communications in the United States." My responses are provided below.

Thank you for the opportunity to testify. I appreciate the Committee's time and consideration.

Sincerely,

Capt. Jack Varnado
President
APCO International

9-1-1 Director
Livingston Parish Sheriff's
Office

Additional Questions for the Record

The Honorable Robert E. Latta

1. Based on your experience answering and responding to all sorts of emergencies, how important is it to give the American people direct dialing to 9-1-1 and has industry fully complied with the requirements of Kari's Law?

Answer: It is critically important that the American people be able to dial 9-1-1 directly. When callers are required to dial an extra digit to reach 9-1-1, it can cause confusion, delay emergency response, or even prevent a 9-1-1 call from being completed. In an emergency, seconds matter, and no one should lose valuable time navigating an unnecessary step when trying to reach life-saving assistance. The public expects to simply dial 9-1-1 and be immediately connected to help.

A 2024 study conducted by Intrado found that only 69.1 percent of surveyed organizations reported compliance with Kari's Law.¹ A comprehensive FCC review would help determine whether these compliance gaps stem from failures to comply with existing requirements or from ambiguities in the statute or Commission's rules that may warrant further legislative action.

- a. Do you believe all states and counties in the United States would benefit from full implementation of Kari's Law?

Answer: Yes. All states and counties in the United States would benefit from full implementation of Kari's Law. All Americans must be able to directly dial 9-1-1 without delay, regardless of where they are calling from. Haphazard, varying implementation that depends on the state or county will only increase confusion and lead to greater risk of delay in reaching 9-1-1. Uniform implementation ensures that all members of the public benefit from the same access to emergency services whether they are in a rural county or a multi-story facility in a major city. Full implementation of Kari's Law will strengthen public safety by reducing confusion, improving response times, and helping to prevent avoidable injuries or loss of life.

The Honorable Russ Fulcher

1. Captain Varnado, what has been the progress with entities like the Implementation Coordination Office (ICO) to facilitate coordination between federal, state, and local entities to help 911 centers upgrade to IP-based technology and to be able to interconnect with other 911 centers to provide redundancy in sharing information?

Answer: While there has been initial progress toward NG9-1-1, partially due to the prior federal grant program administered by the Implementation Coordination Office (ICO), there is still substantial work to be done in all states before 9-1-1 centers can fully transition to IP-based technology and seamlessly share information across jurisdictions.

¹ Irwin Lazar, *Why Duty of Care Requires a Proactive 911 Strategy*, METRIGY (2024), available at https://hs-22621859.f.hubspotemail.net/hubfs/22621859/Whitepapers/Metrigy_IssuePaper_2024Q2_DutyofCare911-Intrado-1.pdf?utm_campaign=Resource%20Download&utm_medium=email&_hsenc=p2ANqtz-7h5XCGTuOscNTFlqo1A0eTXtFi37eUCM3pNroIhxa27qHNmZC8-NgB1hXZVsvfw2GeU6evGh93Lsxr3qvREOtS5EBw&_hsmi=310129365&utm_content=310129365&utm_source=hs_automation.

The ICO was originally established in 2004 as a joint effort between NHTSA and NTIA to administer grant-related activities related to E-9-1-1 and NG9-1-1. That initial role has been fulfilled with the closure of the prior federal grant program.² At this point, maintaining a separate ICO is no longer necessary, and consolidating grant administration and program oversight within NTIA's Office of Public Safety Communications, as outlined in Reps. Hudson and Carter's Next Generation 9-1-1 Act (H.R. 6505), would be more efficient and effective.

The Next Generation 9-1-1 Act includes provisions to further ensure coordination between federal, state, and local entities in deploying NG9-1-1. Under the legislation, NTIA would be responsible for coordinating with state points of contact to develop, collect, and disseminate information on the practices, procedures, and technology used in NG9-1-1 implementation. NTIA would also be responsible for advising eligible entities on preparing state plans for NG9-1-1 deployment and providing technical assistance to support efficient implementation. In overseeing the grant program, NTIA would further ensure coordination between state and local entities by requiring that each entity requesting NG9-1-1 grant funding has coordinated its state NG9-1-1 deployment plan with the 9-1-1 centers in its jurisdiction, including documenting how input was received and accounted for from relevant urban and rural 9-1-1 centers, as well as regional, local, and tribal authorities.

2. I appreciate Mr. Hudson of North Carolina and Mr. Carter of Louisiana including a "Next Generation 911 Cybersecurity Center" in their legislation. As we connect different 911 centers in sharing personal, location, and other sensitive information over IP-based systems, it is important to counter threats from cyberattacks to intercept sensitive information. This could include "location spoofing" that misdirects where emergency responders should go through false locations, phishing emails, or pretexting and other deceptive techniques to gain unauthorized access to NG911 systems. Any particular challenges with the need to share information across 911 centers, and ensuring adequate protection from vulnerabilities as data crosses networks to provide adequate privacy for people who call in to request help?

Answer: As the central point of emergency response, 9-1-1 is a prime target for cyberattacks from both domestic and foreign bad actors. The increased sharing of information across 9-1-1 centers in NG9-1-1 environments presents further cybersecurity concerns. Unlike legacy 9-1-1 systems that relied on closed networks, NG9-1-1 depends on interconnected, data-rich, IP-based – and often cloud-enabled – systems. While this connectivity increases exposure to cyber risks as data crosses networks, the nascent state of NG9-1-1 deployment creates an important opportunity to build 9-1-1 systems with strong cybersecurity protections from the start.

It is critical that cybersecurity measures are baked into NG9-1-1 networks at the time they are deployed, rather than added on later as a patchwork response. Building cybersecurity protections into NG9-1-1 from the outset will help ensure more robust and resilient systems, protect the privacy of individuals seeking emergency assistance, and better secure sensitive data as it is shared across networks. Robust

² In 2009 the Implementation Coordination Office (ICO) established a grant program to assist 9-1-1 centers in upgrading to Enhanced 9-1-1 (E-9-1-1) pursuant to the *Ensuring Needed Help Arrives Near Callers Employing 9-1-1 Act of 2004* (ENHANCE 9-1-1 Act). Pursuant to NHTSA and NTIA rules, this grant program concluded in 2012. In 2019, the ICO subsequently opened a new grant program as designated by the *Next Generation 9-1-1 Advancement Act of 2012*, which was enacted as part of the *Middle Class Tax Relief and Job Creation Act of 2012*. Pursuant to the legislation, the NG9-1-1 grant program terminated on October 1, 2022.

cybersecurity standards, continuous monitoring, and dedicated security resources are essential to protecting both 9-1-1 infrastructure and the sensitive data it handles.

The Cybersecurity Resource Center outlined in the NG9-1-1 legislation is therefore an important tool, as it will drive the creation of resources that can be used by all emergency communications centers when planning and implementing NG9-1-1. In addition, deployment of NG9-1-1 will enable the integration of advanced capabilities such as artificial intelligence to strengthen system resilience. AI-enabled security tools can support continuous network monitoring, detect anomalous activity, and assist in identifying and responding to cyber threats.

3. When it comes to Public Safety Answering Points (PSAPs) helping counties transition from traditional analog emergency communications to IP-based Next Generation 911 technology, I want to understand the robustness and reliability of this approach when it comes to getting data transferred to officers in rural territories they can share on fugitives evading the law. In particular, we have tried to tie county, city, tribal law enforcement to deal with higher volumes of more robust data. But I also want to know how things are progressing on the data side for the sharing of critical information? Can you provide a progress report?

Answer: The transition from traditional analog emergency communications to IP-based NG9-1-1 will fundamentally change how critical information is shared with law enforcement and improve the robustness and reliability of data delivery. By transitioning to IP-based networks, NG9-1-1 enables the transmission of richer, real-time data, such as text, images, and video, that can be shared more quickly and effectively with responding agencies.

As NG9-1-1 is deployed, these systems will significantly enhance how emergency communications centers receive and share critical information during incidents involving fugitives evading the law. For example, in an NG9-1-1 environment, a caller could transmit photos or video of a fleeing suspect, license plate information, or live location data, all of which can be associated with the incident in real time. Further, because NG9-1-1 will enable greater interoperability, this information can then be securely and seamlessly shared with responding officers in the field, supporting more coordinated, multi-jurisdictional responses.

Emergency response is inherently collaborative and often requires multiple agencies and jurisdictions to work together seamlessly, particularly in incidents involving fugitives evading law enforcement or situations that cross county, city, or state boundaries. Today, many emergency communications centers still operate in isolation, using different equipment, software, and networks, which can delay the sharing of critical information or require costly, after-the-fact solutions. NG9-1-1 seeks to eliminate these boundaries by enabling systems to communicate across jurisdictions and service providers without proprietary interfaces or constraints.

Progress toward implementing NG9-1-1 in this manner remains uneven across the country. While some states and localities have begun initial NG9-1-1 deployments, no state has yet implemented comprehensive, end-to-end NG9-1-1 as envisioned by the public safety community and defined in the Next Generation 9-1-1 Act. This vision of NG9-1-1 means enabling emergency communications centers to receive, process, and analyze all forms of data and seamlessly share this information with responders in the field and other emergency communications centers. Many states have deployed emergency services IP networks, or ESInets, which replace the more than 50-year-old technology used to deliver 9-1-1 calls to emergency communications centers and for connecting emergency communications centers together.

Deploying an ESInet may be an initial step toward achieving NG9-1-1, but because ESInets only address getting the calls to the emergency communications centers and not sharing information with responders in the field, having an ESInet does not mean that NG9-1-1 has been deployed.

Achieving the full public safety benefits of NG9-1-1 will require sustained funding and a continued focus on interoperability to ensure that mission critical data can be quickly and effectively shared across jurisdictions and with responders in the field. This is why passage of Reps. Hudson and Carter's Next Generation 9-1-1 Act (H.R. 6505) is so important, as the legislation establishes a comprehensive framework to facilitate nationwide NG9-1-1 deployment in a secure, innovative, interoperable, and reliable manner.

The Honorable August Pfluger

1. Captain Varnado, in the hearing we discussed my draft legislation, the Mystic Alerts Act which would incorporate satellite technology into the wireless emergency alert system? In your experience, how might having satellite alerts change an outcome during an emergency situation?

Answer: Emergency alerts are vital public safety tools that enable public safety agencies to provide the public with timely information that can save lives during an emergency. Emergency alerts give people the information they need to take immediate, life-saving action, such as evacuating, seeking shelter, or avoiding dangerous areas. Satellite connectivity can enhance this essential system by providing an additional layer of resiliency for emergency alert dissemination, particularly during natural disasters, like hurricanes, wildfires, or flooding that can disrupt land-based communications networks. Unlike terrestrial networks, which can be damaged or overloaded during large-scale events, satellite networks often remain operational, ensuring that emergency alerts continue to reach affected populations.

Additionally, satellite services can extend the reach of alerts to areas where traditional terrestrial networks are limited or nonexistent, including rural and remote communities. By providing broader coverage and redundancy, satellite-enabled alerts can help ensure that all members of the public receive timely warnings, including those who might otherwise be left without critical information, enabling faster and more informed action during emergencies.

2. Captain Varnado, you highlighted in your testimony the incorporation of analog technologies such as amateur radio broadcasters who have been longstanding and critical public safety partners in times of need. I agree with your assessment, and my bipartisan, bicameral legislation, *the Amateur Radio Emergency Preparedness Act*, would ensure that Amateur Radio operators can continue to play a vital role in public safety by extending the same private land-use restrictions that apply to other telecommunications equipment to amateur radio antennas.

Can you discuss a time when amateur radio operators assisted you in disaster response, and why ensuring access to this resilient public safety tool will aid in disaster response and recovery?

Answer: Amateur radio operators play a vital role in disaster response and recovery, and their contributions have repeatedly proven to be essential when traditional communications systems fail. While I have not personally worked alongside amateur radio operators during a disaster response, I am familiar with their operational role and the ways they are regularly integrated into emergency response efforts.

Amateur radio operators provide crucial support to public safety agencies, particularly during disasters when traditional communications infrastructure, including cell towers and broadcast networks, is damaged or overloaded. Their ability to deploy quickly and operate independently makes amateur radio operators a valuable redundant communications resource, strengthening overall resiliency during emergencies.

Many public safety agencies across the country maintain strong collaborative relationships with amateur radio operators. The Amateur Radio Emergency Service (ARES), a nationwide organization of licensed radio operators who voluntarily register to support emergency management and public safety agencies during disasters, often leads these collaborative efforts. ARES members routinely train alongside state and local public safety officials so that they can be activated quickly and efficiently as needed.

Several recent natural disaster responses highlight the importance of amateur radio operators in emergency response. During the Texas floods on July 4, 2025, amateur radio operators were activated to support local public safety agencies. In that response, amateur radio operators assisted the American Red Cross with establishing and operating a reunification shelter, were embedded with search-and-rescue teams, and relayed critical health and welfare information when other communications systems were unavailable.³

Similarly, during Hurricanes Helene and Milton in 2024, amateur radio operators provided communications support in affected areas where internet and cell service had been disrupted. In addition to radio communications, amateur radio operators used Winlink, a system that allows email to be transmitted over amateur radio frequencies, to send weather updates, lists of supplies, and requests for aid when internet was unavailable.⁴ In some communities, amateur radio operators even established high-frequency mesh networks, allowing multiple amateur radio operator's equipment to create localized, internet-like communication systems to enable real-time information sharing between neighborhoods and emergency shelters.⁵

Amateur radio operators also play a key role in weather monitoring and information sharing at the national level. The National Hurricane Center and local National Weather Service Weather Forecast Offices regularly collaborate with amateur radio operators to gather real-time storm reports and disseminate critical weather information to the public. A notable example is WX4NHC, the amateur radio station at the National Hurricane Center, which activates during hurricane events to collect on-the-ground reports from affected areas. This type of information helps the National Weather Service refine the emergency alerts it sends out and confirm where damage or weather events may have occurred.

In addition, the value of amateur radio operators is not limited to large-scale natural disasters. In 2024, amateur radio operators assisted in locating a family trapped in Death Valley National Park.⁶ One family

³ National Association for Amateur Radio, *Amateur Radio Volunteers Serving During Texas Floods*, ARRL.ORG (Jul. 9, 2025), available at <https://www.arrl.org/news/view/amateur-radio-volunteers-serving-during-texas-floods>.

⁴ National Association for Amateur Radio, *HAM Radio Serving Southeast US Recovery Efforts*, ARRL.ORG (Oct. 4, 2024), available at <https://www.arrl.org/news/view/ham-radio-serving-southeast-us-recovery-efforts>; Virtual IT Group, LLC, *How Amateur Radio Operators Are Revolutionizing Hurricane Communications: Insights From Hurricane Helene and Milton*, VIRTUALITGROUP.COM (Oct. 18, 2024) ("Virtual IT Group"), available at <https://virtualitgroup.com/how-amateur-radio-operators-are-revolutionizing-hurricane-communication/>.

⁵ Virtual IT Group.

⁶ National Association of Amateur Radio, *Amateur Radio Saves Family in Death Valley National Park*, ARRL.ORG (Apr. 12, 2024), available at <https://www.arrl.org/news/amateur-radio-saves-family-in-death-valley-national-park>.

member, a licensed amateur radio operator, transmitted a distress call from their vehicle. The signal was received by another operator in Ohio, who identified the call sign and approximate location and coordinated with additional operators to search for and monitor the distress signals. Those amateur radio operators then relayed the information to park authorities, enabling a successful rescue of the family.

These examples demonstrate how amateur radio can be a resilient public safety tool. Amateur radio operators provide a flexible, redundant, and localized communications resource that can enhance situational awareness, support first responders, and help ensure that critical information can be shared in all circumstances.

The Honorable Doris Matsui

1. My bill, the *Kari's Law Reporting Act*, directs the FCC to report on compliance with Kari's Law to ensure the public can directly access 9-1-1 from multi-line telephone systems, such as those used in schools, hotels, and offices. My bill also calls for recommendations to Congress on whether additional legislation is needed.

As a follow-up to your response during the hearing, what gaps or enforcement challenges might require additional Congressional action?

Answer: Multi-line telephone systems that cannot directly dial 9-1-1 without first dialing a prefix to access an outside line present a significant public safety concern, as individuals may be unaware of the need to dial an additional digit in an emergency, potentially resulting in delayed or failed attempts to reach emergency services. It is unclear whether these gaps in compliance reflect intentional noncompliance or confusion within the industry regarding the scope of Kari's Law. Notably, Kari's Law applies only to multi-line telephone systems that are manufactured or installed after February 16, 2020 (the effective date of the FCC's rules implementing Kari's Law). As a result, systems manufactured or installed prior to that date may remain noncompliant indefinitely, even though they continue to be in use in hotels, schools, and businesses across the country. Further, a multi-line telephone system manufactured before February 16, 2020, but installed after that date is subject to Kari's Law, yet this distinction may not be clear to manufacturers, installers, or end-users. Similarly, certain upgrades to multi-line telephone systems that were installed prior to February 16, 2020, but upgraded after this date, can trigger compliance obligations, while other upgrades do not, creating further ambiguity around when a multi-line telephone system must be brought into compliance. Additional legislation may be warranted to clarify what systems fall within the scope of Kari's Law and to bring in additional systems that are currently exempt.

2. What factors should the FCC report examine to determine whether additional legislation is needed?

Answer: The FCC's report should examine several key factors to determine whether additional legislation is needed to ensure compliance with Kari's law, such as:

- The extent and prevalence of noncompliance with Kari's Law;
- Whether noncompliant multi-line telephone systems fall outside the scope of Kari's Law due to their manufacturing or installation date (prior to February 16, 2020); and
- Whether ambiguities in Kari's Law or the Commission's rules, such as whether a system upgrade would trigger a compliance requirement, could be contributing to compliance gaps.

These factors are not intended to be exhaustive, and there may be additional technical or operational considerations relevant to determining whether further legislative action is necessary. We would encourage the FCC to work closely with public safety organizations, industry stakeholders, and other experts to help identify additional issues and to inform the appropriate scope of the report.

3. Can you describe the risks of continuing to rely on outdated, decades-old technologies for our 9-1-1 systems?

Answer: 9-1-1 is the most critical of critical infrastructure, and relying on decades-old systems risks our first responders not being able to respond to emergencies to the best of their abilities. Modern cell phones can instantly record and transmit information to friends and family. Yet when a call is placed to 9-1-1, much of this valuable data is unable to be transmitted to the emergency communications center, leaving first responders with only a voice connection and limited information about an incident. This limits situational awareness, slows response times, and can put both the public and first responders at risk.

Outdated systems are also more vulnerable to outages, cyberattacks, and other disruptions, creating threats not only to public safety but also to national security. 9-1-1 is our nation's first line of defense in an emergency, and it is imperative that these systems are advanced, reliable, and resilient enough to protect the public from all types of emergencies.

In an NG9-1-1 environment, public safety telecommunicators will be able to receive text messages, photos, videos, and other data directly from the public, giving them a clearer understanding of what is happening as an incident unfolds. That information can be analyzed and shared immediately with first responders and neighboring jurisdictions, helping responders arrive better informed, make faster decisions, and coordinate more effectively, especially during complex or rapidly evolving incidents.

4. What would be the impact of dedicated federal funding for Next Gen 9-1-1 deployment, and how would it help states accelerate progress?

Answer: Dedicated federal funding for NG9-1-1 would ensure that all emergency communications centers, regardless of size or location, have the resources needed to implement end-to-end NG9-1-1 capabilities. For the public, that means that no matter where you live in the country, from rural towns to major cities, you have access to the most advanced emergency response services available.

Sustainable funding remains one of the largest barriers to nationwide NG9-1-1 implementation. Many states rely on inconsistent fee structures or annual appropriations that cannot support large-scale, multi-year technology deployments. Emergency communications centers, most of which are already operating under tight budgets, struggle to upgrade aging equipment, maintain cybersecurity protections, or adopt emerging technologies without federal support.

Emergencies don't stop at the border. We need federal support to ensure we do not end up with a nation of haves and have nots, where some areas of the country have advanced capabilities and others lag behind.

5. My bill, the Emergency Reporting Act, aims to improve the information 9-1-1 centers receive during a service outage, which can affect the public's ability to reach 9-1-1.

My bill would require the FCC to hold public hearings on significant outages. How can this greater transparency about service performance during disasters improve network reliability and public safety?

Answer: FCC field hearings can yield invaluable insights into the root cause of an outage, how restoration efforts were carried out, and how relevant stakeholders coordinated their response. Field hearings can provide a forum for identifying and sharing measures that might prevent or mitigate similar outages in the future. That information helps drive accountability, promote collaboration, and improve network resiliency and reliability in the future.

It is critical that public safety stakeholders, including 9-1-1 professionals, are included in these discussions so the real-world impacts on emergency response are fully understood and reflected in the solutions. I experienced this firsthand when I participated in an FCC field hearing on network resiliency after Hurricane Ida in 2021, which provided an opportunity to share on-the-ground insights into system performance, coordination with service providers, and ways to strengthen communications and improve outcomes in future disasters.

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January 23, 2026

Noah Jackson
Legislative Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Jackson,

Please see my answers to the submitted Questions for the Record for the hearing titled "Legislative Improvements to Public Safety Communications in the United States" on December 16, 2025.

The Honorable Robert E. Latta

Question:

As you know, I was the Republican lead on the Communications and Technology Subcommittee for the last six years and I appreciate how important our public safety agencies and wireless emergency alerts are to our local communities. I'm interested in how these two industries work together during disasters. Can you discuss how wireless and industry work cooperatively during emergencies, and what more can be done to ensure seamless communications?

Response:

CTIA and its member companies appreciate Congressman Latta's clear and consistent leadership on public safety issues. With more than 447,000 active cell sites across the U.S. providing overlapping coverage and diverse resiliency solutions, it is typical for the vast majority of cell sites to remain online throughout a disaster event. The availability of wireless services during disaster events is also a reason that Wireless Emergency Alerts are one of the most powerful alert and warning tools available to local emergency managers and responders. This resiliency and redundancy is the result of sustained planning, collaboration, and investments designed to ensure

that wireless services are available when first responders, emergency managers and our communities need it most.

For example, wireless providers work closely with industry partners and participate in emergency response agency-led “blue skies” preparedness exercises and disaster simulations to ensure that all stakeholders’ response plans are practiced and ready before a disaster hits. And in the lead up to a disaster like a hurricane or wildfire, wireless providers’ dedicated emergency preparedness and response teams fortify critical cell sites with backup power, ensure portable cell sites and power generators are available to be deployed, and stock up on repair equipment and fuel to maintain cell sites during extended power outages.

Once a disaster event hits, wireless providers deploy portable cell sites, satellite backhaul, and innovative solutions such as Flying Cell on Wings to restore coverage in areas hardest hit. Wireless response teams are often among the first on the ground, using airboats, all-terrain vehicles, drones, and temporary access routes to assess damage and restore service in hard-to-reach communities.

Wireless providers put aside fierce competitiveness to work hand in hand and share resources with other wireless providers, fiber backhaul providers, electric power companies, and federal, state and local emergency response authorities. These efforts are aligned with the FCC’s Mandatory Disaster Response Initiative, which codified the voluntary Wireless Resiliency Cooperative Framework originally developed by CTIA and its member companies. That Framework was created in collaboration with Congress and the FCC to establish best practices for mutual aid, municipal preparedness, consumer readiness, and stakeholder communications during disaster response and recovery.

Wireless networks also rely on fiber transport and commercial electric power to maintain network operations, which means that coordination with fiber broadband providers and electric power companies is essential to maintain service continuity and accelerate restoration. The Cross-Sector Resiliency Forum—a collaboration between the communications and the electric power sectors—provides a venue to regularly share lessons learned from disasters, exchange contact information, identify joint training and exercise opportunities, and develop best practices to improve preparedness and response. The Forum also maintains coordination channels that enable communications providers and electric power companies to communicate before, during, and after disasters and has helped establish priority restoration arrangements for critical wireless facilities.

Under the leadership of FCC Chairman Brendan Carr, the FCC has reinforced these efforts by hosting a workshop focused on cross-sector resiliency and releasing [Public Safety Best Practices During Hurricane Season](#). Wireless providers incorporate these best practices into their preparedness and restoration planning. Further, the FCC routinely issues notices that state and local emergency responders can use to remind debris clearing crews to avoid unnecessary cuts of fiber lines that are critical to maintain connectivity between cell sites and wireless networks.

As each disaster event presents unique challenges, wireless providers will continue to invest in resiliency—strengthening cell sites and wireless networks, enhancing partnerships and

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coordination across the communications and electric power sectors and emergency managers, and developing innovative tools and resources. By maintaining a flexible regulatory environment and facilitating coordination opportunities, Congress can help the wireless industry ensure that Americans can continue to rely on wireless services in responding to and recovering from disasters.

The Honorable Russ Fulcher

Question:

Mr. Gerst, my state of Idaho has particular challenges when it comes to large amounts of territory that are hard to reach. On top of that, we face permitting obstacles due to so much of it being under federal control. Local, state, and federal entities need to be able to share robust amounts of data to address a range of emergency situations: directing resources to a wildfire not yet contained, addressing the collapse of a road, or accessing a population cut off due to a snow storm. All the while normal 911 services need to be supported. Mr. Gerst, talk to me about legislative and policy improvements you see to ensure there is reliable interoperability of large data sets between local jurisdictions.

Response:

Congressman Fulcher, thank you for your leadership on permitting issues, including your recent legislation to streamline the permitting process for broadband infrastructure build-out. Your question highlights the geographic and operational challenges that rural and frontier states like Idaho face during emergency situations, as well as the importance of permitting reform that can enable wireless services to reach further into those areas.

CTIA and its member companies applaud this Committee's bipartisan work to advance legislation that streamlines broadband permitting processes and reduces needless delays, as well as the FCC's recent actions to modernize and streamline wireless infrastructure siting rules, including policies governing state and local government reviews as well as National Environmental Policy Act and National Historic Preservation Act reforms. Ensuring timely access to rights-of-way, expediting environmental and historic preservation reviews for communications infrastructure, and maintaining reasonable siting policies will allow wireless providers to extend resilient coverage into hard-to-reach areas and support emergency communications when disasters strike.

Wireless services are part of the backbone for America's emergency communications systems. Today, more than 80 percent of 911 calls originate on wireless devices, making mobile wireless services the primary on-ramp to 911 emergency services nationwide. The transition to Next Generation 911 (NG911) is the next step to enhance our nation's 911 system.

NG911 enables wireless providers to deliver voice, text, images or videos that can help local emergency communications centers (ECCs) better respond to emergencies. During a disaster event like a hurricane or wildfire, NG911 also enables ECCs in hard-hit areas to transfer calls and data to an ECC that can respond. While local ECCs and 911 authorities determine their NG911 capabilities and policies for sharing data with other ECCs, wireless providers are actively

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working with 911 authorities to support the deployment and adoption of NG911 services under a framework established by the FCC.

CTIA and its member companies support a uniform national framework for NG911 deployment. As this Committee considers legislation like the Next Generation 911 Act, we support strong federal coordination with 911 authorities and local ECCs that can help achieve our shared goals of ensuring the availability of NG911 nationwide.

Thank you for the opportunity to testify before the Committee. Please let me know if you have any questions.

Respectfully submitted,

/s/ Matthew Gerst

Matthew Gerst
On behalf of CTIA
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