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RAY BAUM'S ACT: A BIPARTISAN FOUNDATION FOR BRIDGING THE DIGITAL DIVIDE

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY

OF THE

COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTEENTH CONGRESS

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[1] The information has been retained in committee files and also is available at *https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=108785.*

RAY BAUM'S ACT: A BIPARTISAN FOUNDATION FOR BRIDGING THE DIGITAL DIVIDE

TUESDAY, DECEMBER 11, 2018

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

The subcommittee met, pursuant to notice, at 1:57 p.m., in room 2322, Rayburn House Office Building, Hon. Marsha Blackburn (chairman of the subcommittee) presiding.

Member present: Representatives Blackburn, Shimkus, Latta, Guthrie, Olson, Bilirakis, Johnson, Long, Flores, Brooks, Walden (ex officio), Doyle, Clarke, Loebsack, Ruiz, Eshoo, McNerney, and Pallone (ex officio).

Staff present: Jon Adame, Policy Coordinator, Communications and Technology; Robin Colwell, Chief Counsel, Communications and Technology; Kristine Fargotstein, Detailee, Communications and Technology; Margaret Tucker Fogarty, Staff Assistant; Adam Fromm, Director of Outreach and Coalitions; Tim Kurth, Deputy Chief Counsel, Communications and Technology; Sarah Matthews, Press Secretary, Energy and Environment; Austin Stonebraker, Press Assistant; Evan Viau, Legislative Clerk, Communications and Technology; Hamlin Wade, Special Advisor for External Affairs; Jeff Carroll, Minority Staff Director; Jennifer Epperson, Minority FCC Detailee; Evan Gilbert, Minority Press Assistant; Alex Hoehn-Saric, Minority Chief Counsel, Communications and Technology; Rick Kessler, Minority Senior Advisor and Staff Director, Energy and Environment; Dan Miller, Minority Policy Analyst; and Andrew Souvall, Minority Director of Communications, Member Services, and Outreach.

OPENING STATEMENT OF HON. MARSHA BLACKBURN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE

Mrs. BLACKBURN. The Subcommittee on Communications and Technology will now come to order, and the Chair recognizes herself for 5 minutes for an opening statement. And good afternoon to everyone, and welcome to our last hearing of this Congress.

Over the last 2 years, it has been my pleasure to work with everybody on the subcommittee and many of you that are here in the room today on wide-ranging and important legislation to the communications and technology industry. Though we occasionally have had our disagreements, we have really gotten a lot done, and it is work that the American people have wanted to see accomplished.

Nothing demonstrates this more than RAY BAUM'S Act, which was jam-packed with this year's top communications priorities, as well as many other bills many of you have worked on for the last several years, and we achieved through consensus and compromise from everybody around the table, both here and in the Senate, some good directives. And I thank everyone for the work on that.

RAY BAUM'S is one of the most comprehensive telecommunications laws in two decades. Prior to RAY BAUM'S Act, the FCC had not been reauthorized since 1990. And first questions will go to whomever can tell me what was the top Christmas movie of 1990.

You all have no social IQ there. No, it wasn't "Grinch," it was "Home Alone." You got it. OK. And then Garth Brooks' top song that year. I have always got to have a Nashville connection. In 1990, what was Garth Brooks' top song?

Mr. LONG. "Friends in Low Places."

Mrs. BLACKBURN. You got it. Yes, "Friends in Low Places." It would take a politician to know that.

By reauthorizing the Commission, we as authorizers on this committee gave direction to the agency, reaffirmed the important missions we have delegated to them, and most importantly, gave them the necessary tools to be successful in the 21st century.

We see this in setting up new funds to ensure the broadcast incentive auction stays on track to be completed in 39 months.

We see this in the new rules that allow spectrum auction bidders to deposit their upfront payments directly with the Treasury to ensure that more airwaves, both in the current pipeline and on the horizon, are brought to market.

And we see this with our bipartisan commitment to focus the Commission on finding ways to encourage restoration and resiliency of communication networks after disasters.

At the first hearing of 2018, we gathered to discuss all of the legislation addressing broadband infrastructure that had been introduced by every single member of this subcommittee. Provisions from several of these were ultimately incorporated into RAY BAUM'S Act.

Also included in RAY BAUM'S Act were provisions from bills that long have enjoyed bipartisan support, but never could get enacted into law, like Mr. Scalise's FCC Consolidated Reporting Act and the Anti-Spoofing Act championed by Mr. Lance and Mr. Barton.

But despite these breakthroughs, there is still other work that needs to be done, and with the new year comes a new opportunity to bring more ideas to the table. I am encouraged by the bipartisan foundation set by RAY BAUM'S Act, and I am confident that this subcommittee will build on its success that we have had in the 115th Congress and keep working on many of these areas of common interest. Americans deserve no less.

I would like to thank our witnesses for being here today. And before I yield to Mr. Doyle, I would like to recognize some of the people who have made our committee so successful during this Congress.

First, to our wonderful staff. They have stuck together, worked hard, and on both the Democrat and Republican sides they have

worked well. Mr. Lance, who is not here, who has worked really hard. My fellow Senator-elect Kevin Cramer, who is moving on. Mr. Costello, who chose to retire. And Mimi Walters, who worked so diligently on our FOSTA and SESTA legislation, as we are working to fight human trafficking and online sex trafficking.

I am certain that you are going to see the commitment carried on as we continue to review all aspects of the 1996 Telecom Act.

And with that, I yield 5 minutes to the ranking member, Mr. Doyle.

[The prepared statement of Mrs. Blackburn follows:]

PREPARED STATEMENT OF HON. MARSHA BLACKBURN

Good morning and welcome to our last hearing of the Congress. Over the last 2 years, it has been my pleasure to work with all of you on the subcommittee on wide-ranging, important legislation. Though we occasionally have our disagreements, we have accomplished a lot for the American people this Congress. Nothing demonstrates this more than RAY BAUM'S Act, which was jam-packed with this year's top communications priorities, as well as many other bills many of you have worked on over the last several years. And it came through concession and compromise from everyone around the table, both here and in the Senate-so I want to thank everyone who was part of that process.

RAY BAUM'S Act is one of the most comprehensive telecommunications laws in two decades. Prior to RAY BAUM'S Act, the FCC hadn't been reauthorized since 1990, when "Home Alone" first debuted and Garth Brooks' "Friends in Low Places" was top 5 in the country charts. By reauthorizing the Commission, we—as authorizers on this committee—gave direction to the agency, reaffirmed the important missions we've delegated to them, and most importantly gave them the necessary tools to succeed.

We see this in setting up new funds to ensure the broadcast incentive auction stays on track to be completed in 39 months.

We see this in the new rules that allow spectrum auction bidders to deposit their upfront payments directly with the Treasury to ensure that more airwaves, both in the current pipeline and on the horizon, are brought to market.

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But despite these breakthroughs, there is still more work to be done- and with the new year comes a new opportunity to bring more ideas to the table. I'm encouraged by the bipartisan foundation set by RAY BAUM'S Act, and I'm confident that this subcommittee will build on its success in the 115th Congress and keep working on the many areas of common interest. Americans deserve no less.

I would like to thank our witnesses for being here, but before I yield to Mr. Doyle, I'd like to recognize some of the people who have made our committee so successful during this Congress. First, I would like to thank my wonderful committee staff. They stuck together through a tough year, and made great strides in achieving our committee's priorities. I would also like to acknowledge my good friend Leonard Lance, who lead on a number of bills that moved through this committee; my fellow Senator-elect Kevin Cramer; Ryan Costello; and of course Mimi Walters, who played a significant role for this committee's jurisdiction with enactment of the FOSTA–SESTA legislation as another tool to fight human sex trafficking—I can assure you that commitment will carry on as we continue to review all aspects of the 1996 Telecom Act and other communications laws next Congress. And with that I will yield to the ranking member of the subcommittee, Mr. Doyle.

OPENING STATEMENT OF HON. MICHAEL F. DOYLE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. DOYLE. Thank you.

I want to thank the witnesses for coming before us today. And I want to thank you, soon-to-be-Senator Blackburn, for holding this hearing, and congratulations to you.

Mrs. BLACKBURN. Thank you.

Mr. DOYLE. The RAY BAUM'S Act was the result of bipartisan, bicameral negotiations and good-faith efforts by both sides. I am glad that so many Democratic priorities were included in this legislation, including Ranking Member Pallone's Viewer Protection Act, and SANDy Act, as well as bills led by Representatives McNerney, Loebsack, Eshoo, Engle, Ruiz, Luján, and Matsui. However, much work remains to be done to be sure that this legislation is carried out as Congress intended.

For instance, while I am glad that we were able to come together and ensure that broadcasters would have the resources they need to complete the incentive auction repack, I am disappointed that the FCC still has not started up the consumer education program that was authorized and funded by this legislation.

As Mr. Zachary points out in his testimony, consumers are in desperate need of education about how the repack impacts them. While I understand that broadcasters have an incentive to inform their viewers, Mr. Zachary's testimony shows that consumers often must be guided through the process of rescanning their local stations. These are problems viewers are facing now, and the FCC needs to get into gear.

RAY BAUM'S Act was also consolidated a number of reports at the FCC into the Consolidated Communications Marketplace Report, and the Commission is planning to vote on this report at their open meeting tomorrow. The draft report says that nearly 100 percent of our country is served by one or more LTE wireless providers, which is a joke.

Madam Chairman, I would like to add this draft report to the record so that our colleagues can see what the FCC thinks about wireless coverage in their districts.

[The information appears at the conclusion of the hearing.] [1]

Mr. DOYLE. With data like this, it is no surprise that the Commission put its mobility fund to auction on hold. The Commission needs better data in order to proceed with this auction. They can't put the onus on rural bidders to verify or dispute another carriers claim of coverage in any given area.

So while I am pleased the FCC has delayed this auction, I am sorely disappointed that they took so long to do it. This auction will fund wireless rural broadband deployment for the next 10 years and we need to get it right.

Another aspect of the RAY BAUM'S Act that I think requires more oversight is the C-band report that the FCC and NTIA are required to submit to Congress by September of 2019. This report will examine the feasibility of allowing licensed, unlicensed, and

[1] The information has been retained in committee files and also is available at *https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=108785.*

shared use of this band. Currently, cable operators, broadcasters, and public radio use this band to distribute program using satellite downlinks.

The satellite providers have proposed a private market transition that would sell off 200 megahertz of spectrum to wireless companies and consolidate satellite operations into the upper 300 megahertz of the band. Finding creative solutions to meet our spectrum needs is crucial, and I think there is merit to this plan. However, I am very concerned about the specifics, or lack thereof, that has been proposed so far.

This band is among those that has been identified as key to deploying our 5G service. Allowing a small group of foreign companies to handpick which wireless carriers get access to this critical spectrum raises incredible questions about competition, rural deployment, transparency, and the public interest. Our Nation cannot afford to have the FCC sit on the sidelines while our Nation's 5G future is being decided.

Finally, my community in Pittsburgh was impacted by a terrible tragedy at the Tree of Life synagogue in Squirrel Hill. It was the deadliest attack on the Jewish community in U.S. history. Our community is deeply grateful for the efforts of first responders that stopped that attack. The first people that responded were the 9–1–1 call center operators who received calls from people inside. They helped dispatch the first units that responded to the scene.

The RAY BAUM'S Act authorized important changes to the way 9–1–1 systems work in hotels and large buildings, and Representatives Eshoo and Shimkus' leadership on this issue has been critical. We need to do more particularly as we look at next generation systems and the funding challenges we face in deploying the technology nationwide.

Thank you, again, Madam Chair, for convening this hearing. I wanted to say it has been a pleasure to serve with you on this committee, and I wish you well in that other body when you make your move. I look forward to hearing the testimony of the witnesses here today, and I yield back.

[The prepared statement of Mr. Doyle follows:]

PREPARED STATEMENT OF HON. MICHAEL F. DOYLE

Thank you to the witnesses for coming before us today, and thank you to Chairman—soon to be Senator—Blackburn for holding this hearing. Congratulations.

The RAY BAUM'S Act was the result of bipartisan, bicameral negotiations and good faith efforts by both sides. I'm glad that many Democratic priorities were included in this legislation, including Ranking Member Pallone's Viewer Protection Act and SANDy Act, as well as bills led by Reps. McNerney, Loebsack, Eshoo, Engel, Ruiz, Luján, and Matsui.

However, much work remains to be done to ensure that this legislation is carried out as Congress intended.

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The draft report says that nearly 100 percent of our country is served by 1 or more LTE wireless providers, which is a joke. Madam Chairman, I'd like to add this draft report to the record, so that our colleagues can see what the FCC thinks about wireless coverage in their districts.

With data like this, it's no surprise the Commission put its Mobility Fund Two auction on hold. The Commission needs better data in order to proceed with this auction. They can't put the onus on rural bidders to verify or dispute another carrier's claims of coverage in any given area.

So, while I am pleased the FCC has delayed this auction, I am sorely disappointed they took so long to do it. This auction will fund wireless rural broadband deployment for the next 10 years. We need to get it right.

Another aspect of the RAY BAUM'S Act that I think requires more oversight is the C–Band report that the FCC and NTIA are required to submit to Congress by September of 2019. This report will examine the feasibility of allowing licensed, unlicensed, and shared use of this band. Currently, cable operators, broadcasters, and public radio use this band to distribute programing using satellite downlinks. The satellite providers have proposed a private market transaction that would sell off two hundred megahertz of spectrum to wireless companies and consolidate satellite operations into the upper three hundred megahertz of the band.

Finding creative solutions to meet our spectrum needs is crucial, and I think there is merit to this plan. However, I am very concerned about the specifics, or lack thereof, as they have been proposed so far. This band is among those that has been identified as key to deploying 5G service. Allowing a small group of foreign companies to hand-pick which wireless carriers get access to this critical spectrum raises incredible questions about competition, rural deployment, transparency, and the public interest. Our Nation cannot afford to have the FCC sit on the sidelines while our Nation's 5G future is being decided.

Finally, my community in Pittsburgh was impacted by a terrible tragedy at the Tree of Life Synagogue in Squirrel Hill. It was the deadliest attack on the Jewish community in US history. Our community is deeply grateful for the efforts of the first responders who stopped the attack, including the 9–1–1 call center operators who received calls from the people inside. They helped dispatch the first units that responded to the scene. The RAY BAUM'S Act authorized important changes to the way 9–1–1 systems work in hotels and large buildings, and Representative Eshoo and Shimkus's leadership on this issue has been critical. We need to do more, particularly as we look at next generation systems and the funding challenges we face in deploying this technology nationwide.

Thank you again, Madam Chair, for convening this hearing, and I look forward to the testimony of our witnesses.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Walden, you are recognized for 5 minutes.

OPENING STATEMENT OF HON. GREG WALDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. WALDEN. Well, thank you very much, Madam Chair. And I hope your reference to Garth Brooks and "Friends in Low Places" isn't how you will view us once you get to the Senate.

It is a fitting tribute that the subcommittee ends the 115th Congress with a hearing dedicated to RAY BAUM'S Act. As others have referenced, many of you know Ray spent his life working to maintain a bipartisan spirit in facing communications challenges at home in Oregon and all across the country.

This subcommittee's achievements stand as a reminder of the potential to work together and to get substantial telecommunications law across the goal line, even in the face of gridlock and partisanship elsewhere. And I have every hope the bipartisanship spirit will continue into the next Congress.

Even before RAY BAUM'S Act became a reality, this subcommittee worked on two important bills that were signed into

law. Kari's Law assured that if you called 9–1–1, you knew that that call would go through no matter where you are. And an important complement to that, the Improving Rural Call Quality and Reliability Act designed to ensure rural calls don't fall through the cracks.

These two measures represent significant accomplishments for public safely, but also for rural areas, and showed that we could get things done, even for bills like these we tried to pass before in previous Congresses. And I think they also whetted the subcommittee's appetite for bigger accomplishments, setting the stage for the major milestone of RAY BAUM'S Act.

So our work certainly demonstrates the value of working in a bipartisan manner, especially on public safety legislation. Together we have helped to ensure that broadcasters won't get knocked off the air in times of emergencies. The spoofing provision that was included will help us in moving forward on the bipartisan swatting legislation that we teed up a few weeks ago. And, of course, the ranking member's SANDy Act will help to avail emergency responders of all technologies during natural disasters.

Now, under RAY BAUM'S Act, the broadcast stations that did not participate in the incentive auction and were assigned to new channels have an additional billion dollars for reimbursement of expenses to make that move. When it became apparent the original $1.75 billion that was allocated for these reimbursements wasn't going to be enough, we worked in a bipartisan way to ensure that we kept our word that these broadcasters would remain on the air.

Also important was the inclusion of low-powered TV and translators, which now have funds available for their reimbursement. These stations bring the benefit of broadcasting to rural and hard to reach places in my district and countless others. And I am looking forward to hearing the testimony from the witnesses on how the repack effort is going. We also made money available for FM antennas as well, which I don't think anybody had really contemplated needing prior to that.

While I think we can all agree RAY BAUM'S Act provides a solid foundation of accomplishment that we can build on in the next Congress, we also must remember to remain vigilant to challenges to the jurisdiction of the committee. The subcommittee has shown its ability to come together when the jurisdiction of this committee is at stake, whether it be threats to our communications' networks or consequences of safe harbors that now shape the internet differently than they did in its infancy. So I look forward to working with my colleagues going forward into the next Congress.

Now, there is still work to be done and there is still obstacles that remain, but I am optimistic we can get things done.

Lastly, my colleagues and I, we would like to thank Subcommittee Chairman Marsha Blackburn and Vice Chairman Leonard Lance, as today is our last hearing with them at the helm. And I want to extend my sincerest congratulations to you, Senator-elect, as you will be representing all of the people of Tennessee in the United States Senate. And I think we all want Mr. Lance to know how much we valued his thoughtful, effective, and his very civil public service. And so we thank both of you for your service and

your leadership on this committee and wish you Godspeed in your next journey.

Thank you, and I yield back.

[The prepared statement of Mr. Walden follows:]

PREPARED STATEMENT OF HON. GREG WALDEN

Good morning and welcome to our witnesses, thank you for being here. It is a fitting tribute for the Subcommittee on Communications and Technology to end the 115th Congress with a hearing dedicated to RAY BAUM'S Act. As many of you know, Ray spent his life working to maintain a bipartisan spirit in facing the communications challenges we all seek to address. This subcommittee's achievement stands as a reminder of the potential to work together and get a substantial telecommunications law across the goal line, even in the face of gridlock and partisan divide. And I have every hope that this bipartisan spirit will continue into the next Congress.

Even before RAY BAUM'S Act became a reality, this subcommittee worked on two important bills that were signed into law. Kari's Law assured that if you called 9–1–1, you knew that call would go through no matter where you are, and an important complement to that, the Improving Rural Call Quality and Reliability Act, designed to ensure that rural calls don't fall through the cracks. These two measures represented significant accomplishments for public safety but also for rural areas, and showed that we could get things done, even for bills like these that we tried to pass before in a previous Congress. And I think they also whetted the subcommittee's appetite for bigger accomplishments, setting the stage for the major milestone of RAY BAUM'S Act.

Our work certainly demonstrates the value of working in a bipartisan manner, specifically on public safety legislation. Together, we helped to ensure that broadcasters won't get knocked off the air in times of emergencies. The spoofing provision that was included will help us in moving forward on the bipartisan SWATting legislation we teed up a few weeks ago. And, of course, the Ranking Member's SANDy Act will help to avail emergency responders of all technologies during natural disasters.

Under RAY BAUM'S Act, the broadcast stations that did not participate in the incentive auction and were assigned to new channels have an additional $1 billion dollars for reimbursement of expenses to make that move. When it became apparent that the original $1.75 billion that was allocated for these reimbursements wasn't going to be enough, we worked in a bipartisan way to ensure that we kept our word and that these broadcasters will remain on air.

Also important was the inclusion of low-power TV and translators, which now have funds available for reimbursement. These stations bring the benefits of broadcasting to rural and hard-to-reach places in my district and countless others. I'm looking forward to hearing testimony from the witnesses on how the repack effort is going, given the new funds and the additional classes of entities who now qualify to have their moving expenses reimbursed.

While I think we can all agree that RAY BAUM'S Act provides a solid foundation of bipartisan accomplishments that we can build on in the next Congress, we must also remember to remain vigilant to challenges to the jurisdiction of the committee.

This subcommittee has shown its ability to come together when the jursidiction of this committee is at stake; whether it be threats to our communications networks or consequences of safe harbors that now shape the Internet differently than they did in its infancy.

I look forward to working with my colleagues on both sides of the aisle to continue the dialogue on those issues next year.

There is still work to be done, and there are still obstacles that remain. But I am optimistic that we can work together next year, in good faith, to continue addressing areas of common ground.

Lastly, my colleagues and I would like to thank Subcommittee Chairman Marsha Blackburn and Vice Chairman Leonard Lance as today is our last hearing with them at the helm. I want to extend my sincerest congratulations to Rep. Blackburn, who will represent the people of Tennessee in the United States Senate. And I want Mr. Lance to know how much I valued his thoughtful, effective and civil public service. Thanks to you both for your dedication and hard work.

With that, Madam Chairman, I yield back.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Pallone, you are recognized for 5 minutes.

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

Mr. PALLONE. Thank you, Madam Chair. And I also want to congratulate the Senator-elect on her success and victory. And we often worked on legislation together, and hopefully when you go over to the Senate, you will be continuing to work on telecommunications and internet issues, so we will continue to work together on a bicameral basis now as well.

The RAY BAUM'S Act is a fitting tribute to the late staff director of this committee, a man who committed his life until the very end to public service. And Ray brought an unflinching bipartisan approach to legislation. And through our bipartisan efforts, we were able to include a number of Members' bills as part of the RAY BAUM'S Act, making important headway on many issues this committee prioritizes. I can't list them all now, they are too many, but I just wanted to mention a few sections that actually have been mentioned to some extent already today.

And perhaps the most prominent provisions within the RAY BAUM'S Act are those originally stemming from the Viewer Protection Act. Those provisions make sure viewers across the country don't lose access to the over-the-air stations they depend on in the wake of the world's first spectrum incentive auction that the Federal Communications Commission concluded last year.

The law dedicated $50 million to educating consumers about the repack to ensure they do not lose service and suffer minimal disruption. I understand the FCC is working on that issue now, and I look forward to hearing about how things are going from our witnesses.

The final law also included the Securing Access to Networks and Disasters Act, or the SANDy Act. Superstorm Sandy devastated my district in New Jersey, and we saw firsthand how critical communication networks can be during emergencies. Of course, since then, major hurricanes like Maria and Michael have once again demonstrated the need for continual vigilance and preparation. And so-called 100-year storms and floods are becoming more and more commonplace as a result of climate change.

The SANDy Act takes an important step towards fixing longstanding problems by elevating the critical role that lifesaving communications systems play during emergencies, whether it be wire line and mobile telephone, the internet, radio, broadcast TV, cable, or satellite services. This elevation will help ensure these services can be restored faster.

And the law also frees up more spectrum for consumers, targets, oversees robo-callers and fraudsters, deploys broadband infrastructure to people that desperately need it, and a lot more. And now the RAY BAUM'S Act is the law of the land. We must continue working together to rigorously oversee its implementation, and I look forward to starting that process today and conducting more oversight hearings in the next Congress.

[The prepared statement of Mr. Pallone follows:]

PREPARED STATEMENT OF HON. FRANK PALLONE, JR.

The RAY BAUM'S Act is a fitting tribute to the late staff director of this committee—a man who committed his life until the very end to public service. Ray brought an unflinching bipartisan approach to legislation. And through our bipartisan efforts, we were able to include a number of Members' bills as part of the RAY BAUM'S Act, making important headway on many issues this committee prioritizes.

I cannot list them all now. There are too many. But a few sections stand out to me.

Perhaps the most prominent provisions within the RAY BAUM'S Act are those originally stemming from the Viewer Protection Act. Those provisions make sure viewers across the country don't lose access to the over-the-air stations they depend on in the wake of the world's first spectrum incentive auction that the Federal Communications Commission (FCC) concluded last year.

The law dedicated $50 million to educating consumers about the repack to ensure they do not lose service and suffer minimal disruption. I understand the FCC is working on that issue now, and I look forward to hearing about how things are going from our witnesses.

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The SANDy Act takes an important step toward fixing longstanding problems by elevating the critical role that lifesaving communications systems play during emergencies. Whether it be wireline and mobile telephone, the internet, radio, broadcast television, cable or satellite services, this elevation will help ensure these services can be restored faster.

This law also frees up more spectrum for consumers, targets overseas robocallers and fraudsters, deploys broadband infrastructure to people that desperately need it, and more.

And now that the RAY BAUM'S Act is the law of the land, we must continue working together to rigorously oversee its implementation. I look forward to starting that process today and conducting more oversight next Congress.

With that, I yield 1 minute of my remaining time to Ms. Eshoo and the following minute to Ms. Matsui.

Mr. PALLONE. So I would like to yield now the time that I have left to Ms. Eshoo.

Ms. ESHOO. I thank our ranking member. And I too want to congratulate our chairwoman going over to the Senate, and I just know you are going to get net neutrality right over the line as soon as you get there, and I will be your partner here. But, seriously, congratulations to you, and I hope that you remain involved in these issues so that we can partner on them.

And to Leonard Lance, who was just on the floor with—is Leonard here? No—on the floor with me on the PREEMIE Act, we are really going to miss him. We are going to miss him. There isn't a more civil gentle man and gentleman here, so I want to pay tribute to him and the work that he has done.

And I too think that it is fitting—I think this is our last hearing—that it is fitting that it is the RAY BAUM'S Act, the end of this Congress. I think wherever this subcommittee meets, his presence will always be felt amongst us. And the Act was done in the spirit of bipartisanship, and that is what Ray really took pride in. As the chairman of the committee said, that was his life's work.

I am proud that the Act contained a version of Dig Once. I think a lot of people are tired of listening to me talk about Dig Once, because I introduced the legislation five Congresses ago. I guess

maybe something that is so commonsense just takes a long time, right?

But at any rate, I am really pleased that—it is important because as much as 90 percent of the cost of deploying fiber optic cable comes from the cost of digging up roads and burying the cable. So the bill requires the DOT to establish new requirements. You all know what it is, I am not going to go through it. But I do think that in the next Congress that we can take some additional steps to build on the progress that we just made with this policy.

And the Act also included the RESPONSE Act, which requires the FCC to complete a proceeding to provide first responders with the precise location of a 9–1–1 caller. This is really essential. This is really essential in our country because it will save lives, and it is something that the Commission and the Congress have been trying to get done for years. So I am proud to have worked with the majority on these priorities. I know it is not easy to be in the minority, but hail, hail, you can still get things done. And I think that—no, I really mean this. You know, most of my time, out of 26 years, the majority of it has been in the minority, but that hasn't stopped me. I have never taken on a minority mindset. We are here to get things done, and I think that in this committee, most especially, we will continue to.

So thank you. And I thank the ranking member for yielding to me so much time. Thank you.

Mrs. BLACKBURN. The gentlelady yields back, and the gentleman yields back.

This concludes the Member opening statements. And I would like to remind all Members that, pursuant to committee rules, they have their opening statements made a part of the record.

We want to thank all of our witnesses for being here today. Today's witnesses will have the opportunity to give their 5-minute opening statement, and then we will follow that with questions.

Our panel includes Curtis LeGeyt, executive VP of government relations at the National Association of Broadcasters; Tim Donovan—welcome back, sir—senior VP of legislative affairs at the Competitive Carriers Association; Mr. Jeff Cohen, chief counsel of APCO International; and Mr. Bohdan Zachary, general manager of the Milwaukee Public Broadcast Station.

We appreciate each of you being here today and preparing your testimony and getting that in in a timely manner.

Mr. LeGeyt, we will recognize you now for 5 minutes for your opening testimony.

STATEMENTS OF CURTIS J. LEGEYT, EXECUTIVE VICE PRESIDENT, GOVERNMENT RELATIONS, NATIONAL ASSOCIATION OF BROADCASTERS; TIM DONOVAN, SENIOR VICE PRESIDENT, LEGISLATIVE AFFAIRS, COMPETITIVE CARRIERS ASSOCIATION; JEFFREY S. COHEN, CHIEF COUNSEL AND DIRECTOR OF GOVERNMENT RELATIONS, APCO INTERNATIONAL; AND BOHDAN ZACHARY, GENERAL MANAGER, MILWAUKEE PBS

STATEMENT OF CURTIS J. LEGEYT

Mr. LEGEYT. Thank you.

And good afternoon, Chairmen Blackburn and Walden, Ranking Members Pallone and Doyle, and members of the subcommittee. My name is Curtis LeGeyt, and I am the executive vice president of Government Relations at the National Association of Broadcasters. On behalf of the thousands of free local television and radio broadcasters in your hometowns, I appreciate the opportunity to testify on this committee's successful passage of RAY BAUM'S Act.

This bipartisan legislation ensures that broadcast television and radio stations can continue to serve their communities following the unprecedented repack of nearly 1,000 full-power television stations across the country. Moreover, I am personally honored to speak to this legislative success, fittingly named after our beloved NAB colleague, distinguished public servant, and friend to everyone he met, Ray Baum.

I am confident that everyone on this committee, Members and staff alike, have fond memories of Ray. Before he was the staff director of this committee, I was fortunate to have worked with Ray as a close colleague at the NAB. On the surface, Ray and I had many differences. We are of different generations, different faiths, different political meanings, but none of that mattered to Ray. He was unwavering in his desire to seek out common ground with everyone he worked with, and his genuine love of life was disarming not only to me and our other colleagues at NAB, but also to our adversaries in the policy space. Having seen those diplomatic abilities firsthand, I have no doubt that his spirit and unrelenting desire to put aside differences in advancement of shared priorities enabled the bipartisan working relationships on this committee that resulted in the passage of RAY BAUM'S Act. For that, broadcast viewers and listeners across the country are grateful.

RAY BAUM'S Act will help ensure that broadcast viewers and listeners can continue to access the stations on which they rely. Thanks to the committee's inclusion of the Viewer Protection Act in the final law, $1 billion was provided to ensure that all impacted television and radio stations are eligible to have costs associated with this repack reimbursed by the FCC.

Importantly, this legislation also funds FCC consumer education efforts as stations move channels, and includes the SANDy Act so that local broadcasters can access critical resources to keep their facilities functioning during times of emergency. For all of this, I am here to say thank you.

Now, as the FCC moves forward with a massively complex repack process, early warning signs suggest that viewers are still at risk. In the first phase of the repack, which was completed 2 weeks ago, 79 stations successfully completed their moves on time. However, 11 broadcasters were unable to meet their move deadlines for reasons beyond their control, such as inclement weather and tower crew availability.

We are gratified that the FCC granted each of these stations waivers and moved them into subsequent repack phases. In each of these cases, though, these phase changes could be done without impacting future station moves. That will not be the case as the repack moves forward.

The Phase II deadline in April 2019 applies to 116 stations and is significantly more complex. While broadcasters will do everything possible to meet their deadlines, this committee should ensure that the FCC applies a fair waiver standard that will not force a single station to go off the air or reduce coverage due to circumstances outside their control, as Congress intended.

Beyond its policy improvements, the enduring lesson of RAY BAUM'S Act is that this committee can lead and make meaningful differences when it works together on a bipartisan basis. In that spirit, there are two significant issues worthy of your ongoing consideration entering the next Congress.

First, this committee should ensure that existing users of C-band spectrum are fully protected and reimbursed should a portion of the spectrum be reallocated for mobile broadband use. Second, this committee should allow the expiring provisions of STELAR to finally sunset as Congress has long intended. This distant signal license is a subsidy for what are now two of the largest pay TV providers in the country, and incentivizes the satellite carriage of out-of-market rather than local broadcast stations. This practice runs contrary to Congress' long-stated broadcast policy preference that viewers are best served by their local stations, and it is no longer justified.

In conclusion, I would like to thank you again for allowing me to speak about the bipartisan success of RAY BAUM'S Act. As Ray would always say, "Thanks for coming out today." I look forward to answering your questions.

[The prepared statement of Mr. LeGeyt follows:]

Hearing on

"RAY BAUM'S Act: A Bipartisan Foundation for Bridging the Digital Divide"

United States House of Representatives

Committee on Energy and Commerce

Subcommittee on Communications and Technology

December 11, 2018

Statement of Curtis J. LeGeyt

Executive Vice President, Government Relations

National Association of Broadcasters

Introduction

Good morning Chairmen Walden and Blackburn, Ranking Members Pallone and Doyle and members of the Subcommittee. My name is Curtis LeGeyt, and I am the Executive Vice President of Government Relations at the National Association of Broadcasters (NAB). On behalf of the thousands of free, local television and radio broadcasters in your hometowns, I appreciate the opportunity to testify on this Committee's successful passage of RAY BAUM'S Act. This bipartisan legislation ensures that broadcast television and radio stations can continue to serve their communities following the unprecedented repack of nearly 1,000 full power television stations resulting from the recently completed incentive auction. Moreover, I am personally honored to speak to this legislative success, fittingly named after our beloved NAB colleague, distinguished public servant and friend to everyone he met, Ray Baum.

Broadcasters' Unique Service in Local Communities

Broadcast television and radio remain the most watched and listened to sources for entertainment programming, sports and investigative journalism in communities across America. But it is broadcasters' role as the trusted source of news and information during times of emergency that sets them apart from other mediums. Americans' first choice is to turn to local television and radio stations to get the information they need to stay safe during emergencies.

Local stations are part of the communities they serve, and broadcasters do not hesitate to put themselves in harm's way to bring critical information to their neighbors. Whether it's preparing listeners and viewers for the coming storm, helping them access

needed supplies and shelter during the disaster, or helping towns and cities rebuild in the aftermath, local broadcasters take seriously their commitment to protect the public.

Recent wildfires and hurricanes have once again shined a bright light on our nation's emergency preparedness and response abilities. Just as this is true for first responders, it is also true for broadcasters who are "first informers." In each of these cases and in countless others, broadcasters were there, serving their listeners, viewers and communities. Broadcasters invest heavily to ensure they remain on the air in times of disaster. Facilities often have redundant power sources, automatic fail-over processes, auxiliary transmission systems, generator back-up and substantial fuel reserves. Because of the resiliency of the broadcast infrastructure and the power of the airwaves, local radio and TV stations are often the only available communications mediums during disasters, especially when cell phone and wireless networks can be unreliable.

A Stronger Broadcast Lifeline Because of RAY BAUM'S Act

The passage of RAY BAUM'S Act strengthened the broadcast lifeline to the benefit of countless viewers and listeners. Most importantly, its inclusion of the Viewer Protection Act delivered on this Committee's promise of a voluntary incentive auction by providing an additional $1 billion to ensure those repacked full power television stations who chose not to participate in the auction are fully reimbursed for costs associated with this transition, along with FM radio stations that are impacted by the moves. This appropriation also ensures that low power and translator television stations forced to relocate as a result of the auction can be reimbursed for those costs. Additionally, it

provided money to the Federal Communications Commission (FCC) for consumer education efforts to minimize viewer and listener disruption resulting from the repack. Finally, the bill's inclusion of the SANDy Act guarantees that local broadcasters in their role as "first informers" can access critical resources to keep their facilities functioning during times of emergency or major disaster. Collectively, these provisions will better enable broadcasters to remain on the air and continue to serve their communities with life-saving information when they need it the most.

In 2012, thanks to the work of many on this Committee, Congress passed the bipartisan Spectrum Act, which authorized the FCC to conduct a first-of-its-kind voluntary incentive auction of broadcast spectrum. Broadcasters across the country supported this legislation under the premise that it would be truly voluntary, and that non-participating broadcasters who chose to continue serving viewers would not be saddled with costs or disruptions in service due to mandatory relocation of their frequencies. To that end, the Spectrum Act provided $1.75 billion to reimburse non-participating broadcasters for any repack costs resulting from the spectrum reallocation.

Over the next several years, as the FCC crafted rules to govern the incentive auction, conduct the reverse and forward stages of the auction, and design an aggressive broadcast repacking plan to maximize the sale of broadcast spectrum to wireless companies, it became evident that the $1.75 billion repack fund would be woefully insufficient. The shortfall resulted from the unprecedented repacking of nearly 1,000 television stations (far above original estimates) to extract the maximum amount of available spectrum from the broadcast band. Recognizing the inevitability of a funding shortfall absent congressional action, the FCC planned to manage this by disbursing

only a portion (roughly half) of each station's relocation expenses, guaranteeing that every station would shoulder some involuntary financial burden. Several stations announced that they simply could not bear these costs and would be forced off the air. The passage of RAY BAUM'S Act enabled the FCC to make additional funds immediately available to these stations and provide all full power television broadcasters with the confidence that their costs would be reimbursed over the course of the repack, thus fulfilling Congress's original intent.

The FCC's implementation of the incentive auction also brought into clear view the significant financial harm the legislation would pose to hundreds of FM radio stations sharing towers with repacked television stations, as well as displaced low power television and translator stations. To that end, broadcasters are grateful that RAY BAUM'S Act made these stations eligible for significant cost reimbursements so they will not be collateral damage in an auction that provides them no benefits.

RAY BAUM'S Act also set aside $50 million to help the FCC educate consumers on mandatory station transitions. Local TV stations are working diligently to ensure viewers understand how and when to rescan their TV sets if needed, but this additional funding is critical to ensuring viewer disruption is minimized. NAB continues to work closely with the FCC to encourage the use of this funding to establish a dedicated consumer call center, the production of in-language consumer education materials and other viewer outreach efforts to complement what NAB and individual stations are already doing.

Finally, the inclusion of the SANDy Act in RAY BAUM'S Act ensures broadcasters can access critical resources to allow their facilities to continue to function

during times of emergency. These provisions will better enable both television and radio stations to serve their audiences in times of need.

Remaining Repack Issues

As the FCC moves forward with the lengthy repack process, further work is needed to ensure that viewers will continue to have access to the local stations on which they rely. Both NAB and individual stations remain constructively engaged with the FCC in an attempt to anticipate issues before they emerge. However, early warning signs already suggest that significant oversight by the Committee is warranted to ensure that no broadcaster is forced off the air or to reduce service for reasons outside their control, consistent with the intent of the Spectrum Act.

The FCC has assigned the nearly 1,000 full power TV stations needing to be repacked to one of 10 distinct phases, the first of which was completed on November 30, 2018, and the last of which is scheduled for July 3, 2020. Broadcasters have every incentive to work toward a swift transition but continue to have concerns that the aggressive timeline threatens disruption of service to audiences.

In Phase 1 of the repack, which concluded two weeks ago, 79 stations completed their moves on time. However, 11 broadcasters were unable to meet their Phase 1 deadline for reasons beyond their control. The main reasons for these delays were tower crew shortages and weather delays, but the story of KVLY in Fargo, North Dakota, helps illustrate the challenges that broadcasters face. One might expect harsh weather in North Dakota or complications arising from servicing KVLY's 2,000-foot-plus tower; this was going to be a difficult project. But no one knew or had the ability to

prevent the tragedy that occurred in Springfield, Missouri, in April of this year. There, a tower crew was reinforcing the nearly 2,000-foot KOZK tower in order to support a new antenna needed for the repack when the tower unexpectedly collapsed. The foreman of the crew was tragically killed, and the remaining crew members sustained injuries. It was this crew that was scheduled to work on KVLY's tower this fall but was now clearly unavailable. Because of these setbacks, KVLY faced a terrible decision: shut down their broadcast transmission on their existing channel and go off the air to comply with the FCC rule, or operate on an interim facility that would leave 30,000 viewers without their local news, weather and emergency information.

Fortunately, equity prevailed and KVLY was not forced to make this choice. Broadcasters are grateful that the FCC reassigned KVLY and the other stations that were unable to meet their deadlines to another phase. However, the current black-letter FCC rules leave broadcasters exposed. Viewers should not be left in the dark if stations encounter challenges that make it impossible to meet their deadlines despite their best efforts and due to events outside their control.

Broadcast tower workers are already sounding alarms that there will be additional delays further down the schedule, citing system-wide "unforeseen site failures and low power television displacements requiring the pulling of equipment and crews, poor weather conditions delaying tower work by months, stations conducting their latter-phase transitions earlier than required by the Commission and unforeseen structural

and permitting delays."[1] Given the expertise and safety training needed for crews to service towers over 1,000 feet, these same representatives "believe that they are witnessing the effects of an unrealistic expectation of what the repacking of 987 stations, with associated low power television displacements and FM accommodations, entails. The factors cited above have resulted in demands on the rigging community that simply cannot be met."[2]

The Phase 2 deadline is April 12, 2019, and applies to 116 stations. Unlike the stations reassigned in Phase 1, many of these stations are linked with other frequency moves, meaning they cannot be reassigned without impacting another station's frequency move later in the schedule. While broadcasters will do everything possible to meet their deadlines, this Committee should work with the FCC to ensure it applies a meaningful phase modification and waiver standard that will not force a single station to go off the air or reduce coverage due to circumstances outside their control, as Congress intended.

Indeed, this was precisely the goal that guided the Committee in providing additional reimbursement funds and access to our facilities during times of emergency in RAY BAUM'S Act.

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[1] Letter from Paul A. Cicelski to Marlene H. Dortch, MB Docket No. 16-306, GN Docket No. 12-268 (Nov. 12, 2018), available at: https://ecfsapi.fcc.gov/file/1112134002775/Ex%20Parte%20Notice%20MB%20Docket%20No%2016-306%3B%20GN%20Docket%20No.%2012-268.pdf.

[2] *Id.*

Additional Issues for the 116th Congress

Beyond its policy improvements, the enduring lesson of RAY BAUM'S Act is that this Committee can lead and make meaningful differences when it works together on a bipartisan basis. Broadcasters believe that there are two significant issues worthy of your ongoing consideration entering the 116th Congress. First, this Committee should ensure that existing users of C-band spectrum (3.7-4.2 GHz) are fully protected and reimbursed should a portion of the spectrum be reallocated for mobile broadband use through an auction or other means. The C-band is vital to local broadcasters and others because it allows delivery of content to stations across the nation and their hundreds of millions of viewers and listeners. There are no feasible alternatives for radio and television broadcasters.

Second, this Committee should continue to advance policy goals that serve local communities by allowing the expiring provisions of the Satellite Television Extension and Localism Act Reauthorization (STELAR) to sunset as Congress has long intended. In particular, the distant signal license, originally intended to subsidize the nascent satellite industry, now benefits only two billion-dollar companies and runs contrary to this Committee's long-stated policy preference by incentivizing the satellite carriage of out-of-market rather than local broadcast stations. This reauthorization is no longer justified.

Conclusion

In conclusion, I would like to thank you again for allowing me to speak about the bipartisan successes of RAY BAUM'S Act and how it has benefitted countless

broadcast viewers and listeners. Local stations are extremely grateful for your hard work to pass this historic legislation and look forward to continuing to work with you on its successful implementation as well as a smooth and efficient repack. Finally, in tribute to Ray, "Thanks for coming out today!" I look forward to answering your questions.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Donovan, you are recognized for 5 minutes.

STATEMENT OF TIM DONOVAN

Mr. DONOVAN. Chairman Blackburn, Ranking Member Doyle, Chairman Walden, and members of the subcommittee, thank you for the opportunity to testify about how policies enacted in RAY BAUM'S Act are addressing the digital divide.

CCA is the Nation's leading association of competitive wireless providers, composed of nearly 100 carrier members ranging from small rural providers serving fewer than 5,000 customers to regional and nationwide providers serving millions, as well as vendors and suppliers that provide products and services throughout the mobile communications ecosystem. Policies enacted in RAY BAUM'S Act will help these carriers preserve and expand broadband service in rural America, while memorializing a good man whose presence and dedication to public service, particularly to help those in rural America, touched us all. CCA applauds this committee's work to pass the Act, a significant bipartisan accomplishment that impacts a broad range of policy issue areas.

While 5G buzz grabs the headlines, rural America is at a crossroads. Decisions made by policymakers today can either launch new innovation, economic growth, and education and public safety benefits in rural America or broaden the digital divide leaving rural consumers behind. Fortunately, issues addressed in the Act move us forward on several key areas.

First, spectrum, the lifeblood of wireless carriers, is a finite resource only available from the Government. All carriers need access to spectrum at low, mid, and high bands to keep up with exploding demand for wireless services. This law contains provisions that operationally allowed the FCC to resume holding spectrum auctions, including the current and planned millimeter wave band auctions.

It also directs the FCC to study incentives to put fallow spectrum to use to serve rural areas and directs the Government to identify additional spectrum that can be repurposed for mobile broadband use. Of particular focus for rural America, it provided an additional $1 billion to reimburse broadcasters as the incentive auction process moves forward, so that wireless carriers that bid over $19 billion to gain access to critical low-band spectrum can put that spectrum to use to serve consumers as soon as possible and no later than the congressionally mandated July 2020 deadline.

Next, the law also focuses on mapping where broadband services are available. It is impossible to close the digital divide if we do not have a reliable map showing where service is and is not available. The law provided resources for NTIA to coordinate mapping, while separately directing the FCC to review mobile broadband coverage data for the purposes of distributing limited universal service fund support.

This effort is particularly timely. Just last week, as the Mobility Fund Phase II challenge window came to a close, the FCC launched an investigation into the underlying data after a preliminary review of over 20 million speed tests triggered increased concerns that the initial map is fatally flawed. Congressional oversight

and engagement with the FCC is necessary to make sure a real world map is in place before the FCC distributes nearly $5 billion in support. Funding decisions for Mobility Fund Phase II will determine which areas receive support for the next decade.

Finally, the law takes important steps forward to support infrastructure deployment. From resiliency to permitting and accessing Federal lands, these policies provide carriers with increased certainty as they seek to deploy wireless services from coast to coast. As the law continues to be implemented, CCA and our members are at the forefront of closing the digital divide and to lead the world in next generation wireless services.

As this committee well knows, there is more work to be done. We welcome the opportunity in the next Congress to continue to work with you not only to implement RAY BAUM'S Act, but also to build on these steps with additional bipartisan legislative efforts to enhance access to spectrum, base policy decisions on reliable data, and deploy the wireless infrastructure necessary for rural America to take part in a connected mobile future. Thank you for your leadership and congratulations on enacting this bipartisan bill into law.

In addition, the reauthorizing of the FCC and updating several agency processes, it includes over a dozen important legislative proposals to close the digital divide. To borrow a phrase from Senator King, when it comes to closing a digital divide, their may not be a silver bullet but there is silver buckshot. And we want to continue to pursue all of these opportunities. We support these efforts as steps towards the overall goal of connecting Americans where they live, work, and play.

I appreciate the opportunity to testify before this subcommittee today, and I welcome any questions you may have.

[The prepared statement of Mr. Donovan follows:]

RAY BAUM'S Act – A Bipartisan Foundation for Bridging the Digital Divide

Testimony of Tim Donovan

Senior Vice President, Legislative Affairs

Competitive Carriers Association

Before the

United States House of Representatives Committee on Energy and Commerce

Subcommittee on Communications and Technology

December 11, 2018

Chairman Blackburn, Ranking Member Doyle, and Members of the Subcommittee, thank you for the opportunity to testify about how policies enacted in RAY BAUM'S Act are addressing the digital divide and will continue to help close this gap.

I am testifying on behalf of Competitive Carriers Association ("CCA"), the nation's leading association of competitive wireless providers. CCA is composed of nearly 100 carrier members ranging from small, rural providers serving fewer than 5,000 customers to regional and nationwide providers serving millions of customers, as well as vendors and suppliers that provide products and services throughout the mobile communications ecosystem.

CCA thanks Congress for the bipartisan work to enact Public Law 115-141, the Consolidated Appropriations Act, 2018, into law earlier this year. Over a dozen important legislative efforts from this Committee were included in the final package, including Division P, the Repack Airwaves Yielding Better Access for Users of Modern Services of 2018 ("RAY BAUM'S Act" or "Act"), while memorializing a good man whose presence and dedication to public service, particularly to help those in rural America, touched us all.

Looking at telecommunications policy today, two themes clearly emerge: bridging the digital divide and international competition to lead the world in fifth generation, or "5G," deployments. Fortunately, the Act takes concrete steps toward accomplishing both. 5G is both an evolution and revolution, and builds upon existing 4G LTE technologies. Whether in rural America or downtown Washington, DC, carriers must have access to sufficient spectrum resources and the ability to deploy physical infrastructure to provide service. In the 263 days since enactment, the Act has produced results to close gaps in coverage and inspire United States' leadership in next-generation and 5G deployments.

But the work is not yet done. As the Federal Communications Commission ("FCC") and other federal agencies continue work to implement the Act, ongoing and necessary Congressional oversight will further action to close the digital divide and deploy advanced networks to benefit consumers in all corners of the nation.

RAY BAUM'S Act is a Bipartisan Success Story

CCA applauds this Committee's work to pass the Act, which represents a significant bipartisan accomplishment that touches a broad range of policy issue areas. It is noteworthy that closing the digital divide and preserving and expanding broadband service in rural America is a priority shared by Democrats and Republicans. While 5G buzz grabs the headlines, rural America is at a crossroads. Decisions made by policymakers today can either launch new innovation, economic growth, and education and public safety benefits in rural America, or broaden the digital divide, leaving rural America behind a mobile, connected world. Fortunately, issues addressed in the Act move us forward on several key areas.

Spectrum

Spectrum is the lifeblood of the wireless industry, and a finite resource only available from the government. All carriers must have access to sufficient spectrum at low-, mid-, and high-bands to serve their customers. Spectrum licenses can only be obtained through auction from the FCC or from private market transactions, and the Act takes steps to enable both channels by updating how auction deposits are processed to allow auctions to move forward. The Act also directs the FCC to study incentives on ways to make fallow spectrum available to a variety of stakeholders willing to invest in and serve rural America.

The Act builds upon a previous landmark success for this Committee – the Spectrum Act included within the Middle Class Tax Relief and Job Creation Act of 2012. Among other provisions, the Spectrum Act authorized the first voluntary incentive auction, where television broadcasters could voluntarily elect

from a range of options to relinquish, move, or share their spectrum assignment in exchange for a portion of the auction proceeds, using a market-based mechanism to reallocate the spectrum needed to keep up with American consumers' insatiable and exploding demands for wireless access. While previously untested, the incentive auction was a resounding success, netting billions for broadcasters and the Treasury for deficit reduction. For the wireless carriers that won licenses, this spectrum is particularly important to serve rural areas and expand service, as its propagation characteristics carry signals across long distances and help to improve the business case to serve areas with lower population densities.

While the auction was a success, work continues to put the spectrum to use to serve consumers. We are 20 months into the "repack" process, where remaining broadcasters are moved in the band to clear the way for the carriers that bid over $19 billion to gain access to the frequencies. In response to concerns that funding established in the Spectrum Act may be insufficient to cover all the costs of the repack, Congress acted in RAY BAUM'S to allocate an *additional* $1 billion for reimbursing broadcasters, on top of the original allocation of $1.75 billion, to cover relocation costs for the broadcasters and keep the repack timeframe on schedule. The Act also provided funding for consumer education as the process moves forward. Congress should continue to closely monitor the repack process and ensure that spectrum is expeditiously cleared for winning bidders to put to use as soon as possible and no later than the July 2020 deadline.

The Act clearly demonstrates Congress' desire to identify additional spectrum bands that can be reallocated for wireless use. Separate provisions direct the Department of Commerce to identify at least 225 megahertz of spectrum that can be repurposed and directs consideration of the many ways spectrum can be used to support wireless service, including through licensed and unlicensed use. CCA supports these efforts.

Mapping

More reliable data is necessary to determine where broadband coverage exists, and this endeavor has near-unanimous support from Congress and has been a constant theme in this Committee. Here again the Act sets policies to address mapping woes, including providing $7.5 million to the Department of Commerce National Telecommunications and Information Administration to coordinate broadband mapping across the government and separately directing the FCC to complete a rulemaking standardizing mobile coverage data for the purposes of the Universal Service program or any other similar program.

The time is now to focus on creating reliable maps for purposes of allocating Universal Service Fund support. The FCC's Mobility Fund II program ("MF II") will allocate $4.53 billion in support to preserve and expand mobile broadband in rural areas over the next ten years. The FCC recently closed the collection window for carriers to submit challenges to collected data. A preliminary review by the FCC of over 20 million speed tests has increased concerns that the data submitted to create the map was fatally flawed, and the FCC has launched an investigation. Congress must stay engaged as the current investigation moves forward and ensure that the parameters for determining eligible areas produce reliable data. CCA and our members will continue to work with Congress, the FCC, and other stakeholders to improve the data used to guide funding decisions before the great opportunity of MF II passes by.

Infrastructure Deployment

Closing the digital divide relies on the right policies to deploy, maintain, and upgrade physical infrastructure, and additional costs and delays are exponentially more problematic for deployments in rural America. CCA thanks Congress for addressing improvements to siting policies in the Act, including requiring use of standard applications for deployments on federal property; creating a shot clock for application reviews by executive agencies; creating a database of federal property capable of supporting

broadband infrastructure; and taking steps to further the adoption of dig-once policies. Together, if these policies continue to be implemented they will have an outsized positive impact for rural Americans.

Resiliency

Broadband networks are continuously tested by an increasing array of disasters, including recent floods, hurricanes, and wildfires that are devastating portions of the country. CCA commends Ranking Member Pallone for his continued focus on establishing a framework to provide critical communications capabilities during times of disaster, including portions of the Securing Access to Networks in Disasters Act made law through RAY BAUM'S Act. CCA members continue to focus attention and devote resources to make their networks more resilient and have made substantial progress in recent years.

The Act Provides Important Updates to the FCC

In addition to enacting legislation across a variety of policy issues, the Act also updates how the FCC acts to accomplish its mission. Overall, the agency was reauthorized by Congress for the first time since 1990. Beyond reauthorization, through the Act Congress also updated many ways that the FCC operates. As one example, including the Consolidated Reporting Act in RAY BAUM'S Act combines several sector-specific reports to Congress into the Communications Marketplace Report and eliminates outdated reports no longer relevant to the modern markets. The first Communications Marketplace Report is on the agenda for an FCC vote this week, and could represent a useful tool to further identify areas where improvements in data can lead to a better understanding of current coverage gaps across the country and how cross-sector convergence impacts the industry.

Congress Should Build Upon the Act with Future Actions

The Act demonstrates how legislative priorities become law with bipartisan cooperation. As the 115th Congress winds to a close at the end of the month, CCA is committed to work with the Committee

to complete work on several bills not included in RAY BAUM'S Act that can help close the digital divide in the years ahead. Infrastructure deployment bills from members on both sides of the aisle deserve continued consideration. Spectrum policy must be continuously updated as technologies, use cases, and consumer demands evolve. Bills like the AIRWAVES Act address these challenges while advancing common sense solutions to closing the digital divide like the rural dividend. For example, a study CCA recently commissioned estimated that if this law were in place for the current and planned millimeter-wave spectrum auctions, the auctions could produce $1.4 billion in rural wireless broadband investment, resulting in $2.4 billion in additional GDP and 9,700 job years in the short term. However, to finally close the broadband gap and serve all Americans, policymakers must have reliable data regarding where coverage exists. RAY BAUM'S Act is a significant step in the right direction, and CCA urges Congress to build upon this step to further next-generation deployments, and close the digital divide once and for all.

CCA commends Congress for enacting RAY BAUM'S Act, and looks forward to continuing to make sure that its implementation closes the digital divide and propels deployment of next-generation technologies. Thank you for your attention to these issues and for holding today's important hearing. I welcome any questions you may have.

Mrs. BLACKBURN. The gentleman yields back.
Mr. COHEN.

STATEMENT OF JEFFREY S. COHEN

Mr. COHEN. Chairman Blackburn and Ranking Member Doyle, thank you for the opportunity to appear before you today on behalf of APCO International. APCO is the Nation's oldest and largest nonprofit organization of public safety communications professionals. It is an honor to be here, having previously worked with this subcommittee on detail from the FCC. This included the opportunity of having worked with Ray Baum, who was a kind and consummate professional that I enjoyed knowing.

9–1–1 is the most critical of the Nation's critical infrastructure, largely due to the lifesaving work performed by 9–1–1 professionals. They work long hours, often saving lives or improving the safety of the scene in advance of responding police, fire, and EMS units. For example, 9–1–1 professionals instruct callers through first aid, which can mean coaching a hysterical caller through CPR on a family member. They deserve recognition and respect for their lifesaving work, but, unfortunately, the Federal Government through a classification system managed by the Office of Management and Budget labels them as office and administrative support occupations. This must be corrected.

In this regard, I would like to take a brief moment to thank Representative Shimkus and Representative Eshoo for joining with Senators Burr and Klobuchar to send a bipartisan letter to the Office of Management and Budget urgingOMB to revise the standard occupational classification to accurately represent the lifesaving nature of the work performed by 9–1–1 professionals.

I applaud the subcommittee for its work on RAY BAUM'S Act. The provision on location accuracy for 9–1–1 calls, which has its roots in Ms. Eshoo's RESPONSE Act, really hit the mark by directing the FCC to consider requiring a dispatchable location, meaning the door to kick down, for 9–1–1 calls, regardless of the technological platform used. A dispatchable location should be used and delivered with every 9–1–1 call.

RAY BAUM'S Act also increased communications resiliency. For example, by calling for a study on the potential use of Wi-Fi to contact 9–1–1 when mobile service is unavailable. APCO has expressed support for exploring Wi-Fi base methods for contacting 9–1–1, while noting it will be important to address any cybersecurity implications, methods of routing to the appropriate 9–1–1 emergency communication center, or ECC, and accurate location and callback capabilities.

As to the spectrum-related provision of RAY BAUM'S Act, we appreciate the interest in finding additional spectrum for both unlicensed and licensed communications. When it comes to introducing new operations into bands used by public safety to protect and save lives, notably, 4.9 gigahertz and 6 gigahertz, APCO has urged caution. Our community is extremely wary of new spectrum use in bands used by public safety given the long difficult history of interference to mission critical communications. We have expressed openness to modern spectrum sharing techniques, provided that

any sharing mechanism is proven in advance to protect public safety communications.

I next would like to turn to some discussions for how we can make further improvements in emergency communications. We need a confidential contact database for carriers and ECCs to use in the event of outages or other issues that could impact 9–1–1. The original SANDy Act would have directed the FCC to create such a database, but, unfortunately, this provision did not become law. When an outage could prevent 9–1–1 calls, the ECC needs to know how to contact the carrier to gather information that will assist with mitigating the outage's impact.

Relatedly, ECCs need real-time situational awareness of communications network outages in an easily accessible format that could be integrated into 9–1–1 center equipment. As a consumer, when my power is out, I can go online to find block by block maps of impacted areas along with expected restoration times. Remarkably, ECCs do not have comparable information about communications network outages. With effective situational awareness, ECCs will be able to take proactive measures, such as staging responders or advising the public of alternate means to seek emergency assistance.

Again, I thank you for the opportunity to present APCO's views. And, Mrs. Blackburn, thank you for your leadership of the subcommittee, and best wishes to you as you go to the Senate. Thank you.

[The prepared statement of Mr. Cohen follows:]

Testimony of Jeffrey S. Cohen

Chief Counsel and Director of Government Relations

APCO International

Before the House Committee on Energy and Commerce

Subcommittee on Communications and Technology

December 11, 2018

Chairman Blackburn and Ranking Member Doyle:

Thank you for the opportunity to appear before you today on behalf of APCO International. Founded in 1935, APCO is the nation's oldest and largest organization of public safety communications professionals. APCO is a non-profit association with over 31,000 members, primarily consisting of state and local government employees who manage and operate public safety communications systems – including 911 Emergency Communications Centers (ECCs), emergency operations centers, radio networks, and information technology – for law enforcement, fire, emergency medical, and other public safety agencies.

I serve as APCO's Chief Counsel and Director of Government Relations. It's a personal honor to be here having previously worked with this subcommittee on detail from the Federal Communications Commission. This included the opportunity of having worked with Ray Baum, who was a kind and consummate professional that I enjoyed knowing.

To start, and frame my testimony, I want to briefly describe the public safety professionals who work in ECCs. 911 is the most critical of our nation's critical infrastructure. That's largely due to the lifesaving work performed by 911 professionals. They work long hours behind the scenes, often saving lives or

improving the safety of the scene in advance of responding police, fire, and EMS units. For example, 911 professionals instruct callers through medical first aid, which can mean coaching a hysterical caller through CPR on a family member. They negotiate with suicidal and homicidal callers, warn responding police officers of potential threats, and can provide critical information during a firefighter's mayday or an officer down situation. Indeed, 911 professionals are often referred to as the first of the first responders. They deserve recognition and respect for the lifesaving work they perform, but unfortunately the federal government, through a classification system managed by the Office of Management and Budget, labels them as "office and administrative support occupations." This must be corrected.

In this regard, I'd like to take a brief moment to thank Representatives Shimkus and Eshoo for joining with their co-chairs of the NextGen 911 Caucus, Senators Burr and Klobuchar, to send a bipartisan letter to the Office of Management and Budget urging OMB to revise the Standard Occupational Classification to accurately represent the lifesaving nature of the work performed by 911 professionals. We remain grateful to Mr. Shimkus and Ms. Eshoo, their counterparts in the Senate, as well as the additional support that Representative Torres, the only former 911 professional in Congress, and FCC Commissioner Rosenworcel have provided.

I applaud the subcommittee for its work on RAY BAUM'S Act. From a public safety communications perspective, it has potential to be one of the most impactful pieces of federal legislation to have become law in years. In my testimony, I will explain why, and offer suggestions for how the industry and other stakeholders can build upon the direction of Congress and produce further improvements in public safety.

I'll begin with the provision on location accuracy for 911 calls, which has its roots in Ms. Eshoo's RESPONSE Act. APCO has long been advocating for Multi-Line Telephone Systems to convey actionable

location information with 911 calls. The law really hit the mark by directing the FCC to consider requiring the gold standard of a "dispatchable location," meaning the door to kick down, and to extend this concept beyond MLTS to include other means used to contact 911 regardless of the technological platform. APCO's position is that a dispatchable location should be delivered with every 911 call.

RAY BAUM'S Act also increased communications resiliency. Stemming from Mr. Pallone's SANDy Act, the law's sensible and necessary modernization of the definition of an "essential service provider" in the Stafford Act will lead to real improvements in the restoration efforts of a wide range of communications, Internet, and broadcast services. Also important is the study on the potential use of Wi-Fi to contact 911 during times of emergency when mobile service is unavailable. In responsive comments to the FCC, APCO expressed support for exploring Wi-Fi based methods of contacting 911, while noting it will be important to address any cybersecurity implications, methods of routing to the appropriate ECC, and accurate location and callback capabilities. The public's ability to contact 911 and reliably receive assistance should be consistent, regardless of the technology used.

I want to now touch briefly on the spectrum-related provisions of RAY BAUM'S Act. We appreciate the interest in finding additional spectrum options for both unlicensed and licensed communications. When it comes to introducing new operations into bands used by public safety to protect and save lives, notably 4.9 GHz and 6 GHz, APCO has urged caution, favoring exploration of alternative bands. Our community is extremely wary of new spectrum use in bands used by public safety, given the long, difficult history of interference to mission critical communications. At the same time, we have expressed openness to modern spectrum sharing techniques, provided that any sharing mechanism is proven in advance to protect incumbent and future public safety operations.

I'd next like to turn to some suggestions for how we can make further improvements to emergency communications, particularly from the 911 perspective.

We need a confidential contact database for carriers and ECCs to use in the event of outages or other issues that could impact communications with 911. The original SANDy Act would have directed the FCC to create such a database, but unfortunately this provision did not become law. We appreciate that the wireless industry addressed the need to support this database in its Network Resiliency Cooperative Framework, and hope the carriers will establish the database soon. When a wireless network outage could prevent calls to 911, the ECC needs to know how to contact the carrier to gather information that will assist with mitigating the outage's impact.

Relatedly, ECCs require real-time situational awareness of communications network outages in a uniform, easily-accessible format that could be integrated into 911 center equipment. As a consumer, when my power is out, I can go online to find block-by-block maps of impacted areas, along with expected restoration times. Remarkably, ECCs do not have comparable information about communications network outages. The FCC's Disaster Information Reporting System (DIRS) and Network Outage Reporting System (NORS) are helpful, but ECCs need more timely, streamlined, granular information than these systems provide, and the information should be available whenever there's a potential impact on 911, not just during major disasters or outages. With effective situational awareness of network outages, ECCs will be able to take proactive measures such as pre-staging responders or advising the public of alternate means to seek emergency assistance.

Finally, if we really want to improve emergency communications – in terms of reliability, 911 location accuracy, supporting the public's use of modern communications options, and making sure police, fire, and EMS have the best information available – we need to modernize the nation's 911 systems. We need a one-time forklift to ensure ECCs have the resources they need to achieve Next Generation 911. While some areas are making progress on their own, there is not a single complete NG911 system anywhere in the country, and we are concerned that present efforts are not on track to provide the capabilities public safety needs, such as seamless interoperability. Without congressional support for

this most critical of the nation's critical infrastructure, bringing 911 into the 21st century with interoperable IP-based systems will take significantly more time, be more expensive, and likely will not happen at all in some parts of the United States.

Again, I thank you for the opportunity to present APCO's views. I look forward to any questions you may have. And Ms. Blackburn, thank you for your service on this subcommittee and best wishes as you transition to the Senate.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Zachary, you are recognized for 5 minutes.

STATEMENT OF BOHDAN ZACHARY

Mr. ZACHARY. Thank you.

Chairmen Blackburn and Walden, Ranking Members Doyle and Pallone, and members of the subcommittee, thank you for inviting me to testify today on the RAY BAUM'S Act. My name is Bohdan Zachary. I am testifying on behalf of Milwaukee PBS, where I am the general manager, and I am also testifying on behalf of the 161 public television stations' licensees across the country.

The RAY BAUM'S Act helped ensure that local public television stations can continue our important public service work in areas of education, public safety, and leadership. We would like to thank the leadership of this subcommittee and full committee for providing the additional $1 billion in repacking funding, including $50 million for consumer education. We also appreciate the SANDy Act, which recognized stations' roles in emergency communications.

The digital TV transition a decade ago highlighted viewers need for education about major channel realignments. Our experience in Milwaukee has proven that investing in extensive local consumer education is essential to a successful repack.

We changed frequencies on January 8, 2018, because our licensee, Milwaukee Area Technical College, relinquished our channel 36 bandwidth in the auction, and we are now channel sharing on our other channel, channel 10. Milwaukee PBS launched a 3-month consumer education campaign ahead of the January 8 event. Our Plan to Scan incorporated on-air and online platforms and our presence in 11 counties in southeast Wisconsin. We have about 600,000 monthly viewers, some 38,000 are financial contributors to our stations, the majority of whom are at least 50 years old.

Making sure our viewers and donors knew how to find our channels after the repack was essential to sustaining our broadcast operations and community service. Milwaukee PBS interacts with our members and viewers on a daily basis in a variety of ways, ranging from live community engagement events to social media to a monthly viewer guide magazine, among others.

Our repack plan always included having staff taking live calls from viewers using our pledge phone banks. We created spots talking about the change and ran the sprockets out of those spots on air, on our website, and in social media. We chose to far exceed FCC's regulatory requirements knowing that our Plan to Scan had to be explained over and over again to take hold in viewers' minds.

In late fall, I was contacted by the local CBS in Sinclair stations which would begin channel sharing the same day as Milwaukee PBS. We issued a joint release about that. But on the day of the change, the two commercial stations had little or no capacity to take live viewer calls, so they started directing their callers to our phone lines. Our phone bank was open for 13 hours on January 8. The response was so overwhelming that we added another half day on the 9th.

Between the phone bank and other calls handled by viewer services, we received more than 800 calls over those 2 days, with some calls lasting as long as 1 hour. Some of the calls were very tech-

nical and station staff had to help viewers identify which brand television and remote they had and how they received our signal in order to help them rescan.

We had a new wave of callers in May from snowbirds returning home to Milwaukee who had been out of State when our education campaign began. We were fortunate to be able to invest part of our auction proceeds in our consumer education plan. However, the 149 public television stations that are being involuntarily repacked do not have those same resources, yet they have the same urgent need to educate viewers.

Public television can and should play a critical role in coordinating the consumer education efforts for their entire markets, both public and commercial, just like we did at Milwaukee PBS. Of the $50 million in consumer education funding, the FCC should dedicate a significant portion to local outreach initiatives, coordinated by interested public television stations for their entire market. We really can make a difference. This approach will ensure that every market has a robust, locally focused consumer education campaign that will prepare viewers for complex changes in their markets.

The consumer education funding that Congress provided needs to be put to use as soon as possible if it is to have a beneficial impact. The Phase I deadline has already passed, and Phase II deadline is only 4 months away. Public television stations are working hard to repack successfully.

We look forward to working with the committee and the Commission to complete this transition efficiently and successfully, just the way public television's dear friend, Ray Baum, would have wanted it. Thank you.

[The prepared statement of Mr. Zachary follows:]

TESTIMONY OF BOHDAN ZACHARY
GENERAL MANAGER, MILWAUKEE PBS

BEFORE THE SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY

OF THE UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

"RAY BAUM'S ACT: A BIPARTISAN FOUNDATION FOR BRIDGING THE DIGITAL DIVIDE."

DECEMBER 11, 2018

Chairman Blackburn, Ranking Member Doyle, Members of the Subcommittee, thank you for inviting me to testify today on the RAY BAUM'S Act and, more specifically, its impact on public television's post-auction repack and the critical role of consumer education in making this channel transition successful.

I testify today on behalf of Milwaukee PBS where I am the General Manager and also on behalf of my 161 fellow public television licensees throughout the country who share my passion for local community service.

Our stations are relentlessly focused on three pillars of public service: education, public safety and civic leadership.

Each of these missions is supported by the federal investment Congress makes in public television every year, and each creates a special bond of trust and value between our stations and the people we serve.

The Public Broadcasting Act requires that we serve everyone, everywhere, every day, for free, and we work hard every day to honor this commitment because communities depend on us.

The RAY BAUM's Act helped ensure that local public television stations can continue this important work. We would like to thank this Subcommittee, the full Committee, Chairman Walden and Ranking Member Pallone for providing the additional $1 billion in repacking funding, and $50 million for consumer education in the RAY BAUM's Act. This essential funding will help ensure that public television stations can continue providing the services their communities depend on.

In addition, we are very appreciative that the SANDy Act was included in the RAY BAUM'S Act, recognizing the important role our stations play in emergency communications and granting us priority access to restricted areas during disasters to repair our lifesaving communications equipment when necessary.

We transmit critical alerts not only to people's televisions but also to wireless carriers for distribution to smartphones, as the WARN Act authorized. The SANDy Act priority access was essential to our colleagues in North Carolina – UNC-TV – as they maintained their essential service, to everyone, during Hurricane Florence.

The spectrum incentive auction last year posed something of a threat to this universal service, as we could not be sure whether the auction would create gaps in our service in markets where station licensees decided to relinquish broadcast spectrum.

Fortunately, our system emerged from the auction with our universal service largely intact, though higher interference limits adopted by the FCC and the complexity of moving frequencies will be problematic for some stations for years to come.

We now face the challenge of ensuring that our viewers aren't lost in a cloud of confusion about where they can find us in the new world of widespread channel reassignment.

The digital television transition a decade ago illuminated viewers' need for information to help them find their channels after a major realignment. Based on that experience, public television began stressing the need for a robust consumer education program — and the funding to make it possible — while the spectrum incentive auction law was still being drafted.

That is why we were so pleased when the RAY BAUM'S Act included $50 million for consumer education.

Our experience in Milwaukee has proven that such an investment is essential and that a successful repack cannot be achieved without extensive, locally focused, consumer education.

We changed frequencies last January because the Board of Directors of our licensee, Milwaukee Area Technical College, voted to relinquish the Channel 36 bandwidth in the FCC spectrum incentive auction with a plan to channel share on our other channel, Channel 10.

With a target date of January 8, 2018 to begin channel sharing, Milwaukee PBS launched an all hands on deck campaign to educate our viewers about the upcoming change beginning in October 2017.

We created a plan that would take advantage not only of our on-air and online platforms but also our deep involvement in the many communities we serve throughout 11 counties in southeast Wisconsin.

We have about 600,000 monthly viewers, and some 38,000 are financial contributors to our station. The majority of these contributors are at least 50 years old. Making sure our viewers and donors knew where to find our channels after the repack was essential to sustaining our broadcast operations and community service.

Milwaukee PBS interacts with its members and viewers on a daily basis, in addition to the well-known periodic call-in pledge drives that still account for a significant portion of our funding.

We average at least one live community engagement event every month, sometimes more. We publish a monthly viewer guide magazine that includes my direct phone line and email address. Like you, I hear from my constituents quite often, and not always when things are going well.

From the first day Milwaukee PBS mapped out its repack plan, our intention was to be live on January 8th with Milwaukee PBS staff seated at our pledge phone banks taking viewers calls to assist with the community's questions about rescanning and how to find our station.

In advance of that momentous day, we created spots featuring our six regular on-air hosts and me talking about the January 8th technical change. We ran the sprockets out of those spots and had them on our website and social media pages.

We elected to far exceed the FCC's regulatory requirements knowing that our "Plan to Scan" had to be explained over and over to take hold in viewers' minds.

In late fall I was contacted by two Milwaukee general managers whose local CBS and Sinclair stations would begin channel sharing on January 8th, the same day as Milwaukee PBS.

We issued a joint release announcing our plan. They decided to make their change at 5:00 a.m. to coincide with their live morning newscasts. We had decided on a 9:00 a.m. switch. But on the day of the event, with little or no staff at either of the two commercial stations to take live viewer calls, the other stations directed their callers to our phone line.

We operated the phone lines on January 8th from 9:00 a.m. to 10:00 p.m. The response was so overwhelming that day, we made the decision to come back for a half day on the 9th to handle more calls.

From my tally, we handled a total of 589 calls on the phone bank for those two days. That breaks down to 42 calls an hour over the 14 hours we ran the phone bank. There were some calls that lasted as long as one hour (because you need to sit on the line with the viewer while their television set rescans to make sure it works and sometimes discuss antenna options with them in detail).

Some of the calls were very technical and required our station staff to help viewers identify which brand of television set they had, what brand of remote they might be using, and how they received our signal so that we could help walk them through the process of rescanning.

In addition to the January 8th and 9th phone banks, viewer services handled other callers on the same issues. These were viewers using a customer number we have for all issues related to Milwaukee PBS. One longtime volunteer (since 1983) told me he took 211 phone calls and answered 121 emails for a total of 332 transactions.

A new wave of calls in May from "snowbirds" returning home to Milwaukee made us realize that some viewers had no idea how to find our broadcast because they had been out of state when we began our Plan to Scan program in October 2017. But now they are caught up.

As you can see, this was an extensive consumer education effort, and frankly, one that not all stations in our market were prepared to undertake in the same manner we were.

Our experience demonstrates the importance of a well-planned, properly funded consumer education effort.

While we did what we could at Milwaukee PBS to ensure our viewers were well prepared for the change in service, we were in a different position than our colleagues at the 149 public television stations being involuntarily repacked.

We were able to use auction proceeds to finance our consumer education program. Many other public television stations do not have such resources to deploy, yet they have the same urgent need to educate their viewers and donors about their new position on the "dial."

This is why federal funding for consumer education is so critical and why we are so appreciative that this Committee included such funding in the RAY BAUM'S Act.

But it's important for Congress and the Federal Communications Commission to remember that the spectrum incentive auction law in 2012 made a specific promise to hold broadcasters harmless from the vagaries of the auction. Making sure our viewers and donors can find us after the repack is every bit as important as funding the repack itself.

We believe public television stations throughout the country can play a critical role in coordinating the consumer education efforts for their entire markets, both public and commercial, just as Milwaukee PBS did, because our stations have extensive membership outreach facilities and operations already in place and in use every day.

Of the $50 million in consumer education funding provided by the RAY BAUM'S Act, we believe that the FCC should dedicate a significant portion to local outreach initiatives, coordinated through interested public television stations in the market on behalf of the entire market.

This approach would ensure that every market has a robust, locally-focused consumer education campaign that will prepare viewers for the complex channel changes taking place in their markets.

As we learned with the DTV transition, making sure that viewers successfully transition to new channel assignments can be complicated and frustrating for the public. It is imperative that we leave no viewer behind – especially those whose technological grounding may not be advanced and, in our case, may be the heart of our financial strength.

These viewers depend on us for more than great programming. We are their gateway to lifelong learning, to lifesaving emergency alerts, and to life-changing perspectives on the community, the nation and the world around them.

All of this depends on the ability of citizens to receive our broadcast signal.

We hope that the FCC moves forward expeditiously to deploy the $50 million that Congress appropriated for consumer education.

And we would urge them — and you — to dedicate a portion of that funding for hands-on, localized outreach, managed by public television, that will ensure comprehensive, in-depth information to help television viewers everywhere successfully adapt to the new broadcast landscape.

We in public television have been and continue to be committed to being good partners throughout this spectrum incentive auction and repack.

Our groundbreaking channel-sharing pilots with the wireless industry demonstrated how stations could pursue such arrangements technologically, operationally and financially.

Our partnership with T-Mobile USA allowed them to clear rural spectrum faster than planned by the FCC while ensuring that hundreds of public television translators could continue to serve the nearly 38 million viewers in rural and remote locations reached by low-power public television facilities.

We are prepared to do more in service of the public -- in partnership with you, the FCC, and our colleagues in commercial broadcasting.

As the first of the repacking deadlines was reached on November 30, and with the next phase of repacking deadlines close on its heels, we know that there are already a handful of stations, including a few public television stations, that did not make the phase one deadline entirely for reasons beyond their control.

We know that, as we enter the colder weather months, the potential for weather delays will further exacerbate the challenge of limited tower crews serving hundreds of stations throughout the country. Undoubtedly, weather and technical limitations beyond our control will make it difficult to meet the FCC's current repack timeline and to ensure minimal interruptions to the broadcast service many of your constituents rely on.

One way we can help mitigate such difficulties – something completely within our control; indeed within our expertise – is by taking a leading role in the critical work of consumer education. We know from experience – from the DTV transition in 2009 and with stations like ours that have begun this most recent repack – how essential this work is to a successful transition.

And we look forward to working with the committee and the Commission to complete this transition effectively, expeditiously, efficiently and successfully — just the way public television's dear friend Ray Baum would have wanted it.

Mrs. BLACKBURN. The gentleman yields back.

And that concludes our testimony, and so we will move to our question and answer portion.

Mr. Donovan, I want to start with you. In RAY BAUM'S, we put some attention on addressing rural broadband deployment, which has been important to several of us on this committee as we have worked through, and some of that focused on spectrum, but most of it really focused on getting rid of barriers and obstacles and things that would hurt siting that would address existing infrastructure, so things that would help speed deployment.

And I would like for you to talk for a couple of minutes about what your members are experiencing in terms of their ability to get equipment deployed and kind of where they are in this process. How is it rolling out?

Mr. DONOVAN. Thank you. Thank you for the question. And there are several different provisions that were included in the law that do help on this. A lot of them that help for deployment in rural areas are focused on Federal lands in particular where there have been unique challenges in going through the permitting process and seemingly never ending delays. Some of those we are going to keep watching them as they are implemented.

I think that at the top line, the message has gotten across that the agencies should prioritize broadband deployment. There still are some issues with local land managers, Forest managers on making sure that that process goes through at that level. Things like making sure we don't get into cycles where applications are deemed incomplete so shot clocks don't begin; things like continuing to build on Dig Once policies, especially along Federal right-of-ways that can make a huge difference as we seek to expand service.

So we are excited about a lot of the provisions. We are coming up on some of the deadlines that were in there for days after enactments. So we are watching those closely and we will be sure to report back on the progress as it moves along.

Mrs. BLACKBURN. Great. And when we talk about next year and next Congress, what do you see as the biggest challenges that are coming up for your members, and where should that focus be?

Mr. DONOVAN. So our members are very excited about the opportunity to revisit a broader infrastructure package with a specific focus on broadband. We want to make sure that it is an all-of-the-above approach where—you know, streamlining helps, tax incentive helps, but we also need real funding to be able to get to the very hard-to-reach areas.

I think as I talked about in my opening statement, though, we need to make sure before we move forward with some of these efforts that we update our data. Right now, to quote Commissioner Rosenworcel, at an event she was speaking on mapping earlier today, it is a mess, and we really do need to fix that so that we can figure out where we do need to take steps to streamline deployment.

Mrs. BLACKBURN. Well, and let's stay with that because, you know, we have talked about that not only from the FCC, but the NTIA, and the farm bill is going to make certain that RUS is consulting, I guess would be the proper word, with these two entities.

But when we talk about these maps and getting them cleaned up, talk about it in relationship to your members and the decision process they go through based on what is there with this map mess that we are trying to address.

Mr. DONOVAN. So we, with the steps—the positive steps that we have made, is now there is starting to be some standardization across these maps. Carriers will report back data in what they are asked for, and the more precise you are is the more precise they can be, that helps make piece it together data from different carriers to have one map. If you are comparing apples to apples, it is a lot easier to build a map than if you are comparing across different standards. So we need to make sure that the ask for carriers on the front end is correct.

What we have also learned is that you can't put the entire burden on fixing that map on carriers, on State governments, on local governments. The challenge process we have experienced in Mobility Fund Phase II is extremely onerous. And while those—well, as I mentioned, over 20 million speed tests have been conducted; those have been overwhelmingly showing that there is not qualifying service. That is very concerning because our carriers only got to a small portion of the areas that they would have liked to challenge because of time restraints and resource restraints, as well as some that viewed the challenges just too big to even endeavor. So we need to go back and make sure we are fixing the underlying map so that we can actually take steps forward.

Mrs. BLACKBURN. The gentleman yields—or I am going to yield back my time.

And I thank you for the questions. Mr. Doyle. And I also want to remind Members, we are going to have votes at 3:45.

Mr. DOYLE. Thank you, Madam Chair.

Mr. Donovan, I am going to stay with you. Are your members concerned that the proposed secondary market transition in the C-band could leave rural providers behind? And do your members feel like the FCC should play a greater role in any potential transaction in that band?

Mr. DONOVAN. Thank you. And I appreciate your remarks in the opening about how critical the C-band is to broadband deployment. When we are talking about 5G, it is important to have low-band spectrum that has wide coverage distance. Higher band spectrum can support really fast speeds that we are just sort of starting to get a grasp of what that looks like. That C-band is so-called mid-band spectrum, it is kind of our Goldilock spectrum for it, so we really want to make sure that it is at the cornerstone of 5G build-out.

As our members are reviewing different proposals, at this point, the FCC record fails to establish how a private sale could ensure the same procedural protections and market protections of an FCC auction. The FCC auction program has been tremendously successful, generating significant funds for a lot of purposes, from deficit reduction to creating funds for Next Gen 9–1–1 deployment, for reimbursing in the incentive auction example, broadcasters relinquishing spectrum. So that is a proven process. To move away from that, we haven't seen what we need to see yet to have faith that that is going to be the right solution.

Mr. DOYLE. Thank you. Let me ask you another question. The AIRWAVES bill that Representative Lance and I introducedincluded a rural dividend mechanism that would take a proportion of the spectrum auction revenue and put it towards broadband build-out. Do your members think this is an idea that has merit? And what impact would it have on deployment of rural broadband?

Mr. DONOVAN. Thank you. It is a great idea. It has merit, and we hope to see that that idea comes back with the next Congress in whatever legislative vehicle you can put it in. CCA did commission a study on if this were in place before the beginning of the current millimeter wave band spectrums, I am happy to provide that to the committee if that is helpful. That shows not only immediate investment in rural broadband deployment, but also in the rural GDP with specific advantages in transportation and agriculture, in telemedicine. So it is an idea that certainly has merit and we would support continuing to push.

Mr. DOYLE. Well, I can tell you that I will be looking for a partner to take Mr. Lance's place on the Republican side as we reintroduce that bill.

Mr. Cohen, let me ask you, in your testimony, you discuss the need for Federal investment to deploy Next Generation 9–1–1 technology. I have seen estimates that this upgrade could cost upwards of $10 billion. Without investment by the Federal Government, how long would it take to deploy NG9–1–1 services nationwide?

Mr. COHEN. Thank you for the question. If the past is any indicator, we are concerned it may take many years. And, in fact, some areas of the country may never transition to NG9–1–1 in 10 years or more. It is 2018 now, and most of the 9–1–1 networks across the country use technology that is upwards of 50 years old. And even in a few areas of the country where some States or localities have attempted to start implementing pre-NG9–1–1 facilities, it is costly, it is proprietary, and it lacks interoperability.

So we have a lot of concerns already today. And without a big focus by the Federal Government, I think on Next Generation 9–1–1 we really won't get there, especially not in a uniform fashion.

Mr. DOYLE. Thank you. My last question. Mr. Zachary, in your testimony, you discussed the challenges that consumers are facing as part of the incentive auction repack. Are you concerned that consumers are already being left behind as this repack has already begun? And what do you think are the consequences of not providing consumers with the information and resources they need to understand and adjust it to the changes that are coming?

And I would ask Mr. LeGeyt the same question on how his members feel. We will start with you.

Mr. ZACHARY. Thank you. I will begin, as a general manager of Milwaukee PBS, I can talk on behalf of what we do, and I think we mirror much of the rest of the country in that we need to provide, at no cost, by all means, the services that the public has become accustomed to getting from us. And I think without education, there are going to be a lot of viewers who are going to throw their hands up and not know what to do.

What I didn't say in my testimony is we are still getting calls to this very day. Our head of engineering is still talking to people

every day who are having problems. We are in a market that has—is the eighth highest usage of over-the-air digital antennas, and we have people calling, saying, I am losing signal——

Mr. DOYLE. Let me give Mr. LeGeyt the last 10 seconds.

Mr. ZACHARY. Sure.

Mr. LEGEYT. Thank you, Congressman, for the question. What I would simply add is that Phase I of this massive repack was just recently completed, and 11 stations were unable to meet their repack deadlines. As we move forward here, this repack is only going to become more complex. And our focus is on ensuring that no viewer is going to lose access to their station due to an inability to adhere to this very, very aggressive timeline that the FCC has laid out.

Phase I indicated that there are going to be problems due to inclement weather, shortages in tower crews, and as these phases start to bump up against another and impact subsequent station moves, we forecast some real problems. So we look forward to working with this committee to ensure that the FCC implements a fair waiver standard.

Mr. DOYLE. Thank you. I yield back.

Mrs. BLACKBURN. The gentleman's time has expired.

Chairman Walden, you are recognized.

Mr. WALDEN. Thank you, Chair.

I want to continue down this path, because, obviously, when we wrote this legislation back in, what, 2012, I think, we gave the length of time to do the repack and all of that, and I think we all thought there might have to be some give and take here. And yet, you got people who bought spectrum and are eager and ready to get that investment on the ground. So if as we go forward you can give us some suggestions about what we should be focused on, I think that would be really, really helpful. And I think what you are talking about in terms of these exemptions, individual ones, may make some sense. But there is going to be a lot of pressure to get this done too, as you know. And now, I think we have the money in place.

I want to go to you, Mr. Donovan, because we are starting to see some tangible developments already in my district and State, and I would like to enter into the record some documents. One is T–Mobile 600 megahertz deployment in Oregon, another is their 600 megahertz coverage enhancement plan for Oregon, and a list of cities and towns where T–Mobile has deployed 600 megahertz spectrum.

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

Mr. WALDEN. This is really important. I did a roundtable out in my center part of my district, in John Day, and just to put this in perspective, on the digital divide piece—and it is not the wireless, but it all plays together eventually—there is a town called Seneca where apparently their broadband had been down, such as it is. It had been down for like 6 weeks. The city manager in this tiny, tiny little town had to drive 25 miles to get coverage at another town to be able to do her job. We are working on some of those issues.

And when we left this town, we needed to gas up at John Day, and we had to pay cash because the online system in John Day was down, so the gas station couldn't take credit cards. So this is like

real life stuff out there. And this community applied for a grant from USDA to help close the digital divide there because there is virtually nobody there. And so this is where I think the Government can play a role. They were denied on that grant because their plan didn't have an economic model. Well, guess what, if you got a town of like 80 people or 30 people or whatever out along somewhere else, there is no economic—that is why we put these programs together.

And so as we build out the wireless networks and the work that T–Mobile and others are doing, they are just one carrier, obviously, that is going to be important, but we have still got this issue of getting the backhaul and the fiber out and having enough capacity.

Literally, they had a big fire through this town a couple of years ago, and they are trying to rebuild some of the homes, and one of the issues is once you are off, you are off, and there is no Wi-Fi coming back—there is no connection coming back. They won't put you on the system that does exist. So, I mean, all the work we are doing and then you find out it is not getting to the ground.

So I would love to hear you talk about—a little bit about what you are seeing in terms of this law and this spectrum and what it means for wireless communication. And with all of us going to these devices that seem to be attached to every hand in the audience and here, what do you see? Are we going to get there?

Mr. DONOVAN. Thank you, Chairman Walden. And I really appreciate your point about the carriers that have showed up and spent money at the auction, especially smaller, local-based carriers. They essentially mortgaged the farm to go buy the spectrum, and until they can put it into use, can't start monetizing that. And they are the carriers—but the business plan is that they live there, which is why they are working to invest in the communities where they live and make sure that they have the services that everyone wants.

I think oversight is going to be very important as the law continues to be implemented. As I mentioned, we are just starting to come up on some of the 270-day deadlines, et cetera, so we will want to keep watching that, as well as there is a whole slew of—dozens of additional infrastructure deployment bills that were introduced earlier this year that we had several hearings on, things ranging from, you know, only requiring studying the actual area that is going to be disturbed land. It seemed like some common sense things that we would like to see picked up, and if there is an effort to revisit an infrastructure package to be included in that as well.

Mr. WALDEN. Yes, I think the siting, 55 percent of my district is public lands. And I know very well these siting problems, trying to get anything done is a real, real challenge. The town of Mitchell had—I think it was 3 years to get four power poles put in the ground so they could get 3-phase power for the first time, because it went across BLM ground. By the time you do all the environmental, people just go, how is this so? And so there is a lot to be done.

I agree with you on the mapping; it is something I complained about when the stimulus was done in the Obama administration. I complained about it in this round in the mobility grants. We have

got to find out where there is coverage and where there isn't before we go spending money and streamline the siting and close this digital divide in America. And I think that is something we can agree on in a bipartisan way here going forward.

But what I don't want to see is a bunch of public money then thrust into areas that already have service and overbuild, and places like Seneca and John Day and everywhere else are left off even a two-lane digital road, not a superhighway by any means.

I know my time has expired, Madam Chair. Thank you.

Mrs. BLACKBURN. The gentleman yields back.

Ms. Eshoo, you are recognized.

Ms. ESHOO. Thank you, Madam Chairwoman.

I want to compliment each one of you because I think you have given terrific testimony. I mean, it is understandable, and the things that you have shared with us are also very practical.

Mr. Zachary, I want to work with you to resolve the issue that you highlighted. And I love what you said about Ray; I think that Ray would have wanted it this way. So you got a hook in me when you said that. Plus, it is public broadcasting, which I love.

To Mr. LeGeyt, thank you for representing the broadcasters. I have a curiosity question. How much money has been raised from the auction in dollars from the broadcasters? Do you know?

How much have they given—you know, I mean, they were paid for what they gave up.

Mr. LEGEYT. Right. So that number is in the universe of $12 billion that went to the broadcast industry.

Ms. ESHOO. Wow. That is really something.

To Mr. Donovan, it is good to see you. Hope the babies are well.

You know that we had these tragic and devastating fires in California, and I think they have highlighted how vulnerable our telecommunications infrastructure is to these natural disasters.

Let me ask you, do you think that there are any Dig Once—I mentioned it in the statement that I made, about Dig Once and building on what we finally got to do. Do you think that there are policies that would help protect this infrastructure from natural disasters like the wildfires we had in California?

Mr. DONOVAN. Well, thank you, Congresswoman Anna—Congressman Eshoo—sorry.

Ms. ESHOO. That is all right.

Mr. DONOVAN. I think you know what I meant.

Ms. ESHOO. I know it is hard for men, yes.

Mr. DONOVAN. Well, that is the way my daughter still refers to you, so—she says your name. So thank you.

And, you know, Dig Once policies can certainly help with some of the fires, actually twofold. By undergrounding some of these resources, there is an additional layer of protection. But then, also, during the recovery point, we deal with problems of fiber cuts from crews that are going into recover, to clean up. They are doing their jobs; they are not intentionally——

Ms. ESHOO. Right.

Mr. DONOVAN [continuing]. Cutting the fiber, but can sometimes undo some of the recovery efforts that carriers have already begun.

So it actually would have twofold benefits by increased focus on Dig Once policies. So we are certainly not tired of hearing you talking about it and hope that we can continue that discussion.

Ms. ESHOO. Uh-huh. Thank you.

To Mr. Cohen, nice to see you again.

I just want to take a moment on location accuracy for 9–1–1 calls. I have been after this one, with others, as you know. I think it is a very important issue, and the subcommittee has recognized that, because we have been working on it for several years.

In your opinion, do you think that Congress and the FCC are making good progress on improving locations for 9–1–1? How would you rate it? I like ratings, you can tell today. I am into ratings.

Mr. COHEN. I would rate it pretty good. We are thrilled with the RAY BAUM'S Act because dispatchable location is something that we have been championing for a long time.

Ms. ESHOO. I know you have.

Mr. COHEN. For example, if I call 9–1–1 from this room, I want the DC office 9–1–1 center to get the street address of this building and know I am in 2322.

Ms. ESHOO. Right.

Mr. COHEN. And it is as simple as that. And it shouldn't matter what way I contact 9–1–1.

So we are glad that the FCC started its proceeding. Its comments were just due yesterday. We will look forward to reviewing the comments of others and staying active in this proceeding.

Ms. ESHOO. I hope that ABCO will stay on the issue of the Next Gen 9–1–1 Act. It got kind of bolloxed up or lost someplace in this Congress, which is not unusual, for that to happen to legislation. But we will look forward to working with you in the new Congress on that, because it is unfinished business that needs to be—we need to close the loop on it——

Mr. COHEN. Fully agree.

Ms. ESHOO [continuing]. And we will all be better off.

So thank you to all of you for your important work and your testimony. And every blessing to everyone in the new year. Thank you.

Mrs. BLACKBURN. The gentlelady yields back.

Mr. Shimkus, you are recognized.

Mr. SHIMKUS. Thank you, Madam Chairman.

So we have tried to remove barriers, increase spectrum, and address public safety issues, as we have talked about, in the overall processes.

So I want to start with public safety. I am still hearing concerns about incorrectly routing in my district. Is that a national concern still? And then, also, can you speak to the—which I raise all the time, which is the fee diversion discussion?

Mr. COHEN. Sure. Thank you, Mr. Shimkus.

Routing, yes, has its challenges in wireless because of the way it is done today by the location of the tower that handles the call. And because technology has continued to improve, it is not necessarily the case that the closest tower is the one that is handling your call. That is something that can be rectified in a next-genera-

tion 9–1–1 environment, but it is also something the FCC is exploring, and we have been active in that.

When it comes to MLTS, in our comments just yesterday, in addition to direct dial, in addition to dispatch location, we pointed out that you also need to be able to route to the right 9–1–1 center, as well as get a callback number.

So I agree that routing is still an issue, and hopefully we will be solving these issues going forward.

You also asked about?

Mr. SHIMKUS. Fee diversion.

Mr. COHEN. Fee diversion. Fee diversion is a terrible practice. And, frankly, we feel like, in order to end it, it really has to hurt the States. They are making choices to divert fees, and they need to have something that hurts more than doing that.

Our recommendation, along with the fact that we would like to see the Federal Government help fund a large transition to next-generation 9–1–1 across the country, if the grant program is sufficient enough and the cost of losing that money is large enough, that could end fee diversion right there.

Mr. SHIMKUS. Thank you.

Let me go to Mr. LeGeyt.

There were some of these repackaging and tower sitings that finished ahead of schedule, did they not? That was kind of helpful with at least this problem of some of them not being late.

And we know in your written testimony, you talked about the Springfield, Missouri, issue and then that crew and then they couldn't go up north. What is your analysis on tower training and the availability of the workforce?

Mr. LEGEYT. Congressman, thank you for the question.

I think if there is one lesson from the first phase of the auction, it is that there is not enough tower crew availability, especially high tower crew availability, to deal with the amount of work that is there. I have a list here of the 11 stations who are unable to complete their Phase 1 moves, and in nearly all of the instances, tower crew availability played at least some role.

So to say exactly what the right number should be, I think as we move forward to phases of the auction where the vast majority of the remaining broadcasters and other, effectively, 850 full-power stations are going to be repacked over the next 2 years, layer on top of that those low-power stations and translators that have been displaced, that is a lot of work. And we are dealing with a very small number of crews who can get up and operate on a 2,000-foot tower.

So the need is very, very real. What the solution is, I think, is more complex.

Mr. SHIMKUS. Great. Thank you.

I want to end on two things.

One, I have a rural water cooperative that has partnered with a rural telephone cooperative, where they lay the fiber underneath the water pipe as they are going out to places that aren't served. So it is really kind of a Dig Once. But it has been done locally. I applaud them for it. I think they had to go through the State commission for some approval. But I am just very proud of their thinking about doing it one time, which will be helpful.

The other thing is—I have always highlighted is mapping, but didn't really raise itself up to the real problem until I met with some small providers, really, last week. And the different—we used to call them pipes—the different pipes of delivering high-speed internet access really have two different ways to identify service. You know, if it is a fiberoptic cable to a phone, well, you know. You know it is there. But if it is cellular signal, it is a circle.

And so I am not sure how we will ever get good mapping. But I think the point being is we should be able to have an appeal process in some of these grant programs and low-interest loan program that are saying, "Oh, there is a map that covers this area, there is already competition," when there may not be competition in that area just because it can't be served.

So, something that was raised to me and made more sense as I have talked to the providers and something I am going to follow up on.

With that, thank you, Madam Chairman, and I yield back my time.

Mrs. BLACKBURN. The gentleman yields back.

Mr. McNerney, you are recognized for 5 minutes.

Mr. MCNERNEY. Well, I thank the Chair, and—well, you switched with Ms. Eshoo. I thank the Chair.

And, first of all, I want to have my voice join the chorus congratulating the chairwoman for her elevation to the Senate. You have been a lady, and despite whether we agree on things, we have spoken respectfully to each other, and I appreciate that.

Mrs. BLACKBURN. Absolutely. Thank you.

Mr. MCNERNEY. I also want to say, I thank the panel for coming today and preparing—it is not easy, I am sure—but I would rather this be an oversight hearing where we have Commissioners in front of us to see what the Commission feels about the success of the RAY BAUM'S Act and how to improve it.

Mr. Donovan, the RAY BAUM'S Act includes the Improving Broadband Access for Veterans Act that Mr. Kinzinger and I introduced. This legislation requires the FCC to examine the state of veterans' access to broadband internet service and what can be done to increase access, with a focus on low-income veterans and veterans in rural areas.

The FCC must seek comment in the proceeding and subsequent—and submit a report to Congress with findings and recommendations by March of 2019.

What are some of the ways in which the broadband internet service can help veterans living in rural areas?

Mr. DONOVAN. Thank you for the question and for your work on that important provision that was wrapped into the final package.

There are so many ways that broadband access can help veterans as they return home, from education and vocational training to telehealth services, to mental health services, to just outreach and connectivity so that they can still feel part of a unit. We have heard that many times over. So those are all important services, and you don't have access to any of them if you don't have that basic connectivity. So that is so important.

One way that I hope the Commission does look at solving it is—we had some discussion today about crew availability for broadcast

towers. I would highlight one program called Warriors for Wireless that specifically focused on training veterans to have the skills to become tower climbers and identifying a need where we have a need for additional crews and finding a workforce that has really been quite successful in programs like this.

Mr. MCNERNEY. Well, thank you. The Commission should be looking at ways to improve broadband access and adoption for veterans rather than impeding veterans' ability to get connected. The current Lifeline proposal pending at the Commission would devastate access and service to 1.3 million veterans across the country who depend on this crucial program, and I urge the Commission to abandon that proposal.

Mr. Zachary, recognizing the consumer confusion that has resulted from stations moving as a part of the spectrum repack, which you discussed, Congress directed the FCC to spend $50 million for customer education on the RAY BAUM'S Act.

As your testimony demonstrates, despite outreach efforts, consumers flooded your station with calls. As the repack process proceeds up next year, I am concerned that consumers in many more cities won't be prepared. Do you know what the FCC is taking—what steps they are taking to educate consumers with funds it received?

Mr. ZACHARY. I will admit that I do not have knowledge of what they are planning with the $10 million education fund.

I do know that in the public television system we are equipped, because, as we were talking to our viewers in our area on a daily basis in any number of meetings, we can be the ones who can best facilitate getting that message out.

And because we do fundraising drives four times a year, sometimes more, to raise funds, we are equipped with phone banks. We know how to work it. And that is why we so much would like to be part of this effort. I think we can really make a difference in educating of consumers.

Mr. MCNERNEY. Well, do you think the FCC can be more transparent in its efforts to educate consumers?

Mr. ZACHARY. I would like them to be.

Mr. MCNERNEY. Thank you.

Back to Mr. Donovan, the proliferation of the internet-of-things devices is transforming the world around us. By 2020, it is expected there will be 20 billion to 50 billion devices connected around the globe. And many of the devices are expected to have very weak security provisions that are susceptible to attack.

Would you agree that we should be concerned about the large number of IOT devices today and those coming onto the market?

Mr. DONOVAN. Yes, I would.

I was talking with one of our rural carriers last week in Wyoming who has identified a potential 8 million new subscribers for their network, but 5 million of them are cows and 3 million are sheep. So these are going to be, you know, very small devices connecting them onto the grid.

It is important to make sure that we have the cybersecurity components taken care of before you have that type of escalation of devices contacting the network.

Mr. MCNERNEY. I want to finish by saying I introduced the Securing IOT Act to establish cybersecurity standards for IOT devices in this Congress, and we are going to be reintroducing something like that in the next Congress.

Thank you. I yield back.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Latta, you are recognized.

Mr. LATTA. Well, thank you, Madam Chair. And before I get started, I would just like to also congratulate you on moving over to the Senate and Senator-elect. And we look forward to working with you and accomplishing great things in the years to come. So congratulations on that.

I also want to thank our panel of witnesses for being with us today. We greatly appreciate the opportunity to hear from you all.

And, Mr. Donovan, if I could start with you, it is my understanding that many of your members are wireless carriers for rural areas. And earlier this year, I introduced the Precision Agriculture Connectivity Act with my friend, the gentleman from Iowa, that is also now included in the farm bill, that requires the FCC and the USDA to collaborate on the best ways to meet broadband connectivity and technology needs. Precision agriculture keeps America's farmlands competitive internationally.

Whether it is Internet of Things devices, self-driving machinery, drones, or satellites, precision agriculture requires more ubiquitous broadband at higher speeds with less latency.

Would you tell the committee how the Precision Agriculture Connectivity Act complements provisions enacted as part of the RAY BAUM'S Act?

Mr. DONOVAN. Certainly. And congratulations on advancing that bill forward, and especially with the inclusion in the farm bill. I know it was quite a lot of work to get it there, so congratulations.

Mr. LATTA. Thank you.

Mr. DONOVAN. We really appreciate the way that the bill focuses on the need for connectivity not just where people live or over roads but over agricultural lands, farmlands, ranchlands. That is something that Secretary Perdue has really focused on.

I think using that hand-in-hand with the provisions of RAY BAUM'S Act, some of the things we have already talked about, in terms of streamlining deployment, getting fiber further out, that is going to allow you to then serve the last mile with wireless coverage over farms so that you can have all these precision agriculture technologies that are coming online.

We joke with some of our members that we have had autonomous vehicles in rural areas for years; they are just painted John Deere green.

So we want to make sure we can continue to have that type of functionality that is letting farmers use fewer resources, have higher yields, and really helping drive the economy forward.

Mr. LATTA. Well, thank you.

Let me follow up. Accelerating wireless broadband deployment is a national priority because study after study tells us that wireless broadband deployment drives economic growth, employment, and investment.

In the RAY BAUM'S Act, we appropriated an additional $1 billion on top of the existing $1.75 billion to reimburse broadcasters for the costs incurred as a result of the repack and enable a smooth transition and make their spectrum available for innovative, new wireless broadband deployments.

What more needs to be done to allow for faster wireless broadband deployment in the form of broadcast spectrum?

Mr. DONOVAN. I think the whole panel would agree with me in thanking you for the additional billion dollars to make sure that we can continue to stay on track.

I think, going forward, the two things that can help most are setting expectations and promoting accountability. You know, expectations for broadcasters, for consumers so we can do those educational efforts, but expectations that let us—we are now 60 percent more broadcast stations have been cleared than the FCC had projected we would be at this point. So, while we have had some waivers that are necessary, it is clear that they have built some of that into the system.

So we want to make sure that we promote the expectation that we will stay on this timeline so people can find creative solutions to keep moving forward.

Mr. LATTA. Let me follow up with Mr. LeGeyt.

I believe that no one in this committee wants or intends broadcast viewers to lose service due to the repack. Would you like to comment on the repack?

Mr. LEGEYT. Absolutely. And thank you for the question.

Broadcasters are absolutely committed to doing exactly what Mr. Donovan just suggested, which is to move as quickly through this repack process as is possible. We have every incentive to put this repack behind us and ensure that we are focused on serving viewers across the country.

While Phase 1 was largely successful, there are clear warning signs that derived from it—namely, what has already been mentioned by several Members, which is just the variability caused by tower crew availability as well as inclement weather.

You know, KBLY, an NBC affiliate in North Dakota, I think is a very, very good example. It began its work to make its Phase 1 station move more than a year ago. The crew that was expected to begin work on its antenna in September was prevented from starting that work due to a tragic accident in Missouri. It is a 2,000-foot tower, so there is a limited number of crews that can work to do that move. You are talking about equipment that is several tons. You are in North Dakota, where you have major winds, inclement weather. So, as you start going further into the fall, you are going to face those types of delays that prevent work on given days.

So, due to reasons outside of its control, KBLY was not able to complete its move on time. The FCC understood that, granted it a waiver to move into a later auction phase.

But as we move forward here, I would just urge this committee to be working closely with the FCC to ensure that any station that faces those types of delays, which will interfere with its ability to reach and serve their viewers, is dealt with in the same fair manner.

Mr. LATTA. Thank you.

Madam Chair, my time has expired.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Loebsack, you are recognized.

Mr. LOEBSACK. Thank you, Madam Chair.

Before I ask my questions, I do want to thank you, Madam Chair, for your leadership on this committee. And, quite honestly, I am going to miss you calling me Broadband Loebsack as you go over there. I tell everybody you call me that. I think it is indicative of the bipartisan work that we have done. But I want to keep working with you, even though you will be in the other body. So thank you so much.

Also, there has been so much talked about today that has to do, obviously, with rural areas such as mine in Iowa. I think we have real opportunities going forward. While we Democrats will be in the majority, I think we can continue to work across the aisle on a lot of issues, because those of us in rural areas are not just Democrats or just Republicans. There are a few more Republicans, but there are a lot of Democrats as well. So I want to continue to do that work across the aisle, as I have been able to do the last few years now, 4 years I have been on this committee.

And I do want to thank my friend and my classmate from 2006, Mr. McNerney, for bringing up the veterans issue. I am going to get to the tower crew thing in a second here, but I think we have real opportunities to incorporate some of our concerns about our veterans and the skills that they have developed. We had a couple Marine children who have done multiple deployments, and I have visited a lot of our troops overseas. And they acquire, I think, a lot of skills often that they can apply then when they come back home, and we don't utilize them enough in a variety of ways. So that is really important.

The first thing I do want to talk about, though, is the Rural Wireless Access Act. And we have been talking about mapping without talking about that specific legislation, obviously, up to this point. And I worked with Mr. Costello on that. Unfortunately, he is leaving the Congress soon, but we worked across the aisle on that.

And I think I know the answer, Mr. Donovan, to the question I am going to ask—the first question I am going to ask you. Is the FCC implementing the Rural Wireless Access Act, yes or no?

Mr. DONOVAN. No.

Mr. LOEBSACK. Thank you. I thought that is what you would say.

And with the recent announcement from the FCC, which I have here in my left hand, that they will be launching an investigation—and we have talked about this already today—into whether major carriers violated the Mobility Fund Phase II reverse auctions mapping rules and submitted incorrect coverage maps, it seems like it will be some time before the FCC begins to fulfill the congressional directive to improve these maps.

And with the recent investigation in mind, what do you think should be the next steps for making sure Congress and the FCC can work together to improve these maps?

Mr. DONOVAN. Well, thank you. And congratulations again on including the Rural Wireless Access Act into the law.

I think the investigation is important and the FCC should continue it. Implementation has been held up on your bill in part because it was required to be done no later than 180 days after the auction is complete.

Mr. LOEBSACK. Right.

Mr. DONOVAN. I think what the investigation makes clear to us now is that it is vitally important that we standardize that data before we move to the auction.

Mr. LOEBSACK. Right.

Mr. DONOVAN. So we would like to work with you to make sure that that is the case.

Your bill requiring standardization of the data is very important so that we do have an accurate map and we don't have this whole challenge/problem, now leading to an investigation.

Mr. LOEBSACK. Right.

And speaking of maps and coverage and all the rest, Mr. Walden and I, we had a conversation prior to the election about something I had to call him about. And he reminds me that his district is bigger than my State. And we had to go back and forth a number of times, and we had dropped calls once we got a hold of each other. So I would like to see what those maps show about his part of Oregon and my part of Iowa. I think they would be pretty inaccurate.

Mr. LeGeyt, I would like to direct my next question to you. A bill that I have been working on with Markwayne Mullin from Oklahoma, the Communications Jobs Training Act, would create a grant program to help train more people who would do the work of erecting and maintaining these communication towers, these towers that we have been talking about and you have been talking about the crew shortage.

My question to you is, what do you foresee in terms of demand for these sorts of jobs? You have mentioned some instances where they didn't have enough crew.

Mr. LEGEYT. Thank you, Congressman, for the question. And this is an important problem, one that you have foreseen in introducing your legislation, so I want to thank you for that.

I think I would point you to a submission that a number of tower workers and equipment manufacturers made to the FCC a few weeks ago, and I am happy to provide it to you, where they say the following. They outline a number of factors that have contributed to delays but conclude by saying: The broadcast tower representatives believe they are witnessing the effects of an unrealistic expectation of what the repacking of 987 stations entails, and the factors cited above have resulted in demands on the rigging community that simple cannot be met.

Mr. LOEBSACK. Wow.

Mr. LEGEYT. So, as it relates to your legislation, the need is unquestionably there. This is a submission by the representatives who are doing the work themselves. So would very much look forward to working with you on that legislation.

Mr. LOEBSACK. And hopefully in the next Congress, we can get that accomplished and, again, on a bipartisan basis.

So thanks to all of you for testifying today.

Thanks very much, Madam Chairman.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Guthrie, you are recognized.

And I remind everyone, the bell will ring for votes at 3:45.

Mr. GUTHRIE. OK. Thank you, Madam Chairman. And, again, congratulations to you on your move to the Senate. Hopefully the Senate will keep the same schedule and we can still fly together every week. Thanks.

For Mr. Donovan, I want to talk to you first. We were pleased to have the Spectrum Auction Deposits Act included in the RAY BAUM'S Act. So I will start with giving you an opportunity to comment on how you have seen this provision affecting the prospect of getting more spectrum to market.

And, second, with regard to 3.5 in particular, as I have heard from one of your members and my constituents, Bluegrass Cellular, how do you see this Commission rulemaking affecting broadband access going forward?

Mr. DONOVAN. Again, Congressman, thank you for your work on the Spectrum Auction Deposits Act, you know, as a bipartisan basis. That really is—I can't overemphasize how important that is. We would not be having the auction that is underway right now nor any of the auctions that are coming after it had that not been signed into law.

There is a fundamental problem where, operationally, the FCC was unable to find a way to collect the deposits in line with the current law, so that law had to be fixed. And so this was common sense, and we were really pleased to support that effort along the way.

With regard to 3.5, thank you for your focus on this. This, again, is that important midband spectrum that is going to be so critical to 5G deployments. Bluegrass joined along with another 20-plus CCA nonnationwide carriers to make sure the FCC understood the importance of getting the license size right, finding the compromise on a county basis being that ideal spot where rural carriers were able to get access to spectrum but we still could use the right technical standards to deploy 4G services today and 5G services tomorrow in that important band.

Mr. GUTHRIE. Thank you.

And continuing, Ms. Matsui and I introduced a bill earlier this year, the SPECTRUM NOW Act, that would provide access to SRF resources for Federal agencies to carry out R&D related to feasibility studies. As we have seen, these studies are extremely expensive, and we have limited options given the constraints of CBO's spectrum scoring.

Can you speak to the effectiveness of this bill's approach of giving Federal agencies more incentive to undertake spectrum R&D?

Mr. DONOVAN. I think it is very important. And having the ability to do the R&D work can help show where spectrum can be more efficiently used, both for Federal operations but as well for reallocating spectrum.

Importantly, Administrator Redl at NTIA recently launched an initiative asking all Federal agencies to report back on their anticipated spectrum needs over the next 15 years. That work, going hand-in-hand with R&D, can show what spectrum is needed to complete the mission and what spectrum can be repurposed for broadband use.

Mr. GUTHRIE. Thank you.

Actually, you answered in that one my next question. Ms. Matsui and I are also working on a bill for more resources to NTIA to carry out independent R&D activities. So I was going to ask you what you thought, if they needed resources.

Anybody else want to talk to that? You have really kind of answered that, but anybody else on the panel want to talk about more resources for NTIA?

There aren't any? Well, good.

Well, there be no one else wanting to talk, I will yield back my time.

Mrs. BLACKBURN. The gentleman yields back.

Ms. Clarke, you are recognized.

Ms. CLARKE. Thank you very much, Madam Chair.

Thank you, Mr. Ranking Member.

To our panelists, thank you for lending your expertise today.

I wanted to move into the space of the SANDy Act within the context of RAY BAUM'S. And I will start with Mr. Cohen.

How have public safety communications fared during recent disasters, like Hurricane Michael or the wildfires in California? Have things improved, or is there more that we should be doing?

Mr. COHEN. Thank you for the question.

I have more information about Hurricane Michael and not so much yet from the wildfires.

Ms. CLARKE. Uh-huh.

Mr. COHEN. Those kind of disasters are so severe that they can knock out communications, period. And one thing I know is that, from the 9–1–1 side particularly, 9–1–1 professionals man their stations and they are dedicated. And that is also when their own homes and families are affected by the same emergency. They also are very creative. And they will lose service, they will lose connectivity.

I do know of a few examples like where FirstNet came in and helped restore connectivity between a police station and the State EOC, emergency operations center; another instance where they helped provide macro cellular service to a 9–1–1 center.

And even in some cases, I heard that while the wireline connections for the 9–1–1 centers failed, what they ended up doing was using cell phones and giving out a 10-digit number to the public, including one that was serviced by a FirstNet phone, so that the public could actually call 9–1–1 without calling 9–1–1 specifically.

Some lessons learned so far, which is things that we have talked about already, is we also heard from the people that are affected in these circumstances. We had asked them the question, would you have benefited from a contact database to know who to call? They said absolutely, and we still don't have something like that. And also just to have situational awareness in a real-time, integrated format of where outages are occurring.

Thank you.

Ms. CLARKE. So, just to add to that, the ranking member and a number of us on the committee wrote a letter to Chairman Pai urging him to update the FCC's resiliency framework and expand it beyond wireless carriers. It has not been addressed yet. It is long overdue. And we need bold action to protect Americans.

So I understand that the FCC is collecting data regarding the framework, but has it taken any steps to make it mandatory or to expand it beyond wireless carriers?

And I think that that goes hand-in-hand with the 9–1–1 operators. No one is blaming the operators. We are concerned about the infrastructure and the resiliency around it.

Mr. COHEN. Right. No, to my knowledge, the FCC has not yet taken any concrete steps. They have sought comment.

We would like to see certain things codified, a couple of things I just mentioned. And also I think it would be important to extend the framework to other service providers.

Ms. CLARKE. And how should the FCC expand the framework to improve public safety? Would you say it is beyond the wireless carriers? How would you describe it?

Mr. COHEN. Yes, I think that the cooperative framework the wireless careers voluntarily agreed to was a very good first step. And it stemmed from the SANDy Act, the original SANDy Act.

But to codify some of these things would be helpful, because then there is a mechanism for oversight. So we would support that, and especially the few items I mentioned—a simple thing like a contact database and the situational awareness piece, which is important not just in disasters. If there are outages in a network affecting one neighborhood, a 9–1–1 director needs to know that.

Ms. CLARKE. Uh-huh.

Mr. COHEN. And then, of course, yes, extending that model to other service providers, I think, would be very helpful for all stakeholders.

Ms. CLARKE. Very well.

Madam Chairwoman, before I yield back, I just wanted to wish you all the best on the Senate side. I appreciate the relationship and the bond that we have established through the work on this committee, and I wish you all the best. Look forward to working with you on the other side of the Capitol.

I yield back.

Mrs. BLACKBURN. And the gentlelady yields back.

Mr. Olson, you are recognized for 5 minutes.

Mr. OLSON. Well, good afternoon. I would like to open with what is called a point of personal privilege. I want to thank our chairwoman for her service to America and Tennessee. She is now leaving this body for a body I spent 9 years working at as a Senate staffer.

I encourage you, my dear friend, don't get too close to Mr. Buster, Phil E. Buster. He is not nice to work with here in the House.

I hope you remember your Davy Crockett and Texas roots as you move on to the Senate. Fair winds and following seas, as we say in the Navy.

And you all witnessed a bipartisan act of theft. Right before me, Ms. Clarke stole my question about resiliency. So I won't go over that again. Suffice it to say we have learned lessons from the recent—from Harvey, from Irma, from Maria that were applied recently with Michael and the fires, so that is great progress.

My question is for all if you want to chime in, but basically it is on disaster recovery.

Mr. Cohen, you mentioned that our 9–1–1 infrastructure is very, very old, 50 years old, and has to be rebuilt. One problem we are having back home, it is a good problem to have, but my hometown of Sugar Land has started what is called 3–1–1. It is basically the same premise as 9–1–1, but it is for nonemergency calls—hey, a pothole; a tree has fallen down; I have lost a pet.

We are seeing some confusion about, where should I call? Should I call 9–1–1? 3–1–1? So have you seen that happening across the country somewhere else so we could apply lessons learned to avoid the confusion?

For example, I had a person who didn't know to call 9–1–1. In our freeway, a refrigerator was in the middle of a road. Do I call that? Is that an emergency like a—something like a fire or gunshots? Or just call the city? And so, any idea how we can help that out? Because it is kind of confusing.

Mr. COHEN. That is true. Thank you for the question.

Well, first, as a general matter, it is a problem across many 9–1–1 centers that they field too many nonemergency calls. Centers do vary in terms of the guidance they give to the general public, but, generally speaking, they say, "In an emergency, call 9–1–1."

Some cities, like Washington, DC, here, also colocate 3–1–1. And, in those instances, it is good, because it is hard sometimes for a citizen to decide, apart from the obvious things that we know isn't an emergency. Your example of a refrigerator on a highway, that seems to me like an emergency. But when you colocate and you have a 3–1–1 center as well, those calls can then be transferred back and forth by the professionals manning the 3–1–1 and 9–1–1.

But, as a general matter, to answer your question, call 9–1–1 only in emergencies.

Mr. OLSON. That is it.

Mr. LeGeyt, you mentioned in your testimony that local stations continue to invest in resiliency of their infrastructure to make sure they can enable interactive—provide life-saving information during disasters.

However, we have learned that some storms obviously can be overtaken by the force of nature God creates. And so my question to you is, can we address some of those problems with a quicker permitting process, some waivers in the future? Have you seen some problems with Irma, with Maria, with Harvey, with Michael, with the fires that we could address now and not wait until a crisis happens?

Mr. LEGEYT. Thank you, Congressman, for the question. And as you allude to, you know, of all the things that local broadcasters do, both television and radio, there is none we take more seriously than our role of being on the air 24/7 in a time of emergency.

Very candidly, I think the provisions included in the SANDy Act—which we have yet to see the full impact, but—are very, very significant. You know, broadcasters being granted priority access to fuel, to access their facilities during times of emergency. A lot of what we have dealt with just logistically, and it is understandable, given the importance of having, you know, first responders on the scene, is just an inability to repair our facilities as quickly as possible.

There are going to be some circumstances where, you know, it is impossible. But where it is possible, that legislation is going to significantly improve our ability to get our facilities back on the air.

Mr. OLSON. Yes. One of our local TV stations basically moved their whole operations from where they have been flooded twice now. They said, this is enough being flooded. People depend on the information, the weather radar, all the information. So thanks for that answer.

A final Christmas question. It is kind of a present. And this is for you, Mr. Zachary. As we talked before, as a young boy, I lived in Appleton, Wisconsin, 1964 to 1966, the heyday of a coach named Vince Lombardi.

My question is for the largest public television station in Wisconsin. Who is the best quarterback the Packers have ever had? Is it Bart Starr, Brett Favre, or Aaron Rodgers? Your listeners want to know—viewers want to know.

Mr. ZACHARY. I can't answer, because when I get back to the office, I will be beset upon by varying factions who support the different——

Mr. JOHNSON. He is taking the Fifth.

Mr. OLSON. Go, Pack, go.

I yield back.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Bilirakis, you are recognized.

Mr. BILIRAKIS. Man, I think that is the toughest question we have ever posed to a person on the dais ever in history. I mean, that is a tough one. I would say Bart Starr. But, anyway, I am an old-fashioned guy.

Thank you, Madam Chair. And I appreciate your service in the House of Representatives. I know you are going to do a wonderful job representing the great State of Tennessee.

And I will never forget—my dad sends his best as well. I will never forget you came to Florida for his retirement banquet and spoke. You were the guest speaker. And I just appreciate everything you have done for my family and for the United States of America. And I know there is more to come.

First, I would like to highlight a recent R Street report that ranked Florida as the best State for broadband deployment based on a review of each State's State and local regulations. This system, in conjunction with the RAY BAUM'S Act, will help Florida lead the development of next-generation internet services. And I am very excited about the future.

Mr. Donovan, in terms of current regulatory barriers and making 5G a priority, should we have policies that exempt or streamline installation of communications facilities that simply replace older existing ones?

Mr. DONOVAN. Yes, thank you for the question. And I think that is common sense, that we should allow that, especially as we are upgrading networks right now.

You know, 4G built upon 3G networks. 5G is going to build upon 4G. As you are replacing some of the equipment, you shouldn't have to go through a whole, entire review process all times over again.

If the land has already been disturbed, if you are on top of a roof that has already been studied and you are swapping out an antenna, it doesn't seem to make any sense to have the cost, the expense, and the delays that go along with going through the permitting process again.

Mr. BILIRAKIS. Very good. That is what I like to hear.

Representing an area always under threat by hurricanes and storms, I regularly worry about continuity of emergency communications and systems, as you can imagine. And while we should try to stick to the transition schedule set out for repack, we should not unnecessarily threaten an area's public safety communications if it is within our control.

Mr. LeGeyt, in your testimony, you mentioned that a station was able to be reassigned to a later repack phase after it became clear it would not meet the deadline due to circumstances outside its control.

Can you further describe the process that the station and the FCC went through in order to get that reassignment? And how much notice of the move was given to the station before the Phase 1 deadline? I think that is very important. So, if you could answer that, I would appreciate it.

Mr. LEGEYT. Thank you for the question. And, obviously, as we proceed with this repack process, this, from the broadcast industry's perspective and the perspective of our viewers, is the critical one.

Stations' preparations for these moves have been underway for over a year at this point. And so, as stations became aware—and there were 11 of them in the first phase that were unable to meet their deadlines. They were working very, very closely with the FCC, as well as with the NAB, to keep everyone informed of issues that were arising and the potential for an inability to meet the deadline as it got closer.

Over the few weeks leading up to the final deadline, formal petitions were filed with the FCC for waivers of those deadlines. And as it relates to Phase 1, all of those were granted, and stations were moved to either Phase II or Phase 3.

I think our real concern as we move forward here is that those waivers were granted and they were all circumstances where the move to a subsequent phase did not impact another station's ability to move in that phase. That is going to become more and more difficult as we move forward here. But from the industry's perspective, we are looking for an assurance—and the relationship with the FCC has been a constructive one in this—that no station is going to be forced off the air, regardless, for an inability to comply with a deadline for reasons outside its control. And that communication with the FCC is ongoing.

Mr. BILIRAKIS. Wow. That is good to hear. I appreciate it very much.

And thank you for your service, Madam Chair, on this committee and in the House.

I yield back.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Ruiz, you are recognized.

Mr. RUIZ. Thank you.

Today I want to talk about broadband access issues in Tribal lands, on Indian reservations. Today's hearing is critical because it is an opportunity to do a progress report on the administration's implementation of one of the committee's most important bipartisan achievements, the RAY BAUM'S Act.

It is especially important to me because it included my legislation, the Tribal Digital Access Act, which, if implemented properly, will take real, concrete steps toward bridging the digital divide in Tribal communities while helping neighboring nontribal communities as well.

Under the Tribal Digital Access Act, the FCC is required to have completed an analysis of broadband coverage on Tribal lands by the end of March, less than 4 months from now. Yet, to date, my office has yet to have any interaction with the FCC to review the methodology of that ongoing study, nor have we learned of any Tribes having been consulted.

This is especially concerning given the recent Government Accountability Office report that found the FCC's mapping data is overstating broadband access on Tribal lands and that they lack a formal consultation process for Tribes to provide their input.

Following that report, Ranking Member Pallone and I wrote to the FCC asking how they plan to fix the deficiencies identified by the GAO study, as well as for an update on its effort to comply with my Tribal Digital Access in RAY BAUM'S. That was more than a month ago, and we have yet to receive any reply, and that is simply unacceptable.

And I am saying this, as well, in good faith with our ranking member of this committee, who will soon be the chairman of this committee, to take note so that we can take this issue up during the next Congress.

It is becoming abundantly clear that this FCC does not respect the treaty and trust responsibilities of the Federal Government to federally recognized Tribes, nor do they view the accurate accounting of broadband service on Tribal lands as a priority at all.

And I am not prepared to allow the FCC's inaction on this issue to prevent us from making meaningful progress to bring broadband internet to Tribal lands and the surrounding communities. And I say all this to make sure that we are on the record so that when we do address this issue in the next Congress that we have a trail behind us leading up to some important questions that need to be asked.

However, for this panel, I would like to ask, Mr. Donovan, your perspective on this important issue. Based on your experience working with carriers in both rural and Tribal land, to what extent are the barriers to broadband deployment, such as distance or unfavorable market conditions, generally the same barriers to deployment on Tribal lands?

Mr. DONOVAN. Thank you for the question. And you are right, they are the same problems, magnified by a lack of communication in some cases.

What we have found with our members that provide service on Tribal lands also in partnership with Tribes, as well as Tribal members that we have, we share your frustration at the lack of reliable data over where coverage exists. Because it makes it very

challenging to use different grant and subsidiary programs to build out that service if we can't identify where it is needed.

Going forward, some of the other things in RAY BAUM'S Act that could help with that include provisions on freeing up spectrum in rural areas—that would include Tribal areas—to make sure that spectrum that is licensed for mobile broadband use but is not being used in those areas, that we can try and find some incentives so that carriers and Tribes that do want to use that spectrum can put it to use to serve people.

Mr. RUIZ. What are some of the unique challenges that Tribes face?

Mr. DONOVAN. So some of the unique challenges—and we have been pleased at finding some unique solutions—I think include making sure to respect the historical elements that are in place.

So a good example of that we have with a member that works with the Navajo Nation that was having trouble finding an ideal place to locate the cell tower, and, working with the Tribe and with the shilpa, were able to figure out a design that masked the cell tower as a chimney on a pueblo, so it doesn't disturb the appearance of the area but yet provides the connectivity that they lacked beforehand.

Mr. RUIZ. And, I am sure, some very important culturally relevant, sacred sites, burial grounds perhaps.

Mr. DONOVAN. Absolutely.

Mr. RUIZ. And, similarly, do you have any ideas for how the FCC can address these changes in order to fulfill the second requirement under the Tribal Digital Access Act, to complete a rulemaking that will address the broadband access disparity in these communities? Do you have any recommendations?

Mr. DONOVAN. You know, as the FCC moves forward with that proceeding, I hope that they do look at all-of-the-above solutions. We really need to make sure we have all the tools available to make sure that we expand broadband, particularly in difficult, rough terrain and hard-to-serve areas.

Mr. RUIZ. Thank you.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Johnson, you are recognized.

Mr. JOHNSON. Thank you, Madam Chairwoman. And let me add my congratulations to your election victory. And honored to have served under your leadership here on this subcommittee.

And to my colleague Mr. Doyle, I look forward to working with you in the 116th to advance these issues.

Mr. LeGeyt, you know, I understand how important it is to keep the repacking on schedule as much as practically possible. As you probably know, there are almost 50 full-power television stations that broadcast to my constituents in rural Appalachia that are having to move to new channels over the next 18 months. That doesn't count the host of translators which we need in Appalachia to make sure that the over-the-air television signals get to homes in our very mountainous, rural areas.

I know that the FCC has granted waivers for 11 stations in the first phase that were not able to meet their move deadlines because of weather issues or because of the shortage of tower crews.

Are you confident that now as the repack is kicking into high gear that the FCC will continue to give stations latitude and grant waivers where appropriate if stations, like the ones broadcasting in my district, are unable to meet their move deadlines for reasons outside of their control?

Mr. LEGEYT. Thank you, Congressman, for the question.

We are certainly gratified by the approach the FCC has taken to those 11 stations up to this point. And, certainly, the dialogue between our trade association as well as individual stations that are dealing with moves is an ongoing one, and it has been a very constructive one.

But we clearly see that this repack is only going to get more complex as it moves forward. And we do not have assurance as to how every one of those individual stations—the 50 that you just cited are certainly top of mind—how the FCC is going to approach each of these individual waivers.

I would just simply urge you and other members of this committee to remain engaged with the FCC, as well, to ensure that they are taking an approach to each of those individual stations that ensures that no one is going to be forced off the air for reasons outside its control. And you have a commitment from the NAB and our industry that we will do everything within our power to complete these moves as quickly as possible.

Mr. JOHNSON. Yes. And an old country saying where I am from: You can't get blood out of a turnip, you know? And there is only so much you can do when you don't have tower crews and the weather is prohibiting. Something has to give in those cases to make sure that those television stations can continue to broadcast. So I appreciate your answer.

Mr. Donovan, as you know, we share an interest in improving the quality of our broadband maps, in that there is a lot of bipartisan concern that what is being produced now in terms of broadband maps is inadequate. That is why I introduced the MAPPING NOW Act, which was included in RAY BAUM'S Act, to require NTIA to resume the national broadband map to accurately identify those areas that lacked broadband coverage.

In terms of data, in your view, how can we do better? Is the FCC's reliance on Form 477 data so flawed that we need an alternative? And does the work NTIA is doing hold the promise of something better?

Mr. DONOVAN. Thank you for the question.

And so I think the Mobility Fund is itself an example of why Form 477 data is not adequate for it. The requirements of the Mobility Fund required a unique data collection to start with. What should have been a better map, it did standardize some factors, but we clearly now know that that did not go far enough and that map is also fatally flawed.

I think we need to continue to work toward standardization so that you do have a reliable map that actually looks like the experience that you have in your district and your constituents have. Because I remember, when we first met and looked at that map, that you couldn't believe your eyes, looking at what it showed for service.

Mr. JOHNSON. Yes. It was crazy.

Well, you know, RAY BAUM'S Act included a number of actions to bridge the digital divide, and that is really what we are talking about here. As we look into the next Congress, what challenges do your members still face in terms of ability to move rapidly, deploy, and service unserved rural communities? And how might we be more helpful? Quickly.

Mr. DONOVAN. Quickly. I mean, the quick answer, what do consumers in rural areas want out of 5G? It is the same thing that everyone else does: low-latency, high-speed networks that are going to provide all this range of new services.

Mr. JOHNSON. Right now, my constituents would settle for 1G, you know, in many places, because they don't have a G. You know, 5 is good, but we have places where we have nothing.

Thank you.

Mrs. BLACKBURN. The gentleman yields back.

Mr. Long, you are recognized.

Mr. LONG. Thank you, Madam Chairwoman. And thank you for your service all these years in Congress and to this committee and to this subcommittee. And we are definitely going to miss you, but you are not going to be far away, thankfully. So good luck over there on the Senate side.

Mr. LeGeyt, you have noted several times that 11 of the stations weren't able to complete their deadline, or meet their deadline. Eleven out of how many?

Mr. LEGEYT. There were 79 stations successfully moved in Phase 1. So that Phase 1 universe is 90.

Mr. LONG. OK.

And several times today, people have referenced the tragic loss of life with the tower collapse in my district. It was a tower servicing company out of the State of Washington, and we are in Missouri, and it is obvious that there is not a lot of these tower moving companies around. I believe it was the owner of that company that tragically was killed that day. He told his men to start down because they knew something was going wrong, and he stayed to see what it was. And the rest of them were able to, although sustain some injuries, get out alive.

Can you give us any update on the status of KOZK and if they are going to be able to meet their move deadline now?

Mr. LEGEYT. Absolutely. So KOZK is a public television station, so not an NAB member, but high level. I can tell you that they operated for several months following that tragedy on some interim facilities where they stayed on the air but did so under reduced coverage and reduced ability to reach their viewers.

Mr. LONG. At a very low level.

Mr. LEGEYT. A very low level.

They have been able—they were a Phase 1—KOZK was a Phase 1 move, and the station technically was able to meet its Phase 1 deadline. It is currently engaged in a tower share that enables it to reach the vast majority of its listeners. But that is a temporary and not a long-term solution.

But as far as the repack process is concerned, they were able to successfully change frequencies, which, frankly, is amazing given the horrific circumstance.

Mr. LONG. The wireless industry is a job multiplier, and studies say it generates more than $400 billion in U.S. spending and is expected to contribute $1 trillion to the North American economy annually by 2020.

Those are huge numbers, but there is a hitch. Wireless operators need spectrum to deploy service, of course. And one of the key bands, the 600 megahertz band, is undergoing the 39-month transition from broadcast to broadband use. And I know the people that had purchased some of the broadcast band or broadband to turn into broadband are waiting patiently.

As the chairman of the full committee mentioned earlier, what measures have you taken to ensure the stations clear their old spectrum by the statutory deadline of July 13 of 2020?

Mr. DONOVAN. Well, thank you for the question.

And all of those statistics point to the fact that delays in this repack schedule do have real-world consequences as well. So we want to make sure that we can find ways to safely complete this and make sure we can stay as much on track as possible.

I think the fact that all the waivers were granted and that progress has continued does speak highly of the work that the Incentive Auction Task Force has done and Congress before that to make sure to build something into the system, knowing that the plan isn't always going to go exactly according to plan, to build in some elasticity there to deal with things through the waivers and through other processes. And so we will continue to see that moving forward.

Carriers have also taken steps to assist broadcasters, including funding additional manufacturing capability so you could ramp up beforehand to manufacture the antennas needed, as well as working, in particular, with public broadcasters. One of our members, T–Mobile, has gone through many efforts to make sure that, where they can repack early, they are providing them the assistance that they need to be able to do so.

So we want to continue to work collaboratively with the broadcasters to make sure that we can put the spectrum to use as soon as possible.

Mr. LONG. OK. And you answered part two of my question in that interlude, so I appreciate it very much.

And, Madam Chair, I yield back.

Mrs. BLACKBURN. The gentleman yields back.

Mrs. Brooks, you are recognized.

Mrs. BROOKS. Thank you, Madam Chair. And I, too, want to congratulate you to moving to the other side of the Capitol, but we are definitely going to miss you and look forward to your leadership over in the Senate on these same issues. Because when I think about what you and our ranking member—today, but soon-to-be chairman of this committee—accomplished with the passage of the RAY BAUM'S Act and signed into law earlier this year, it is a critically important piece of legislation, and I am really proud of your leadership.

And I look forward to working with you as well, Mr. Doyle, in the future Congress.

I would like to focus very briefly on FirstNet and NG9–1–1. And I know—this question is for you, Mr. Cohen—you have been a

strong supporter of FirstNet. And I know that APCO certainly has led efforts among the public safety associations to ensure that this legislation became a reality and that FirstNet became a reality.

And since it has been deployed, how would you gauge how FirstNet and AT&T are performing? What have we learned about the role FirstNet has played in the recent emergencies, specifically Hurricane Michael? And how has RAY BAUM'S Act helped further the implementation and goals of FirstNet?

Mr. COHEN. Thank you for the question.

We are very pleased thus far with the progress of FirstNet and its partner, AT&T. Congress recognized the need to solve an interoperability problem and the need to bring first responder communications into the 21st century. And FirstNet is delivering on the promise of the legislation that created it and everything that public safety, united, had asked for.

So the other impact we are seeing, like with the disasters, is that there is a new focus on public safety communications by a new service provider, that being FirstNet built by AT&T. So you are seeing more attention and focus on prioritization of restoration of service, on deployables being dedicated solely to solve public safety problems, devices, et cetera.

We had a couple of examples I am aware of from Hurricane Michael where FirstNet aided a public safety agency to restore communications from its local emergency operations center to the State EOC. That is clearly very helpful.

It helped to restore wireless service in the area. And it also helped restore a piece of 9–1–1 that had failed, a connectivity piece, such that consumers who couldn't actually call 9–1–1, because the 9–1–1 facility was down, could call a 10-digit number that the 9–1–1 center was able to broadcast out to the members.

Mrs. BROOKS. OK.

Mr. COHEN. That wireless number was supplied by FirstNet.

So we are seeing the benefits of it as evidenced out of emergencies as well.

Mrs. BROOKS. And is there anything in the RAY BAUM'S Act that will help us advance the NG9–1–1 efforts?

Mr. COHEN. Well, I would say there are two things.

One, the Stafford Act amendments is what I call the small but mighty provision. That was really an important change. And the fact that it enables now a range of service providers to enter disaster areas and restore service benefits FirstNet, it benefits all the public safety agencies, it benefits the public.

The other part that I would highlight is the part on dispatchable location, the fact that the FCC has been asked to start a proceeding. Dispatch location is the door to kick down, it is the gold standard for 9–1–1 location. And that will help not only in today's 9–1–1 environment but certainly will dovetail well in a full Next Gen environment.

Mrs. BROOKS. OK. Thank you. I have no further questions.

I want to thank Madam Chairwoman for putting a focus on public safety communications as you have during this year.

With that, I yield back.

Mrs. BLACKBURN. The gentlelady yields back.

And that concludes our questions. There are no further Members to ask questions. So we thank you all for being here with us.

Before we conclude, we do have our unanimous consent documents: T–Mobile's 600 megahertz deployment in Oregon, from Chairman Walden; T–Mobile's coverage enhancement plan for Oregon, from Chairman Walden; a list of cities and towns where T–Mobile has deployed 600 megahertz, from the chairman; and the FCC's draft communications marketplace report, from Mr. Doyle. All submitted. Without objection, so ordered.

[The information appears at the conclusion of the hearing.] [1]

Mrs. BLACKBURN. And pursuant to committee rules, I remind all committee members that they have 10 days in which to submit their questions, and you all have 10 days in which to respond to those questions.

There being no further business, the subcommittee is adjourned.

[Whereupon, at 3:59 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

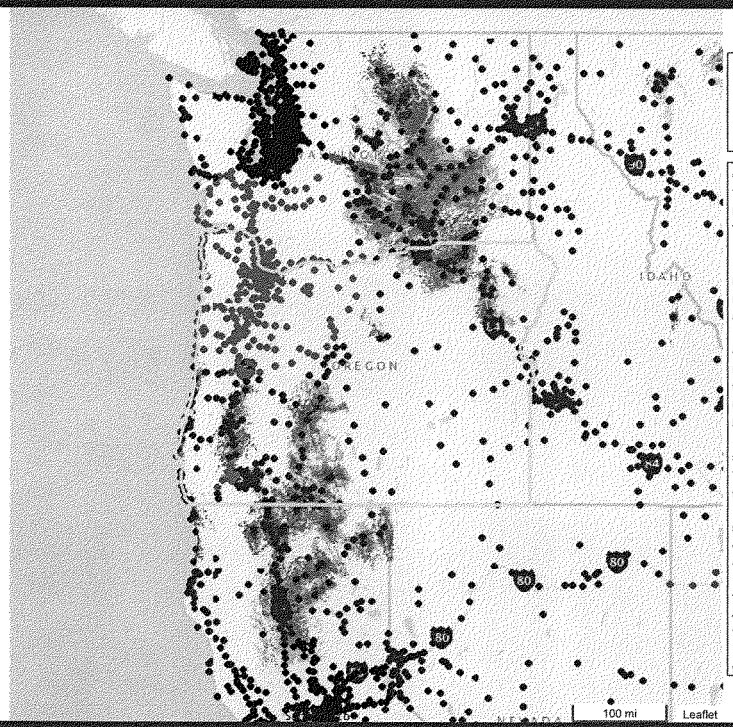
[1] The FCC report has been retained in committee files and also is available at *https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=108785.*

Oregon 600 MHz

Legend

L600 Year Clear
- Already Cleared
- 2018
- 2019
- 2020

Coverage
600 MHz Coverage
- IBC
- IBR
- In-Vehicle
- Outdoor



State Info

State
Oregon
Representative
Greg Walden (OR-02)
Party
Republican

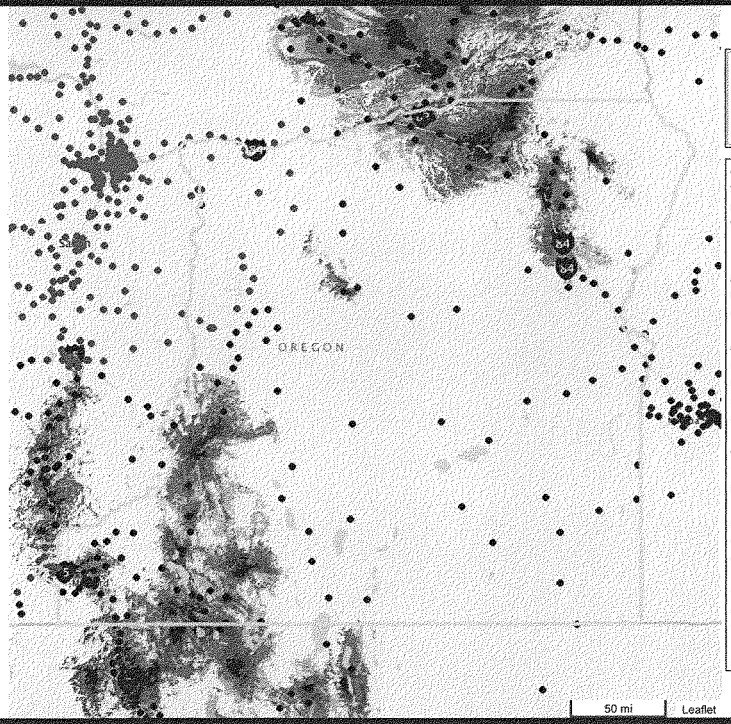
Customers	
T-Mobile	427,232
MetroPCS	87,241
Wholesale	154,114
Total	668,587
Pct of Population Covered	
Indoor	85%
Outdoor	96%
Cell Sites	
Lowband	403
Midband	561
L600 Cleared	197
L600 Future	295
Stores	
T-Mobile	41
Metro PCS	115
Facilities	
Call Centers	1
Other	0
T-Mobile Employees	
Count	1,072
Yearly Salary	$41.0M
Phase Cleared (≥50%)	**Phase 2**

Oregon 2nd Congressional District 600 MHz

Legend

L600 Year Clear
- Already Cleared
- 2018
- 2019
- 2020

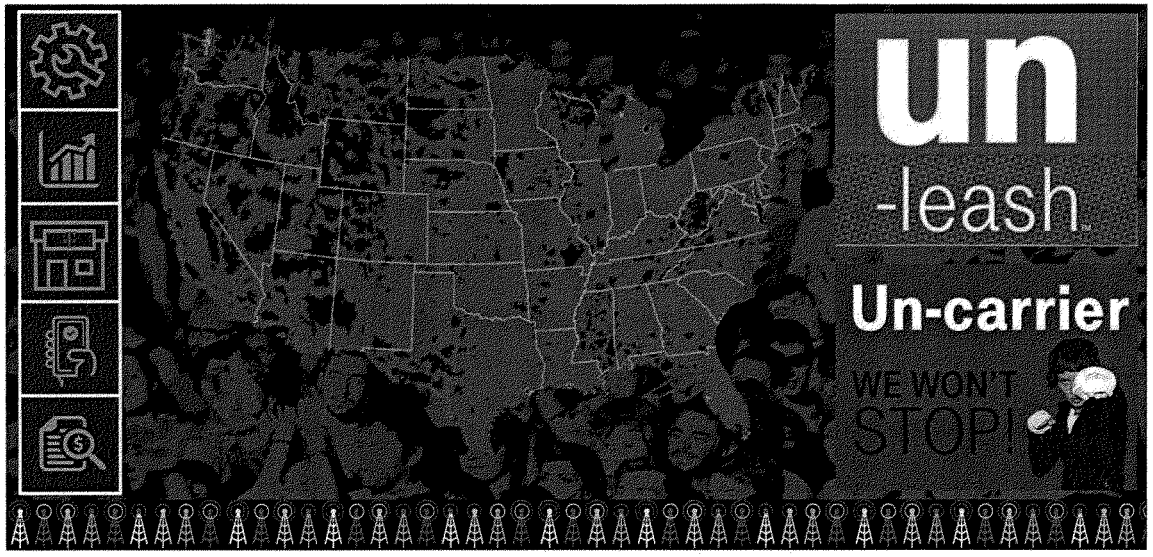
Coverage
600 MHz Coverage
- IBC
- IBR
- In-Vehicle
- Outdoor



District Info

District
OR-2
Representative
Greg Walden (OR-02)
Party
Republican

Customers	
T-Mobile	28,113
MetroPCS	13,096
Wholesale	10,816
Total	52,025
Pct of Population Covered	
Indoor	73%
Outdoor	96%
Cell Sites	
Lowband	74
Midband	109
L600 Cleared	128
L600 Future	24
Stores	
T-Mobile	2
Metro PCS	23
Facilities	
Call Centers	0
Other	0
T-Mobile Employees	
Count	10
Yearly Salary	$363.0K
Phase Cleared (≥50%)	**Phase 1**



Technology Decision Analytics – Portland RF Engineering

CENTRAL OREGON:

FOSSIL-MONUMENT-SENECA AREA

AUGUST 2018

T-Mobile

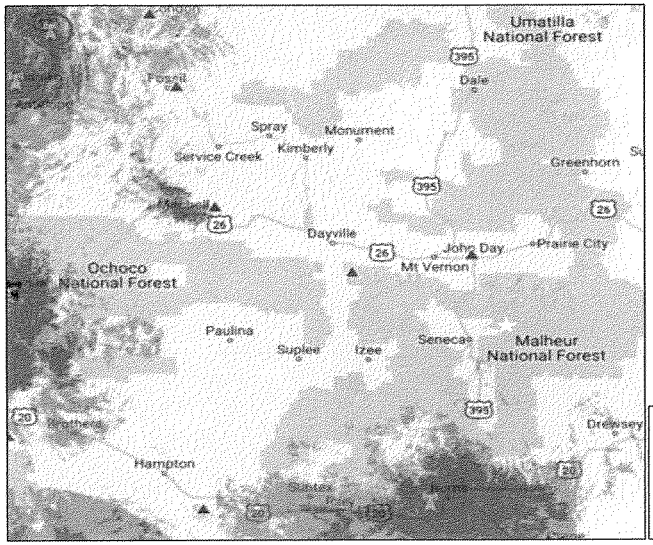
T-Mobile Confidential & Proprietary Information

CSNE | TECHNOLOGY DECISION ANALYTICS
STRATEGY | TRANSFORMATION | TOOLS

Executive Summary

Challenge	▪ No coverage in central Oregon towns: Monument, Seneca, Kimberly, Spray etc. ▪ Partial coverage on Hwy 395 ,Hwy 19 and HWY 402 ▪ Total Pops of 2.5K ▪ Total Sq. miles: 2402
Objective	▪ Provide IBR and IVC coverage in Central Oregon towns and Hwys. mentioned above. ▪ Improve customer overall network experience in Central Oregon
Solution	▪ 5 NSD with Colo Opportunity (Vz. is already on three locations) ▪ Total cost of $775K CAPEX (Soft Cost: $175K; Hard cost: $600K)
Benefits	▪ Incremental IBC POP opportunity 2.5K to impact acquisition rate (will increase due to ongoing development in area). ▪ Will provide coverage in rural areas of Central Oregon ▪ Coverage parity with VZ #1 spot on 3rd party competitive metrics

Current Network Overview



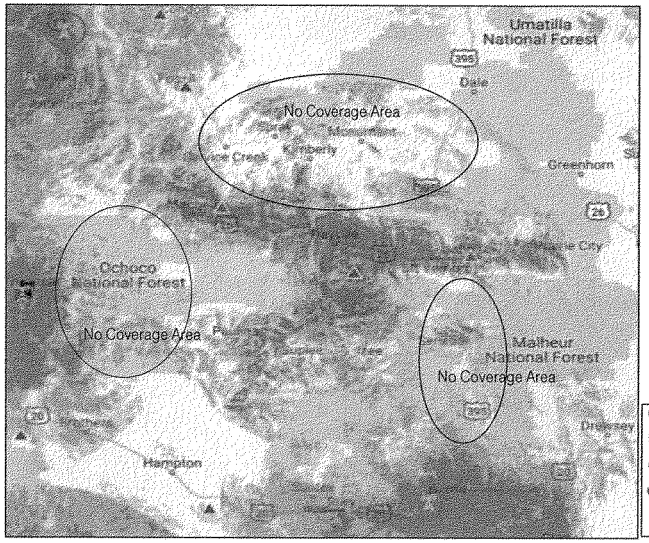
Central Oregon Area		
Area, State	Central Oregon, OR	
Population	12k POPS	
POP's Coverage	IBC %	0
	IBR %	2
	Outdoor %	3
Site Count	TMUS	1 (4 on POR)
	VZ	9
	AT&T	7
	Sprint	0
Store Count	TMUS	0
	VZ	0
	AT&T	0
	Sprint	0
Spectrum Holding	Mid Band	PCS & AWS
	Low Band	L600

Special Notes :

Market has identified the highlighted area requiring network investment to provide similar coverage as competitive operators.

- No coverage in central Oregon towns: Monument, Seneca, Kimberly, Spray etc.
- Partial coverage on Hwy 395 ,Hwy 19, Hwy 26 and HWY 402
- Total Pops of 12K
- Total Sq. miles: 2402
- Competitive and Engineering Insights – **Verizon has better coverage and is building a new site in the east**

EOY 2018 Network Overview



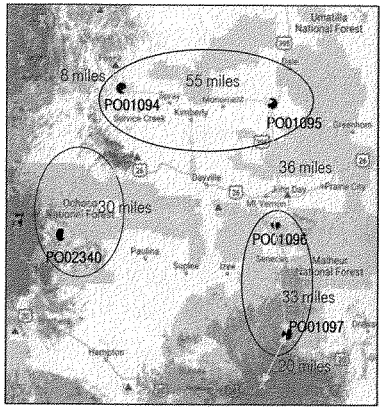
Central Oregon Area		
Area, State	Central Oregon, OR	
Population	12k POPS	
POP's Coverage	IBC %	NA
	IBR %	37
	Outdoor %	63
Site Count	TMUS	5
	VZ	9
	AT&T	7
	Sprint	0
Store Count	TMUS	0
	VZ	0
	AT&T	0
	Sprint	0
Spectrum Holding	Mid Band	PCS & AWS
	Low Band	L600

Location Benefits :

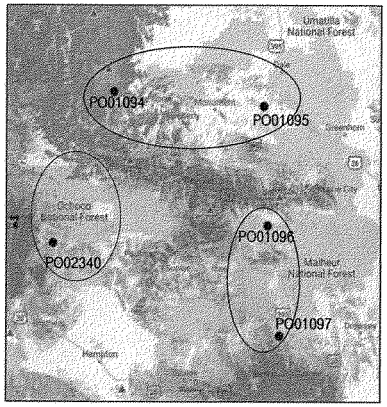
- Partial coverage on Hwy 395 ,Hwy 19 and HWY 402
- Total Pops of 2.5K
- Total Sq. miles: 2402
- Timeline: 4Q2019

Coverage Enhancement Plan

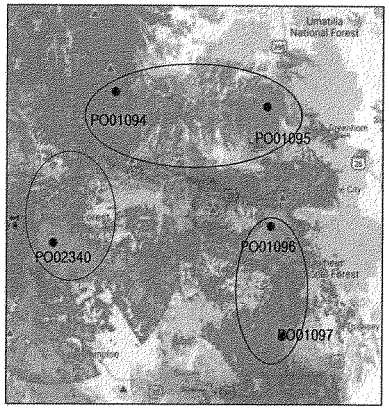
Present Coverage



Coverage with sites on POR



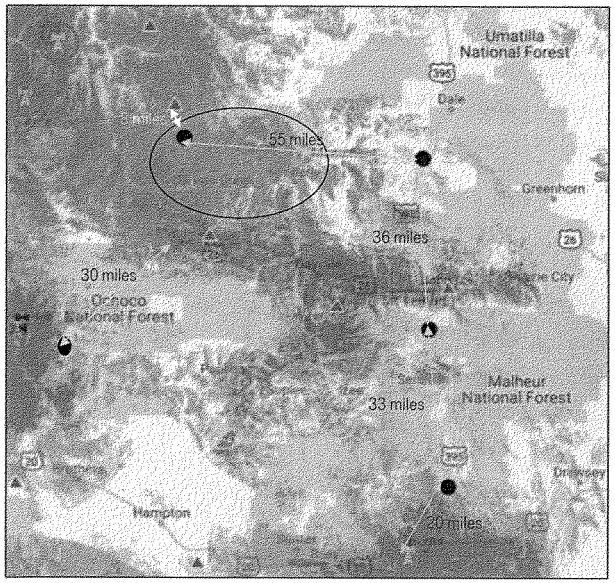
Coverage with new proposed NSDs

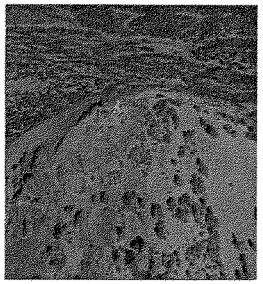


Proposed New Rings

Ring Id	Ring Name	Lat	Long	Square mile	Structure type
PO01094	Rancheria	44.89821	-120.1375	546	Tower
PO01095	Long Creek	44.83314	-119.07144	324	Tower
PO01096	Fall mountain	44.29377	-119.04234	269	Tower
PO01097	Divine Ridge	43.79155	-118.95793	330	Tower
PO02340	Ochoco	44.21583	-120.57300	933	Tower

Site Justification : Service Creek PO01094





Service Creek		
Category	Travel	
NSD	1	
Configuration	L600	
POP's Coverage	IBC %	NA
	IBR %	NA
	Outdoor %	100%
Post-Build Site Count	TMUS	1
	VZ	1
	AT&T	0
	Sprint	0

RF Objective:

- Currently no TMO coverage in this area.
- This site will extend coverage on Hwy 19 in central Oregon and will connect Fossil town with Mitchell
- Sq. Miles covered: 546
- VZ has coverage in this area.

Development Feasibility

Site Configuration

L600

Candidate List:

- Frontier Telnet (44.89821, -120.1375)

Telco:

- Possible Microwave

Power:

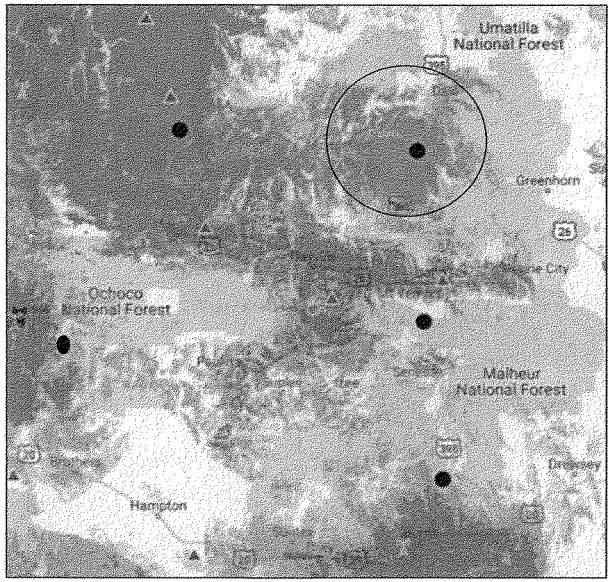
Candidates have commercial power

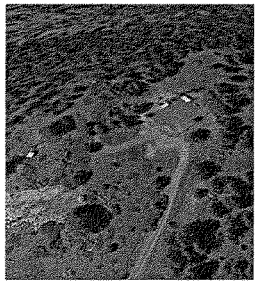
Cost:

- **Soft cost Estimates:** $35k
- **Hard cost Estimate:** $120K

On Air Estimate: 4Q2019

Site Justification : Battle Mountain PO0xxx2





Bull Mountain		
Category	Work, Live & Travel	
NSD	1	
Configuration	L600	
POP's Coverage	IBC %	**NA**
	IBR %	NA
	Outdoor %	100%
Post-Build Site Count	TMUS	**1**
	VZ	1
	AT&T	0
	Sprint	0

RF Objective:

- Currently no TMO coverage in this area.
- This site will extend coverage on Hwy 395 in central Oregon and will connect to John Day.
- Sq. Miles covered: 324
- VZ has coverage in this area.

Development Feasibility

Candidate List:

- ATC tower (44.83314 , -119.07144)

Telco:

- Possible Microwave, Fiber: unknow

Power:

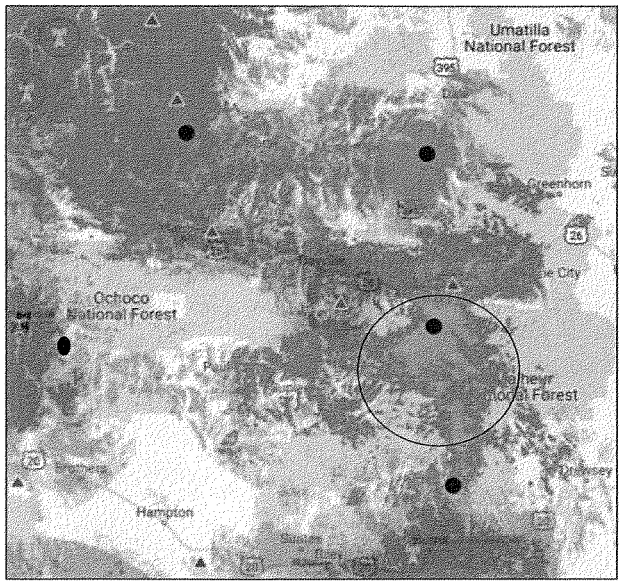
Candidates have commercial power

Cost:

- **Soft cost Estimates:** $35k
- **Hard cost Estimate:** $120K

On Air Estimate: 4Q2019

Site Justification : Fall Mountain PO01096



Fall Mountain		
Category	Travel	
NSD	1	
Configuration	L600	
POP's Coverage	IBC %	NA
	IBR %	NA
	Outdoor %	100%
Post-Build Site Count	TMUS	1
	VZ	1
	AT&T	0
	Sprint	0

RF Objective:

- Currently no TMO coverage in this area.
- This site will extend coverage on Hwy 39519 in central Oregon and will connect John Day and Seneca town.
- Sq. Miles covered: 269
- VZ has coverage in this area.

Development Feasibility

Candidate List:

- Multiple towers
  (44.29377, -119.04234)

Telco:

- Fiber at candidate A
- Also has LOS to existing

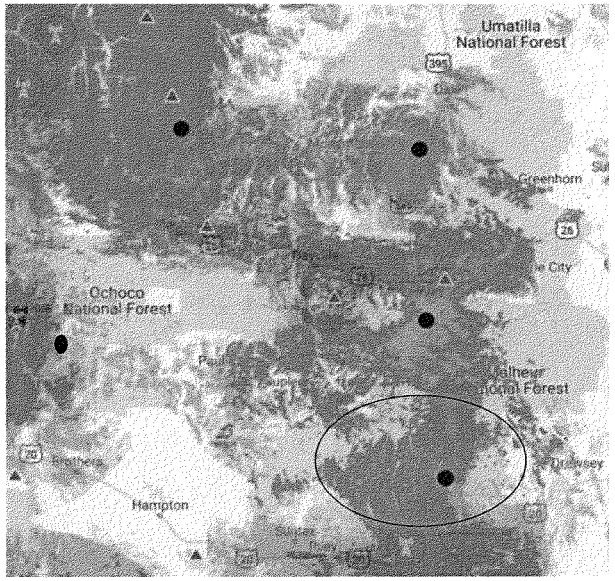
Power:

Candidates have commercial power

- **Soft cost Estimates:** $35k
- **Hard cost Estimate:** $120K

On Air Estimate: 4Q2019

Site Justification : Divine Ridge PO01097



Divine Ridge		
Category	Travel	
NSD	1	
Configuration	L700 +L600	
POP's Coverage	IBC %	NA
	IBR %	NA
	Outdoor %	100%
Post-Build Site Count	TMUS	1
	VZ	1
	AT&T	0
	Sprint	0

RF Objective:

- Currently no TMO coverage in this area.
- This site will extend coverage on Hwy 395 in central Oregon and will connect Seneca town with Burns town.
- Sq. Miles covered: 330
- VZ has coverage in this area.

Development Feasibility

Candidate List:

- Oregon Public Broadcasting
  (43.79155, -118.95793)

Telco:

- Microwave, Fiber: Unknown

Power:

candidates have commercial power

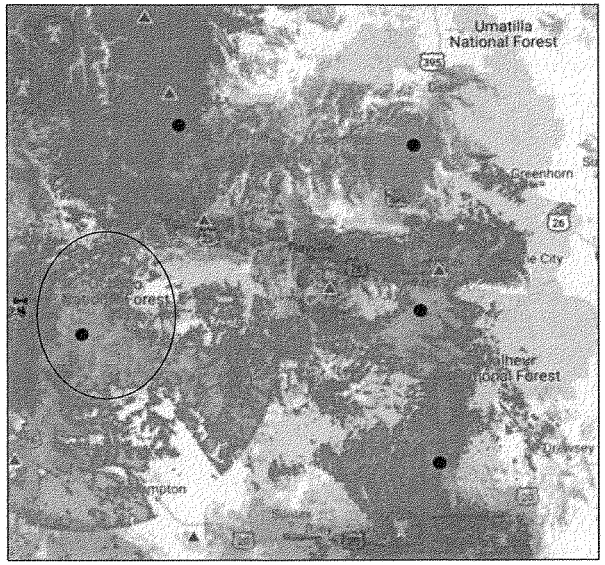
Cost:

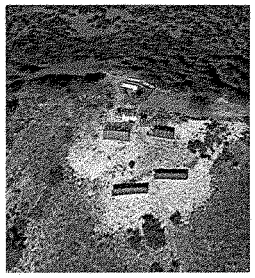
Soft cost Estimates: $35k

Hard cost Estimate: $120K

On Air Estimate: 4Q2019

Site Justification : Ochoco PO02340





Ochoco		
Category	Travel	
NSD	1	
Configuration	L700 +L600	
POP's Coverage	iBC %	NA
	IBR %	NA
	Outdoor %	100%
Post-Build Site Count	TMUS	1
	VZ	1
	AT&T	0
	Sprint	0

RF Objective:

- Currently no TMO coverage in this area.
- This site will extend coverage on Hwy 26 and will connect Prineville and Mitchell town.
- Popular destination in Central Oregon.
- Sq. Miles covered: 933
- VZ has coverage in this area.

Development Feasibility

Candidate List:

- ATC (44.21583, -120.57300)

Telco:

- Microwave, Fiber: Unknown

Power:

candidates have commercial power

Cost:

Soft cost Estimates: $35k

Hard cost Estimate: $120K

On Air Estimate: 4Q2019

LEGEND

Coverage

- IBC
- IBR
- Outdoor

Sites

- AT&T
- VZ (approx.)
- S (approx.)
- MLA Colo
- TMO - L700
- TMO – L1900
- TMO – L2100
- POR – New LTE
- POR - L600 Overlay
- POR - L700 Overlay
- POR - Midband Overlay
- Proposed NSD
- Proposed Overlay
- Proposed MOD

Stores

- TMO Existing
- MetroPCS Existing
- TMO Pipeline
- MetroPCS Pipeline

Misc.

- Targeted Area
- Cluster
- Live POP
- Work POP

T-Mobile

T-Mobile 600 MHz Cities and Towns

As of September 2018

AL
Aliceville
Bellamy
Carrollton
Coffeeville
Daleville
Epes
Gordo

AZ
Ash Fork
Bagdad
Cameron
Camp Verde
Chino Valley
Clarkdale
Cornville
Cottonwood
Dewey-Humboldt
Flagstaff
Fort Valley
Fredonia
Holbrook
Jerome
Kachina Village
Lake Montezuma
Lechee
Mountainaire
Munds Park
Page
Paulden
Prescott
Prescott Valley
Seligman
Sun Valley
Verde Village
Village of Oak Creek (Big Park)
Williams

AR
Helena-West Helena
Marvell

CA
Alturas
Anderson
Bertsch-Oceanview
Burney
Carrick
Cassel
Cedarville
Corning
Cottonwood
Crescent City
Daphnedale Park
Dorris
Dunsmuir
Edgewood
Etna
Fall River Mills
Fort Jones
Gazelle
Greenview
Grenada
Hiouchi
Hornbrook
Las Flores
Los Molinos
McArthur
Meiners Oaks
Millville
Montague
Montgomery Creek
Mountain Gate
Mount Shasta
Ojai
Old Station
Proberta
Red Bluff
Round Mountain
Shasta Lake
Shingletown
Smith River
Tehama
Tulelake
Vina
Weed
Yreka

CO
Antonito
Capulin
Conejos
La Jara
Manassa
Romeo
San Acacio
Sanford

ID
Ashton
Bennington
Driggs
Drummond
Georgetown
Montpelier
Newdale
Paris
Soda Springs
Tetonia
Victor
Warm River

IL
Ashley
Astoria
Barry
Beckemeyer
Carlyle
Chatham
Clear Lake
Dawson
Detroit
Dowell
Du Bois
Edgewood
Effingham
Elkville
Farmersville
Flora
Grandview
Greenville
Griggsville
Jacksonville
Jerome
Jerseyville
Kinmundy
Leland Grove
Litchfield
Lynnville
Marion
Mason
Mount Sterling
Mount Vernon
Mulberry Grove
Nashville
Opdyke
Pittsfield
Red Bud
Richview
Riverton
Rochester
Rushville
Salem
Sherman
Southern View
Spaulding
Springfield
Valley City
Williamsville

IA
Bartlett
Carter Lake
Council Bluffs
Percival

KS
Abilene
Alta Vista
Andover
Anthony
Arlington
Ashland
Augusta
Barnard
Bassett
Baxter Springs
Bel Aire
Belleville
Beloit
Bushton
Caney
Cedar Vale
Chapman
Cheney
Coffeyville
Coldwater
Council Grove

T··Mobile·

Derby
Dighton
Dodge City
Dorrance
Douglass
Eastborough
Edna
El Dorado
Elk City
Elkhart
Ellinwood
Emporia
Englewood
Erie
Eureka
Florence
Frontenac
Goddard
Greenleaf
Harper
Haven
Haysville
Hesston
Hill City
Hillsboro
Howard
Hugoton
Hutchinson
Independence
Ingalls
Iola
Jetmore
Junction City
Kechi
Kingman
Kismet
Leoti
Liberal
Longford
Lowell
Madison
Maize
Manchester
Marysville
McConnell AFB
McCune
McPherson
Meade
Medicine Lodge
Milford
Minneola
Ness City
New Cambria
Newton
North Newton
Norton
Oak Hill
Oaklawn-Sunview
Olpe
Osborne
Oswego
Oxford
Park City
Parsons
Peabody
Peru
Plainville
Portis
Pratt
Richfield
Rolla
Rose Hill
Russell
Salina
Scott City
Sedan
Severy
Smith Center
Solomon
South Hutchinson
Spearville
St Paul
Sublette
Syracuse
Talmage
Wakefield
Wamego
Wichita
Willowbrook
Wilroads Gardens
Winfield
Yates Center

ME
Anson
Auburn
Augusta
Bangor
Biddeford
Brewer
Brunswick
Caribou
Clinton
Ellsworth
Fairfield
Falmouth
Falmouth Foreside
Farmingdale
Freeport
Gardiner
Gorham
Gray
Hallowell
Hampden
Houlton
Kennebunk
Kennebunkport
Lake Arrowhead
Lewiston
Lisbon Falls
Little Falls
Madison
Milford
Naples
Newport
Norridgewock
North Berwick
Oakland
Old Town
Orono
Pittsfield
Portland
Randolph
Rockland
Saco
Sanford
Scarborough
Skowhegan
South Portland
South Sanford
South Windham
Springvale
Standish
Topsham
Waterville
Westbrook
Winslow

MD
Hutton

MI
Amasa
Baraga
Copper City
Crystal Falls
Gladstone
Hancock
Houghton
Hubbell
Ironwood
Lake Linden
L'Anse
Marenisco
Munising
South Range
Wakefield
Watersmeet

MN
Ada
Baudette
Biwabik
Cook
Crookston
Hoyt Lakes
Lake George
Mahnomen
Osage
Remer
Riverland
Shevlin
Solway
Strandquist
Thief River Falls
Warren

MS
Burnsville
Iuka
Lauderdale
Lula
Marks

MO
Airport Drive
Asbury
Auxvasse
Bloomfield
Bolivar
Brandsville
Brooklyn Heights
Cabool
California
Camdenton
Canton
Carl Junction

T··Mobile·

Carthage
Cassville
Centertown
Centralia
Clarence
Clark
Cliff Village
Clifton Hill
Cobalt
Columbia
Coney Island
Conway
Cross Timbers
Danville
Dennis Acres
Dexter
Dixon
Duquesne
Edgar Springs
Eldon
Excello
Fair Grove
Fidelity
Fisk
Fordland
Frankford
Fredericktown
Freeburg
Fulton
Gainesville
Hallsville
Hannibal
High Hill
Holliday
Huntsville
Jacksonville
Jefferson City
Jonesburg
Joplin
Junction City
Kimberling City
Koshkonong
Laurie
Leasburg
Leawood
Lebanon
Lewistown
Licking
Linn
Louisburg
Louisiana
Madison
Memphis
Mexico
Mine La Motte
Mountain Grove
Neosho
Osage Beach
Otterville
Owensville
Palmyra
Paris
Phillipsburg
Pomona
Poplar Bluff
Preston
Puxico
Quiin
Raymondville
Redings Mill
Renick
Salem
Sarcoxie
Seymour
Shelbina
Shell Knob
Shoal Creek Drive
Silver Creek
South Fork
St Martins
Steelville
Stover
Sundown
Theodosia
Vandalia
Versailles
Vienna
Waco
Waynesville
Westphalia
Willow Springs

MT
Baker
Big Sky
Cascade
Circle
Columbus
Dutton
Emigrant
Ennis
Fort Shaw
Grass Range
Greycliff
Havre
Havre North
Jordan
Judith Gap
Medicine Lake
Roscoe
Roy
Shawmut
Sidney
South Glastonbury
Springdale
Sun River
Sunburst
Valier

NE
Ashland
Chalco
Greenwood
La Vista
Nebraska City
Omaha
Ralston
Waverly

NJ
Andover
Avalon
Cape May
Diamond Beach
Erma
North Wildwood
Rio Grande
Ross Corner
Sea Isle City
Stone Harbor
Strathmere
Villas
West Wildwood
Wildwood
Wildwood Crest
Woodland Park

NM
Abiquiu
Agua Fria
Alcalde
Anton Chico
Arroyo Seco
Artesia
Atoka
Brazos
Carlsbad
Chama
Chamita
Chili
Chimayo
Chupadero
Conchas Dam
Cuartelez
Cundiyo
Cuyamungue
Cuyamungue Grant
East Pecos
El Duende
El Rancho
El Valle de Arroyo Seco
Eldorado at Santa Fe
Ensenada
Espanola
Eunice
Galisteo
Glorieta
Happy Valley
Hernandez
Hobbs
Hope
Jacona
Jaconita
Jal
La Cienega
La Huerta
La Mesilla
La Puebla
La Villita
Lamy
Las Vegas
Livingston Wheeler
Llano del Medio
Loco Hills
Los Alamos
Los Luceros
Los Ojos
Loving
Lovington
Lyden
Madrid
Malaga
Midway
Mora
Morningside
Nadine
Nambe
Newkirk

T··Mobile·

North Hobbs
North San Ysidro
Ohkay Owingeh
Pastura
Peak Place
Pecos
Pojoaque
Pueblito
Pueblo
Questa
Ranchos de Taos
Red River
Ribera
Rio en Medio
Roswell
Rowe
San Ildefonso Pueblo
San Jose
San Jose
Santa Clara Pueblo
Santa Cruz
Santa Fe
Santa Rosa
Soham
Sombrillo
Talpa
Taos
Taos Pueblo
Tatum
Tecolote
Tecolotito
Tesuque
Tesuque Pueblo
Tierra Amarilla
Vaughn
Watrous
White Rock
Whites City

NY
Chazy
Cumberland Head
Mooers
Parc
Plattsburgh
West Chazy

NC
Alliance
Arapahoe
Atkinson
Atlantic Beach
Aurora
Avon
Bath
Bayboro
Bayview
Bear Grass
Beaufort
Belhaven
Belville
Brices Creek
Bridgeton
Burgaw
Buxton
Carolina Beach
Chocowinity
Columbia
Creswell
Danbury
Fair Bluff
Fairfield
Fairfield Harbour
Frisco
Germanton
Grantsboro
Hatteras
Hightsville
Hobucken
Jacksonville
James City
Kernersville
King
Kure Beach
Madison
Mesic
Minnesott Beach
Myrtle Grove
Neuse Forest
New Bern
North Topsail Beach
Oak Ridge
Oriental
Pantego
Pilot Mountain
Pinetown
Piney Green
Pinnacle
Pumpkin Center
River Road
Rodanthe
Rural Hall
Salvo
Sea Breeze
Silver Lake
Sneads Ferry
St Helena
Stokesdale
Stonewall
Surf City
Swan Quarter
Tabor City
Trent Woods
Vandemere
Walnut Cove
Washington
Washington Park
Watha
Waves
Wilmington
Wrightsville Beach

ND
Alexander
Belfield
Berthold
Buffalo
Cando
Columbus
Crosby
Dodge
Dunn Center
Edgeley
Egeland
Hazelton
Kenmare
Killdeer
Larson
Leonard
Medina
New Town
Park River
Ray
Rolette
Stanley
Steele
Turtle Lake
Valley City
Velva
Voltaire
Washburn
Wildrose
Williston

OK
Allen
Altus
Apache
Arnett
Blackwell
Buffalo
Butler
Cache
Calvin
Carnegie
Centrahoma
Central High
Cheyenne
Clinton
Corn
Duncan
Elk City
Fairview
Fitzhugh
Forgan
Fort Supply
Foss
Freedom
Gotebo
Granite
Guymon
Haileyville
Hardesty
Hartshorne
Hobart
Horntown
Indiahoma
Jefferson
Lamont
Laverne
Lawton
Leedey
McAlester
McCord
Medford
Miami
Mooreland
Mountain Park
New Cordell
Oakwood
Optima
Ponca City
Pond Creek
Putnam
Reydon
Roosevelt
Seiling

T··Mobile·

Sentinel
Snyder
South Coffeyville
Stuart
Thomas
Tupelo
Vici
Walters
Waynoka
Weatherford
Welch

OR

Adams
Athena
Boardman
Bonanza
Brookings
Canyonville
Chiloquin
Cottage Grove
Dunes City
Echo
Elgin
Florence
Glendale
Gold Hill
Green
Haines
Imbler
Island City
Jacksonville
Kirkpatrick
Klamath Falls
La Grande
Langlois
Milton-Freewater
Mission
Mitchell
Myrtle Creek
Oakland
Pilot Rock
Riddle
Riverside
Stanfield
Sutherlin
Tri-City
Tutuilla
Umapine
Union
Wallow
Weston
White City
Winston
Yoncalla

PA

Annville
Archbald
Bellefonte
Blakely
Boalsburg
Brittany Farms-The Highlands
Burnham
Campbelltown
Centre Hall
Church Hill
Clarence
Colonial Park
Dickson City
Doylestown
Duncannon
Granville
Halifax
Hershey
Highland Park
Hublersburg
Hummelstown
Jacksonville
Jessup
Juniata Terrace
Lamar
Lawnton
Lemont
Lewistown
Linglestown
Lititz
Loganton
Longfellow
Lumber City
Mahaffey
Manheim
McAlisterville
Mexico
Mifflin
Mifflintown
Milesburg
Milroy
Mingoville
Mount Eagle
New Britain
New Buffalo
Newburg
Newville
Nittany
Olyphant
Oval
Palmdale
Palmyra
Paxtonia
Pleasant Gap
Plumsteadville
Port Royal
Potlicker Flats
Reedsville
Rutherford
Siglerville
Skyline View
Snow Shoe
Snydertown
State College
Throop
Union Deposit
Valley-Hi
Yeagertown
Zion

PR

Adjuntas
Aguada
Aguas Buenas
Aguas Claras
Aibonito
Añasco
Arroyo
Barahona
Barceloneta
Barranquitas
Buena Vista
Buena Vista
Caguas
Campanilla
Camuy
Candelaria
Candelaria Arenas
Candelero Arriba
Cayey
Cayuco
Ceiba
Cidra
Coamo
Coco
Comerio
Coquí
Corozal
El Paraiso
Espino
Fránquez
Fuig
G. L. García
Galateo
Guánica
Guayabal
Guayama
Guayanilla
H. Rivera Colón
Hacienda San José
Hato Arriba
Humacao
Imbéry
Ingenio
Isabela
Jayuya
Jobos
Juana Díaz
Juncal
La Parguera
La Plena
La Yuca
Lamboglia
Lares
Las Carolinas
Las Marías
Las Marías
Las Ochenta
Las Piedras
Lomas
Los Prados
Luis M. Cintrón
Luyando
Manatí
Maricao
Moca
Monte Grande
Morovis
Mucarabones
Naguabo
Naranjito
Orocovis
Palmas
Palomas
Parcelas de Navarro
Parcelas Nuevas
Patillas
Peñuelas
Piedra Aguza
Playita
Ponce

T··Mobile·

Potala Pastillo
Quebrada
Rafael Capó
Rafael González
Rincón
Rio Cañas Abajo
Sabana Eneas
Sabana Grande
Salinas
San Antonio
San José
San Juan
San Sebastián
Santa Bárbara
Santa Isabel
Stella
Tallaboa
Tibes
Toa Alta
Toa Baja
Trujillo Alto
Utuado
Vega Alta
Yauco

SC
Florence
Sellers

SD
Aberdeen
Armour
Corsica
Doland
Fort Pierre
Keystone
Lake City
Leola
Mellette
Miller
Mobridge
Northville
Pierre
Platte
Selby
Sisseton
Summit
Timber Lake
Watertown
White River

TX
Alpine
Ballinger
Big Spring
Bronte
Cienegas Terrace
Coahoma
Eldorado
Forsan
Fort Davis
Fort Stockton
Garden City
Junction
Lindsay
Marathon
Miles
Pecos
Pyote
Robert Lee
Rocksprings
Sand Springs
Seminole
Sterling City
Valentine
West Odessa

UT
Alton
Garden
Garden City
Hatch
Kanab
Laketown
Spanish Valley

VT
Alburg
Milton
Richford
Richmond
Shelburne
St Albans

VA
Amherst
Bedford
Blacksburg
Boones Mill
Cave Spring
Christiansburg
Cloverdale
Concord
Daleville
Elliston
Fairlawn
Glenvar
Henry Fork
Hollins
Lafayette
Lynchburg
Madison Heights
Montvale
New River
Pamplin City
Radford
Roanoke
Rocky Mount
Rustburg
Salem
Timberlake
Troutville
Union Hall
Vinton
Westlake Corner

WA
Banks Lake South
Benton City
Brewster
Bridgeport
Buena
Cascade Valley
Cle Elum
Connell
Coulee City
Donald
East Wenatchee
Ellensburg
Ephrata
George
Hatton
Kittitas
Lakeview
Leavenworth
Lind
Mesa
Methow
Moses Lake
Othello
Outlook
Pasco
Pateros
Quincy
Richland
Ritzville
Soap Lake
South Cle Elum
Sunnyside
Thorp
Toppenish
Twisp
Union Gap
Vantage
Wapato
Warden
Washtucna
Wenatchee
West Pasco
West Richland
Winthrop

WV
Kingwood
Masontown
Reedsville
Terra Alta

WI
Abbotsford
Aniwa
Antigo
Athens
Bayfield
Brokaw
Colby
Cornucopia
Crandon
Drummond
Eagle River
Eland
Glidden
Hayward
Hurley
Iron River
Knowlton
Long Lake
Marathon City
Mason
Mellen
Neillsville
New Odanah
Park Falls
Phillips
Rhinelander
Spencer
Stratford

T··Mobile·

Summit Lake
Three Lakes
Wabeno
White Lake

WY

Alpine
Alpine Northeast
Alpine Northwest
Alta
Antelope Hills
Antelope Valley-Crestview
Arapahoe
Arlington
Arvada
Bar Nunn
Bedford
Bessemer Bend
Big Piney
Brookhurst
Burns
Casper
Cheyenne
Chugcreek
Chugwater
Clearview Acres
Douglas
East Thermopolis
Eden
Edgerton
Elk Mountain
Etna
Evanston
Evansville
Farson
Fort Bridger
Fort Laramie
Fox Farm-College
Freedom
Gillette
Glendo
Glenrock
Granger
Grover
Guernsey
Hartrandt
Hill View Heights
Hillsdale
Homa Hills
Hudson
Jackson
Kelly
La Grange
Lakeview North
Laramie
Lingle
Lost Springs
Lucerne
Lusk
Lyman
Manville
Marbleton
Medicine Bow
Midwest
Mills
Moose Wilson Road
Mountain View
Newcastle
Nordic
North Rock Springs
Osmond
Rawlins
Red Butte
Reliance
Riverton
Rock River
Rock Springs
Sinclair
Slater
Sleepy Hollow
South Greeley
Star Valley Ranch
Teton Village
Thayne
Thermopolis
Torrington
Turnerville
Upton
Urie
Vista West
Wamsutter
Warren AFB
Westview Circle
Wheatland
Whiting
Wilson
Worland
Wright
Y-O Ranch