

THE BROOKINGS INSTITUTION
WEBINAR

HOW CLOSE IS THE US TO UNIVERSAL BROADBAND?

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Fireside Chat:

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P R O C E E D I N G S

MS. LEE: Well, hello, everybody. Good morning, to those of you watching us in the United States and across the world. I'm Dr. Nicol Turner Lee. I am the senior fellow in Governance Studies and the director of the Center for Technology Innovation at the Brookings Institution.

And I'm really excited about today's conversation because those of you who know me know that I care about broadband. And in particular, I care about closing the digital divide, which by the way, I am almost done with my book, I promise. We're just going through some editorial changes, but hopefully, that book will be out, *Digitally Invisible: How the Internet is Creating the New Underclass*, before the end of the year.

But today, I am very excited to have someone who I've considered a friend over the last decade. I've known him that long. Who has been appointed by President Biden to become the Assistant Secretary for the National Telecommunications and Information Administration, NTIA, as we know it, at the U.S. Department of Commerce. And today's conversation is around this charge that Alan Davidson has, which is to close the digital divide and to express universal broadband across the United States.

So, we're going to do this in two parts today, my friends. We're going to start with Alan and talk a little bit about where the Agency is, where he is in terms of his vision, where the President is, in terms of thinking about closing the universal broadband gap. And then we're going to go into a panel discussion with a mix of community state leaders who are going to talk a little bit about what they're doing at the local level. So, I'm really excited about how we're going to spend this next hour.

Listen, if you're following us on Twitter, use the #UniversalBroadband. And for those of you who want to ask questions, please submit them via Brookings, I believe, @events. I'll get the hashtag right because I'm not getting it in my head right now.

Events@brookings.edu, I think it is, or put them on Twitter. And we will definitely look for those questions to ask of the panelists. So, with that, thank you, Alan for joining me.

MR. DAVIDSON: Thank you. It's great to be here.

MS. LEE: Oh, I know it's great to see you again, as always. So, listen, I want to jump right into it. And I want to particularly do some level setting because there are some people who do not know specifically how NTIA and Congress has allocated out the 65 billion that's going to you only at NTIA. Can you speak a little bit about the money or the allocation -- I'm sorry, for broadband 65 billion, and then what you're getting. I tried to inflate what your budget is there for a minute. I know you were happy, but I'm not President Biden. So, tell me a little bit about what you're doing with your 46 billion of money.

MR. DAVIDSON: Excellent. Well, first of all, let me just say thank you. Thank you to Brookings for hosting this important event. And thank you, Nicol, for hosting and for that introduction and also, for your years of leadership in this field. As you say, we know you care and you've been in this space for a long time doing this important work.

And I will say, it's an exciting time to be in this space, right? We have been talking about the digital divide in this country for what, over 20 years. And now, thanks to the Bipartisan Infrastructure Law and the leadership of President Biden, we have been given -- really given the resources to structurally do something about it. To structurally close that divide. And so, that makes this an exciting time.

So, here at NTIA, actually, the Bipartisan Infrastructure Law gave us 48 -- it's a little over \$48 billion in funding. And our mission is to ensure that every American -- this is the mission we've been given -- that every person in America will have access to high-speed, reliable, affordable Internet service, and to increase meaningful adoption of the Internet by all communities, including and especially the communities that have historically been left behind.

And so, we've got, actually, a bunch of different programs. And I'll just tick through them really quickly and we can dig-in on them. The biggest that you'll hear about is \$42 billion. That's a big, big pot of money, for the State Access Program. It's a state grant program to fund infrastructure buildouts really focused on access to the unserved, those who do not have at least a decent speed of broadband. There is a second -- so, that's the big money program and it, again, it's state -- grants to the states who will then give out the money.

The second program that we have, almost \$3 billion in the Digital Equity Act. So, these are, I think of this as almost like the beating heart of what we're trying to do, which is really focus on addressing digital inclusion and equity. There's \$1 billion for a Middle Mile Program that we're going to be implementing. And that's really like a force multiplier. You build out the middle mile infrastructure and it helps you with all of the other things that we're trying to do in terms of building up the last mile.

And then we received \$2 billion in additional funding for our Tribal Broadband Connectivity Program. And that's an incredibly important program. We launched it last year and we're wildly oversubscribed. These Tribal communities really need connectivity. And so, we're going to get more money to do that.

So, we've got those four programs. And the beauty of it for us is we can braid these programs together, use them together to, you know, ultimately serve that bigger goal of meaningful adoption by everyone in America.

MS. LEE: Yeah, and I like the way you're thinking about it. We'll get a little bit more into that shortly in terms of the coherency, right, of these funds --

MR. DAVIDSON: Mm-hmm.

MS. LEE: -- so that they're spent in a manner that they complement their multiplier effect, right?

MR. DAVIDSON: Right.

MS. LEE: Tell me a little bit about timeline. Because I know I get asked a lot of questions about, you know, what is the Agency thinking about in terms of the distribution of these funds particularly since, you know, this has some legislative authority designated to it?

MR. DAVIDSON: Well, each of those programs is on its own timeline just to make it extra, a little bit extra confusing. And I will say, we're also working in close consort with sister agencies, you know, there's the Treasury has its program. The FCC is doing its work to promote the culture. But we're hoping to make this pretty easy for people as well. And so, the big thing for us is next month by May 16, which is the statutory deadline, we will be releasing our first notice of funding opportunities for our big programs, for that \$42 billion state grant program, for the Digital Equity Program, and for our Middle Mile Program. And that's the starting gun.

And so, after that -- and those notices will lay out how the programs will be built and how people can participate. The biggest thing is that state grant program, the biggest one. And the immediate thing that will happen is states will immediately be able to submit letters of intent to us. We're going to be pushing to get those letters of intent in. Once those letters come in, we immediately can send the states \$5 million planning grants so they could start building out their plans. And that will be an important piece of this and for people to be engaging with their states to make sure those plans come out well.

Then states will embark on this planning process. They're supposed to, under the statute, develop five-year plans, and then submit to us an initial plan ultimately about how they propose doing their grant making processes. A bit of this is dependent on mapping and we could talk more about that. But a big piece of this is that we want to make sure we're really accurately deploying the money. The allocation of these funds depends on

where people are unserved. And so, for that we're going to be using the FCC's maps. The FCC is in the middle of a big mapping development -- mapping improvement process, very important. And starting in the fall, we will see the first iterations of that data they're collecting. There will be a challenge process for people to make sure that data's accurate and then we'll be using it for allocations.

So, as you get a sense, it's, you know, there's a lot of steps here. But I could say -- and then for each of the other programs, the Middle Mile Program will begin fairly quickly. After this notice, the Digital Equity Program. States will be submitting capacity grants soon after the notices go out. So, in each of these, there's going to be kind of running in parallel, but really the starting gun is next month, which is very exciting for us.

MS. LEE: Okay. So, you know I got to ask, right? Because I'm sure there are other people --

MR. DAVIDSON: Right.

MS. LEE: -- like me. So, I think I heard you say that the maps will actually be completed probably later in the year, but the states are going to be planning earlier in the year. And the focus is on unserved and underserved communities. So, I want you to talk about a little bit about the mapping, Alan, right? Because that's sort of been the problem we've had when it comes to closing the divide, because we don't know where the unserved and underserved really are.

We kind of have a sense of it in rural communities, in urban communities, maybe a little bit but not so much. I'm curious what kind of guardrails are you putting in place to ensure that the mapping, you know what I mean, will coincide with the allocation of the funds and the planning. I'm sorry, I --

MR. DAVIDSON: No, it's --

MS. LEE: -- just had to ask that.

MR. DAVIDSON: No, it's a terrific question. And as folks know -- you're spot on -- the maps in the past haven't been as good as we'd like them to be. It's been a real issue. And the good news is that FCC has got a process in place that I think will really - - will have much better maps when this is done.

They're going to be much more granular. The old ones were based on a census block. So, if one person has service in the census block, it was everybody was counted. This will be much more granular and the FCC's already announced a process for doing that. And I think, you know, it's going to be very important -- yes, the states will launch their planning processes immediately -- but there's going to be an iterative nature to this where the data gets better and better. And already we've -- I will say, we've already started to get better data here at the Commerce Department. We publish our map. It won't be the definitive map, but it gives people indicators. We know that the private sector is developing really good mapping capabilities. Different states are doing it. But it's all going to feed into - - and ultimately the FCC map will be the definitive map that we use for allocations. So, I think we do -- that's why, you know, this is a gating item --

MS. LEE: Mm-hmm.

MR. DAVIDSON: -- because we don't want to make those final financial allocations without having good maps that show us where the unserved are. And that's why, as you say, when people say, well, why aren't we just doing this right now? We're going to wait until we have good mapping data coming out of the FCC in order to make sure we're doing these decisions properly.

MS. LEE: Well, that's good to know. I mean, I know that Chairwoman Rosenworcel has been on the case, right?

MR. DAVIDSON: She has.

MS. LEE: Trying to ensure that she's doing her part with the allocation of

funds as well.

MR. DAVIDSON: And I --

MS. LEE: Talk to me a --

MR. DAVIDSON: -- I will say --

MS. LEE: -- bit -- yeah.

MR. DAVIDSON: -- we are working -- not to interrupt -- but I'll just say, we are working very closely with the FCC and they've been great partners for us. They are on it, as you said. And we're working very closely to make sure we're in sync.

MS. LEE: Talk to me a little bit about the states and how they're going to create plans that get some of the feedback from local communities. How is that going to look in the planning process? Or how do you think it should look? Because that's going to be a conversation we'll have with the panel.

MR. DAVIDSON: The states are incredibly -- again, for this big money program, for the main deployment program, what we call the B program, that program, that state grant program, as I say, a state grant program, it really relies on the states. So, and we know that different states are in different places on the spectrum of preparedness, right, for this. So, I think it's going to be critical for states to build out their broadband offices to be ready to figure out how to run these grant processes well.

And one thing that we've said to the states is -- and actually, the law says this -- they must do this in consultation with local communities. So, and we are instructed to spell out some of what that means. So, our hope and expectation is that state broadband offices will work with local communities, who are the ones who ultimately know, you know, where the unserved are, you know, what their communities need, and so that they'll be an instrumental part of building these plans. And it will also be incredibly important for the digital equity plans that they're building.

So, the statute instructs us and I think you will see as we put these documents out, you know, clear guidance for states about how to -- about the need to engage with their local communities. And we know it's not going to be a one-size fits all solution. You know, what Rhode Island needs is different from what Montana or Alaska need. But local community engagement is going to be a key part of all those plans.

MS. LEE: And I love the way that you're talking about it, right? Because I think, you know, the local community engagement is going to be important to the digital equity side of it, which are, you know, how do you get more people connected to the resources of the Internet as well as the deployment side, right? Because I think there's a conversation going on now that the deployment is not necessarily community based. So, I really love the way that you're stressing local communities need to be part of the infrastructure, the architecture, too.

MR. DAVIDSON: That is the hope. And I will also say, you know, we know probably one of the most important things that we can do to help is invest in support for states and support for local communities. So, the biggest thing that we're really building here at NTIA is a team of people who will be offering technical assistance to states and communities. And our plan is really to have somebody here that's assigned to each state.

MS. LEE: Mm-hmm.

MR. DAVIDSON: So, every state broadband office will know who is the person at NTIA that they can call if they have any questions, and more -- or email, I guess -- and more importantly, you know, somebody who's waking up. Or as importantly, somebody who's waking up every day and thinking how do I make sure, you know, my -- that these states succeed?

And so, we're building that now. We're hiring. If you know good people, we are looking for folks. I think this will be an all of -- all of government approach, but really, this

is going to be a place where we need people all over the country to be mobilizing. And we'd love to have some of them here.

MS. LEE: That's a great commercial, right? For people who --

MR. DAVIDSON: Yeah, so, I'll take every --

MS. LEE: -- who are watching.

MR. DAVIDSON: -- every chance I can to advertise.

MS. LEE: Let me ask you this before we move on to the digital equity stuff and closing the divide and wrap up our conversation just shortly. You know, I know when we were together the last time, there has been like this conversation that's evolved since our conversation of the state of net on the technology, right? What the network should like. I'm curious, because I know you've been saying, you know, the statute says X. Are we seeing more conversation about that since we talked in January in terms of is it fiber, is it something else? You know, is it -- can we use other technologies to expand broadband infrastructure?

MR. DAVIDSON: It wouldn't be a Zoom call if we didn't have -- if that didn't happen --

MS. LEE: You're right.

MR. DAVIDSON: -- at least once. We have certainly received a lot of input and conversation about this question of, you know, of technology. The statute is fairly clear that there's, you know, we need to be technology neutral. And we know that it's not going to be a one-size fits all approach. Again, different states are going to have very, very needs and different communities within states.

At the same time, we are really focused on how we can make sure to give everybody the best broadband possible for them. And in many cases, we know that the most resilient, you know, extensible technology is going to be fiber, right? In many cases. And so, we expect that states are going to put their thumb on the scale and will invest

heavily in fiber.

But we're also committed to any technology mix that will meet that broadband need. And we also know that in some places, that's probably not going to be fiber, in some very hard to reach places. So, states will be figuring this out. And I say, we're guided by this idea of giving everybody the best broadband that's possible for them. And the fact that we do not want to be back here 5 or 10 years from now having this conversation again, saying to Congress we need more money because we didn't do it right the last time. We need to be resilient to the future needs of people online.

And if you and I had been having this conversation 15 years ago, 10 years ago, we would probably not have picked the speeds that we're implementing at today. So, who knew? But we want to make sure we're building in a way that's resilient to the future.

MS. LEE: No, I so agree. And like you said, I think, you know, this is our next opportunity and we can't blow this, right? As you've always said, like we've got to get this right. So, I think states need to really do the type of rolling up their sleeves to ensure that they're putting out the right solutions for their communities, particularly those that are unserved or underserved.

You know, Alan, I want to shift to the digital equity side of it just in this last few moments with you. You know, I write in my book my experiences of being both a top recipient, a technology opportunities program recipient, a B top --

MR. DAVIDSON: Right.

MS. LEE: -- top recipient twice, in terms of when it shifted to the Broadband Technology Opportunities Program. For those of you who don't know, I was a digital evangelist for many years working in local communities. And now, we're here again. And I'd love to hear more, and I think most of the people listening, on how this time will be different. So, talk a little bit about digital equity and how we know we're really going to move the

needle this time in closing the divide.

MR. DAVIDSON: Well, you know, this has been -- the arc of history bends towards digital equity if I were to, you know, kind of paraphrase, right? Like I think we have an improved -- I think the best thing I can say is we have a much better understanding, a much broader understanding of the importance of equity issues in thinking about broadband than we had a decade ago, right, I would suggest.

And I think we understand, people really understand it's not just about access. You could put a wire past somebody's house or make the -- but if the connection's not affordable, it doesn't help that family. If the connection's affordable and they don't have a device to get online, it doesn't help that family. If they get online, but they don't any idea what to do if the applications don't work for them, if they're not in the language that they need to be speaking in, it doesn't help that person or that family.

And so, I think we are looking at this holistically. And I think we have a community that's looking at this with a real understanding that driving towards meaningful adoption for a broad set of communities, that has to be our ultimate goal here. And the other good news is that we've been given resources to do that in a new way. And not just us, I think you talked about the affordability work that's happening at the FCC, the ACP program. You know, we should be out there getting people -- I'll just -- another commercial message. Sign up for the ACP if you're eligible get -- you know, we should be working all together to be getting people to sign up for the ACP if they need it and helping communities do that.

But it's more than that too. It's the Digital Equity Act programs that I spoke about. It's really thinking about how we measure our success too in ways that capture the need to get a broad set of communities online regardless of your race, income, where you live, that you'll have the tools and skills that you need to succeed when you get online too.

So, that's I think the optimistic note is that I think we're aligned in that across

the administration. We've gotten a bunch of different tools in the toolkit now to do it. And working with communities and folks in the community like yourself, our hope is, you know, we'll get ever closer to that world we're looking for.

MS. LEE: Yeah, and I hope that as we go through this next stage together, you know, I think the country is committed to this. I told somebody I've never heard the digital divide so mainstreamed in my lifetime.

MR. DAVIDSON: Right.

MS. LEE: You know, and Larry Irving started it, but it's like, you know, it's had its ebbs and flows in terms of people actually putting it into their everyday feat. But my hope is that we'll also see the digital divide as something that is symptomatic of poverty and isolation and other isms that affect people, racism, and housing discrimination. That we'll focus there too, right? Because this is not about bits and bytes. This about full participation in the digital ecosystem.

Which brings me to just a couple last questions. You know, affordability, like you said, is going to be key. And you did bring up that you're going to have to coordinate with your sister agency to make sure that this works. Because, obviously, the more we build, we can't just have supply. We also have to have demand. Where are the metrics? How are we going to measure success? So, when you and I have this conversation in the next couple of years, what are going to be the metrics of success in efficiencies around, you know, what we did well and what we didn't do well in this tranche?

MR. DAVIDSON: Well, it seems that we've been thinking a lot of that. And I will -- and it's a great question. I think, you know, the easiest measure will be in some part around the access piece, right? I mean, we are -- we've been given this mission, access for everyone. And that's the -- but that is just the starting point. And that's why we are keenly interested in looking also at adoption.

Who's actually online? And are they meaningful participants in the digital economy, right? So, that they are working, getting the education, thriving online. And those are harder things to -- some of those are easy things to measure, some of them are harder. But those are the kinds of metrics that I think we need to look to for success.

And we want to work with the broader, you know, community of folks who've been thinking about this for years, right? That we have an inclusion in equity community, you know, that we're very lucky in this broadband world of how the community of people who have been working on this for years, we've heard from them. And we want to work more with them and with you all on these issues.

MS. LEE: Yeah, and I would think that you're also working across agencies. I think you had mentioned that to me that, you know, there's a stake in the game for the Department of Education and Department of Labor. Want to share like what that activity is like so that people understand that you're not just in your bubble here?

MR. DAVIDSON: Well, and right, we really are -- I mean, we do -- first of all, we know that people outside of the beltway don't care whether the money's coming from the FCC, or the USDA, or the NTIA. They just want to make sure that they're getting the support they need. So, one-stop shopping is one thing that we're all working on together. We're coordinating on data.

And then these other opportunities. So, for example, a big one is workforce development, right? We're going to create tens of thousands of jobs in the deployment of these \$48 billion, right? We want to make sure those jobs go to diverse communities. That people in the states that they're working, in the communities are the people who help, are building the networks, right?

So, there's a big workforce development opportunity. We're working with our colleagues on that. Big education opportunity as you mentioned. So, we we're working

with our colleagues at DOE and across the administration. And this is one area where, actually, I will say -- the administration has worked very hard to pull us all together and make sure we're all rowing in the same direction. So, as one of the rowees, I will say it's working pretty well so far. So, --

MS. LEE: Well, that's really good.

MR. DAVIDSON: -- stay tuned for more, yes.

MS. LEE: Right, exactly. That's good to hear. Well, you know, I'm excited. I mean, at Brookings -- here's a couple of plugs -- we'll have some research coming out on Black rural broadband use, Hispanic rural broadband use. Some empirical study that we're doing. Hope to share those results with all of you. And we're actually doing some work on the types of broadband jobs that should be available to citizens of color. How do we get more Hispanics, African Americans, people from Tribal lands involved in some of the broadband opportunities.

You know, Alan, I've known you for a long time. You're a person who takes on a challenge when it is presented to you. I have known you since you started in D.C. opening up some really challenging, interesting offices. As we wrap up our conversation there, what do you want to be known for when this is all said and done?

MR. DAVIDSON: I want to have -- well, we would like to have done our part to connect everybody in America with a meaningful connection to the digital economy and to the things they need to thrive in this world. You know, I think about, you know, there are generations before us who, you know, brought electricity to rural America, or built the interstate highway system. Really, this is our moment, right? This is our big challenge. It's kind of amazing we, Nicol, you've been working in this space for a long time too. And we can --

MS. LEE: I am only 20, Alan. Stop making me old.

MR. DAVIDSON: You started as a teenager I know. But we started as teenagers together. But if we had thought back then that we would be here in 2022 and there would be so many people and so many communities that are still left behind online, right? That still don't have meaningful access, don't have the opportunity to get online, don't have the support they need to get online and thrive. We would be surprised that in the richest country in the world in a country like America, that that would be -- that we've left so many folks without an ability to thrive in a digital economy. And that's something that we need to fix. And the good news is we've been given the resources to do it.

So, this is our moment. It is going to be hard. We've talked about some of the things that are going to be hard. It is something that is, as I said, generations did this before. They had money, but they also had to work at it. And it's going to be an all of government approach. It's really a community approach, a whole of nation approach. So, I would just invite everyone to get engaged in this. The next few years are going to be very important in this space and there's a lot of work for us all to do.

MS. LEE: Yeah, thank you for that. And I appreciate you actually sitting in that seat and sharing with us today what, you know, the big picture looks like and some of the challenges that you think we're going to have going forward without the lack of cooperation. And really putting people into the conversation today who may have heard the umbrella version of this, but now have a sense of where this support is going. And we forgive you right now. You're in your early stage as you try to figure this out. Because it sounds like it's a lot of moving parts and a lot of moving timelines but thank you for what you're doing.

MR. DAVIDSON: Thank you for having us and for engaging. And, again, the invitation is there. We want to hear from you. And this is going to be a real community effort to make this work the way it needs to for all of America.

MS. LEE: That's right. Thank you so much, Alan. I appreciate you --

MR. DAVIDSON: Thank you.

MS. LEE: -- as well. Thank you. And you know what? We're going to continue this conversation, folks. Please keep tweeting at #UniversalBroadband. If you have questions, send them to events@brookings.edu. I got it right this time. Because we're going into the second conversation, which is to sort of unpack at the local level what we just talked about that is happening at the federal level.

And, so, I'm really excited by the people that I've asked to join me today. Many of these people I've known for a long time working in this space. I'm going to introduce everyone and then we're going to jump into questions. But the most important thing I think we heard so far is that there's a lot of activity and I think a few commercials in terms of the needs that the NTIA has right now, as well as state broadband authorities. So, if you are in a particular state trying to figure out what is going on with broadband infrastructure, reach out to your state officials. And if you are a community organization, which is why I'm so excited about this second panel, and you are trying to figure out how you can help, do what you do and reach out to your state officials so they know and hear you.

And guess, what? I got a couple of those people on this panel. So, this second panel we're actually going to dive into some deeper conversation around this, which I think you all heard what Alan had to say in terms of the broad strokes of the money that they've been allocated at NTIA. I wrote it down in terms of the figures. But it's something that we should repeat again, 42, two and two, right? In terms of deployment, equity, as well as Tribal.

So, with that I want to introduce our panelists for the second session. We have Peggy Schaffer, who is the director of ConnectME out of the State of Maine. We have Matt Rantanen, who is my friend for many years. We both did not have gray hair when we

started this. Who is the director of technology at the Southern California Tribal Chairman's Association. We've got Dianne Wells, who is the deputy director of the Minnesota Office of Broadband Development. And we've got my other dear friend, Dr. Fallon Wilson, who is the co-founder of #BackTechFutures. Also, the organizer of Black Churches for Digital Equity, and a vice president at the Multicultural Media and Telecom Council. Welcome, everybody.

Let's jump right in and I need you all to unmute because, guess what, we're going to take this conversation and have sort of ping-pong in terms of stuff. If you just have background noise, feel free to unmute. But, Peggy, I want to start with you, right? Because I think in your case with regards to the broadband funds, the state has already started to think about how they want to allocate and do some of this planning. So, jump us into your role for a day as to how you're thinking about the broader responsibility that the State of Maine has and what you've done through your broadband authority to sort of answer some of the statutory requests while at the same time, addressing the needs of the unserved and underserved.

MS. SCHAFFER: So, thanks for having us. You know, Maine has been engaged. One of the pieces of this as you talked with Alan about is the importance of the community activity, community planning. And Maine's been deeply engaged in community planning since about 2015. We have well over 300 communities that have been engaged in a conversation about how to improve broadband. Some of them more successful than others. But it's this conversation that talks about, you know, where service is in our community, the importance of the quality of service, the importance of universal access, and most importantly, the understanding of the digital equity challenges in that community. What are the needs around affordability? What are the needs around digital inclusion? How do we make sure that people have the device and the skills that they need to actually use this really important infrastructure to their best advantage.

And so, we've had that in place for a while. You know, Maine hasn't had a lot of money to do infrastructure. So, planning has been a key piece of what we've been doing. And I think that puts us in a good place for this, right? It puts us in a place where we are ready. Communities have been engaged. Communities are ready. They've been thinking about how they want to this, who their partners are going to be, whether they want to own the infrastructure. All of that has been going on and so, as we, as a state begin to plan how we're going to deploy this funding, all of those conversations come into place. And put us, I think, in a pretty good place to put together the five-year plan that we need to do for NTIA. To really identify how we're going to address this digital divide in Maine once and for all.

We also had created a new sort of entity. So, ConnectME has been around since about 2007. And we have some guardrails in our statute that makes it difficult for us to invest in a lot of different places with a lot of different options. And so, last year we created a new authority called the Maine Connectivity Authority, which really has broad authority and broad power to think about different options. Like the state could own middle mile. That authority could own middle mile. They could own last mile.

So, in places in the state where we really don't have a lot of interest, they could come in and say this is a, what would call, a deep dark hole. And we, as a state are going to be the owner of this network, get it up and running, and then figure out what the next steps are of that ownership, right? So, that's one of the powers that this authority has.

It also has the whole idea of digital equity built right into its charge and its statute. And so, I think that when in Maine, we start with not just how we're going to run the wire by people's house, but how we're going to make sure they can actually use it. And we've developed strong partnerships across the state, really strong partnerships across the state because, you know, like most state entities, we have, you know, one or two people

working for us. And so, but the partnerships that we've developed across the state through a group called the Maine Broadband Coalition, which is a whole variety of consumers and industry activists like the Maine Farm Bureau and the Island Institute have been key to how we've actually done this outreach.

And so, we have a good base of building up community support. This new money is going to supercharge that. And it's also going to finally fund the infrastructure that these people have been planning on for a while. So, we're really excited about this funding. And we, you know, Maine has been trying to get ready for this money for about three or four years, you know, hoping. Hoping and hoping that it would come. And now it's here and we're ready.

MS. LEE: I love to hear that. Look, you are ready. It sounds like it. You know, Diane, I want to actually pitch it over to you. I have a lot of respect for the State of Minnesota because years ago, almost six or seven years ago, I heard about this mapping project that you guys were undertaking. So, I want to hear a little bit more about what's been going on with the mapping project, as well as the accuracy of those maps, and sort of tying back into what Alan talked about, whether or not Minnesota is going to use the data that they've collected to sort of drive the planning.

MS. WELLS: Thanks, Nicol. And, yes, we had a state law passed in 2007 that required us to do state-level broadband mapping. We produced our first map in 2008. And then the Aura-funded SBI Program came along and took that function and paid for it for five years where the states developed broadband mapping that was fed into the national broadband map. Then in 2015, we picked that up and continued with state funding to keep our mapping effort going.

So, we have all wire line providers now directly submitting to our mapping vendor their broadband infrastructure, either at the address level, the service area level, by

their equipment location, or they give our vendor the most recent FCC Form 477 data. It's submitted to our mapping vendor. They review it. They can verify it through what we have in our contract, which is three, one-week field validation trips in Minnesota.

Our communities are very familiar with those maps and they work through our office. If they feel that there are areas incorrectly portrayed on that map, to get that corrected. And then we can also overlay, for example, federally announced funding areas on the map. And then when residents contact our office to see what might be available for them, we know what's there or what is planned to be coming through either our state grant program or the federal programs.

We also use those maps as a starting point for determining areas that are eligible for our state grant program. We've issued six rounds of grants totaling \$126 million to get broadband built out to about 57,000 locations. We intend to use that map as part of the capital projects fund infrastructure once we get Treasury's approval of our program plan to start that grant program. And we plan to use it with the BEAD funding that'll be coming available.

We also feel that positions us very well to look at those new maps that the FCC is preparing. And if we see areas where we think that it will make a difference in our allocation, we will be talking to whoever is handling that challenge process, whether that's NTIA or FCC. So, we feel good with the history of our maps in where it's put us today to be ready.

MS. LEE: That's right. Yeah, I mean, you know, look, I always point to Minnesota's maps, to tell you the truth, when people ask me what state has done mapping? Because I heard your presentation probably the same time you were coming out at the Broadband Community Summit. And I've just been impressed by the diligence there because that's going to drive this. So, Peggy, look, I'm looking at you. And I wish I could

bring you and Diane together to sort of create this guardrail.

Now, look, Matt, you and I have been in this space, as well, for a long time. And Tribal communities, you know, for the first time we're seeing a real allocation of support for our friends there. And I really want to speak to you because I know you have been critical in the past of the type of efforts we've had to not only bring deployment, but also adoption. But then you've also had challenges when it comes to sovereignty issues, et cetera, when it comes to Tribal lands. I want you to talk a little bit about that and where you see the Tribal communities playing in terms of the benefit from what we've spoken about with the NTIA money.

MR. RANTANEN: Sure. It's good to see you again. It's been a while. Thanks for having me. So, yeah, you know, for the first time, you know, Tribes have been included in, you know, this legislative mandate in a large sum of money that goes directly to the Tribes. Typically, things flow through the Fed, flow through the state, and aren't as effective as they could be. So, finally, we're getting money directed, you know, specifically to the Tribes.

Alan already said this, so, I'm just going to repeat it and hammer it home, that it is well oversubscribed. The, you know, approximate \$3 billion that is allocated towards Tribal coming up in the next round, the extra two. We've seen an oversubscription, a dramatic oversubscription. For the first billion, we saw 5.84 billion in ask from only half the Tribes. So, we do have a huge deficit.

The Tribes are very eager to start to deploy their own communication solutions because, you know, the previous methods for the Federal Government to be able to support Tribes' communication needs have failed. And so, Tribes have taken it upon themselves to do this. So, they've graduated into a space where they now are understanding, you know, tech and communications. They're understanding their needs.

They're doing, you know, feasibility studies and assessments and broadband plans. And, finally, there are dollars to support this. However, that dollar amount is likely one-third of what needs to be spent in Tribal communities to be able to do this. Luckily, not everybody's ready today. But those that are ready, have demonstrated need that's far beyond what's available.

So, you know, we're a little concerned. Also, the delay of the announcement of the grant funding from NTIA has put people in a spot where they assumed that they were going to understand their grant awards at the end of last year. Now, we're looking at potentially the end of June. And a lot of projects have been, you know, put on hold or on pause trying to figure out, you know, what the next step is and whether or not they will get that funding to support their needs.

How do you look at other federal programs for the same exact ask when you've applied for that money for a specific ask? You don't want to duplicate efforts and cause problems. So, it's a little bit confusing at the moment for Tribes to figure out like, you know, what the next step is. And do I oversubscribe for the funding I need to do this? Or do I wait to find out? So, there's a pattern there that it's a little bit problematic. But Tribes are very eager to get access to the funding and are very prepared to start the deployment and it's been a long time coming.

MS. LEE: Yeah, you know, it's so interesting that you say that because I think these are -- you and I both know these have been persistent issues, right? When we have federal allocations come out and then we have sort of the bureaucracy, the middle, to actually get the funds directly to the people who need it. And I'm sure Peggy and Diane are going through that too in terms of thinking about that transfer effect.

But before we go into some of those larger issues, Dr. Wilson, I want to speak to you because one of the things I think you have done so fantastically is you've

actually motivated people on the ground, particularly the faith-based community that are not the typical anchor institutions, right? Normally, the anchor institutions are schools and libraries. But what you've done is said, hey, let's get community, real community-based organizations that represent people of color into this conversation so they're on the, not on the passive end, but on the active end. Talk a little bit about what that has looked like in terms of just your work with the Black church community, but also what that looks like getting local people to understand what this actually means to their future.

MS. WILSON: Yes. Number one, I'm so happy to be here with all of these amazing State and Tribal leaders who are doing great work in their communities to make sure people are connected. I wear two hats, right? I get to be the National Director of Black Churches for Digital Equity for MMTTC, but I am also a local girl in Davison County in Nashville, Tennessee in the South. And there, I'm the codirector of the Nashville Digital Inclusion and Access Task Force, which was founded at the heart of the pandemic to help support our municipal leaders with connectivity, affordability, and adoption.

I think we're one of the few states -- or, I mean, cities -- that have done a mix method approach to understanding how to look at who's connected, who isn't, in an oversampling of people of color, which is super important, to the designs of these mappings, and also designs to how we actually roll out interventions. I find that so often in our type of statewide or citywide sampling, we don't think about them. We should always oversample for immigrant and people of color.

Well, to this work in moving forward, Black Churches for Digital Equity is committed to educating and supporting African American church leaders across the country with their ability to drive digital equity in their states. Why are they essential? And why are faith-based institutions essential to this conversation? And why should they be appropriated dollars at some point as actual anchors to do this work? Because they are trusted

community partners. And they operate in some ways both before the onset and the pandemonium that the pandemic has given, not everyone sees there's a digital gap, they have always offered computer labs in their churches, in their mosques, in their temples to help upskill, in digital upskill, communities who are often not at the table when these amazing decisions are being made. And so, because of that, we at MMTC believe that faith communities can help drive this, especially the digital equity piece.

My concern overall, because I was looking at the question you gave me, so, I'm going to just slide a little bit of that in there, is that do I think that there is like good synergy between local organizations and states? I'm going to have to give a not sure on that one. Why? Primarily because in D.C., you know, there are a lot of the national nonprofits who are doing great work to gear up and to support their chapters across the states. That's the National Urban League. That's the National Digital Inclusion Alliance. So, these are amazing national organizations who are going to support their chapters in their organizations.

However, I also know that, yeah, we need to make sure that we have diversity and inclusion on the many task force, and councils, and offices that are being created at the state level. My little research on the side, because sometimes I want to know things, I'm looking at the states now that have councils, or have offices, a task force, and they are not as reflective as the diversity that we really need to help drive some of these decisions about communities who are unconnected, underconnected, and underserved.

Yeah, so, I would say, I think we have a long way to go. But luckily, to your point, bureaucracy is slow with the giving of the dollars. And so, we have some time to really figure it out to position community leaders to help drive this conversation and to ensure that states really look deep at municipalities in making sure that those amazing folks who are digital advocates on the ground are driving decision makings in their state.

MS. LEE: Yeah, I think this is so interesting, right? Because what we spoke about with Alan or what I spoke about with Alan is really what the system that, you know, this framework, the systemic framework that he's trying to actually push, and what you all are kind of talking about is the process, right? And so, trying to meld how they're going to put systems in place that allow us to have these processes that work at the local level are going to be interesting.

So, I want to ask a couple of questions. Again, if you have questions, please send them to events@brookings.edu. I just checked the Twitter. Please send questions to #UniversalBroadband and we'll try to get them up there. I've got a few that are queued up already to ask of the panelists.

Let me go to Diane and Peggy first and then I think we'll wrap up with some digital equity questions. You know, there is this restrictive language in the legislation that's looking primarily at the fiber optics side of it. And while I am actually in agreement that fiber is a good method and we need more fiber to actually do the middle and last mile work and also to make more contiguous networks or to even propagate wireless, the challenge I have is it costs a lot more money.

And so, I'm curious as you both are thinking about the deployment side, what comes top of mind with regards to the allocation that you currently have? And where do you feel there may be, you know, where do you feel vulnerable when it comes to meeting the requirements of the statute? Diane, I'll start with you and then I'll go to Peggy.

MS. WELLS: Sure, thanks. Well, we have a state law requirement for our grant program that anything paid for by state funding has to be symmetrical to 100 megabits. And we also have a state goal that all homes and businesses have access to at least one broadband provider offering speeds of at least 100 megabit down, 20 megabit up. So, that seems consistent with what IJJA BEAD funding is going to require.

I'd also mention that in the past two state grant funded rounds, all of the projects proposed were for speeds of at least 100 by 20, and most were gigabit speeds. In fact, we had a 5-gigabit symmetrical project that we funded. And we don't really make that decision at the state level. We look at the applications that are submitted and what do the communities want and what type of partner are they working with to get a broadband service that's going to meet their needs.

So, that's really a question that pushes down more to the local level, I think. And they let us know what they need and that's what's in their application.

MS. LEE: Mm-hmm. Peggy?

MS. SCHAFFER: Yeah, I think, you know, we're similar. We have 100/100. We have a symmetrical of 100/100 is our definition of what broadband is in Maine. And we are not ahead of our industry in Maine in doing that, right? So, we are not out there. Our industry has been leading with fiber to the home for about five years, which is why we sort of went to that standard.

We also look at it from the consumer point of view. Not the technology point of view. But what is it that consumers need? People who use it, people who pay for it. What is it they need to actually use the service as it should be used? And not just today but looking forward. Because this is infrastructure that's going to be around for 30, 40, 50 years. So, it's important that we focus on the scalability of it.

In consideration of what this language is, we do have a task force, shall we say. It's a technical task force looking at alternatives, right? So, where is it best to use alternatives up to fiber? Where are our places that those kind of technologies are the best solution? And how do we make sure that those technologies are scalable in the future, right? So, that you're not always sort of stuck with a 100/20 connection because that's what was most logical for this round. How do we make sure those projects can be scalable in the

future?

You know, Maine, like Minnesota and every other state, we all have people who are at the end of the road, sort of off the grid. And there's always going to be alternate solutions for those people, right, always. So, the lower satellites are a great solution for some of those locations that are really difficult to reach.

The problem with most of this -- a lot this technology is the affordability piece, right? That, to us, is a key piece. We want to make sure that the networks that we're funding and the projects that we're funding have an affordability component, and not just the American Connectivity Program, right? To make sure that the actual charge that they're getting is that, you know, a \$70 a month fee, if you're getting \$30, leaves you \$40, which is often unaffordable. So, we also scale and we look at the cost per customer to make sure that that affordable connectivity program is actually going to be meaningful as a reduction in the cost to the provider.

So, you know, we're looking at a variety of things. I think we're calling it a jumpstart something, who knows? Is really that's part of our strategy about how do we figure out what are the areas that other than fiber are going to be the best solution for right now? And how do we make sure that that's not the end solution?

MS. LEE: That's right. And, Matt, I want to come to you, right? Because some of the technical requirements maybe a little trickier in Tribal communities. And more so -- and I'll tie-in Fallon and we'll take a couple of questions. You know, at the end of the day for communities that have been unserved or underserved, a lot of it has to do with -- and this is why I call my book *Digitally Invisible* -- the fact that they're invisible. They cannot partake in some of the general, basic functions of our Internet-rich society. You know, some communities in rural areas don't even have ridesharing services because people can't afford cars --

MR. RANTANEN: That's right.

MS. LEE: -- is what I basically talk about. So, I want to talk a little bit, you know, what are you seeing in terms of the technical requirements and the extent to which the technical requirements will match with what Peggy's talking about, you know, the digital needs of your population?

MR. RANTANEN: So, yeah, in the rural communities, rural Tribal communities, everybody wants, you know, fiber as the end solution, right? Fiber to the home is the dream. Some of the, you know, geography, we're some of the most geographical diverse communities in the United States and, you know, that doesn't always cater to fiber solutions. We have a lot of situations where, you know, a wildfire and different natural disaster problems that cause -- that wreak havoc on communication solutions as well.

So, you know, everybody would love fiber to the home. But there are solutions that get fiber as close to the endpoint as possible and then distribute with a wireless, a finish that produce speeds that are far greater than, you know, anything setting as a threshold today. You know, if you design your networks well, you can carry a lot of capacity to your customers. And it's scalable to a, you know, to a degree.

The fiber asset is an extremely valuable asset because, you know, it's assumed to be a 30-year asset. And some of that fiber's been in the ground, you know, for 38 years now, I think, still functional. The better technology of fiber that's being deployed today is potentially going to be a 60-year asset. That's an unknown entity at this point. But that deployment, middle mile, you know, backhaul connectivity, and distribution of your network as much of it can be fiber as possible, you would, you know, future-proof that aspect of your network, and then the endpoints can grow later.

As you, you know, you reach the capacity of your wireless solutions as our

data usage goes up and our, you know, our usage patterns change, the type of content changes, you know, we may reach the end of our ability to squeeze data smaller. So, at that point, maybe we migrate off of wireless and we get to fiber to everybody. But over a longer period of time, we'll be able to do that in these communities that have, you know, really tough challenges. But there are wireless solutions at the end of fiber today that certainly can support those speeds and support our communities. And a hybrid solution is going to be required with some of the geographic diversity that we have.

MS. LEE: Yeah, I mean, that's always my fear. You know, again, I've been doing this about three decades. And it's always my fear when you start thinking about place and where place matters. And I think we can all say that we've gotten a jumpstart on our cities to a certain extent with smart city initiatives. But we haven't really thought through this contiguous regional development, which I think is really important.

Hey, Fallon, before I go on to Q&A, you know, there's always this conversation around is it availability or is it affordability, right, for people? You can build it and personally some people will not come because this is not what is important to them at the moment, particularly for unserved and underserved communities. When you think about this equation, what really is at heart to move the needle on digital equity? Is it a state equity plan that should be more comprehensive? Is it more outreach? I mean, where do you want to see the pulse in digital equity as part of this iteration of funding?

MS. WILSON: I mean, all great things, I think, tend to fail when we don't center people in our design. And how do you operationalize that as a state leader or as a municipal leader? It really, once again, for me, and I've always come at things from a research standpoint, have you developed a comprehensive way to gauge the attitudes of your -- of the population of your state side, of your municipality? But definitely oversampling for communities who struggle with affordability, adoption, and availability.

I mean, it is, to me, it's the simplest thing and it doesn't cost so much. And I know Brookings will come in and all these amazing research centers will come in and support states and municipalities to do this work. But it really goes down to recruiting diverse samples so they can inform state planning. My concern is, and I'm glad you had the great conversation prior to this, is I don't want to be here in the next five years having this conversation again, right? Because there's so many opportunities for funding to address all of the many best practices that we know that can really change the trajectory and end the digital divide as we now know it.

I think the solution is the people. So, the local. I want to know how NTIA, I guess we'll know the rules very soon, how they're operationalizing the local for states. Because I think that is going to be central and key. Luckily, because I'm a D.C. insider, or whatever that means, I know about the bureaucracy and the timelines of these things. And so, we were able to get with our state broadband officer who was hired last fall in Tennessee to talk with them about the work of Memphis or the work of Nashville or the work of Chattanooga in helping to support the great work that we can do in the state.

And so, there is a deep commitment to thinking about equity at that level. But it's only because I have insider knowledge that I can get into that space. But there are a lot of community organizations who do this work within their municipal spaces who don't know these things, right? Because they're having to figure out to the point of how do I get people connected? How do I get students on remote learning? I have don't have time to look at the policy gain.

And so, part of what I'm hoping to help with that in addition to the sampling and the studying and the attitudes, it is, you know, navigators, digital navigators for states. I know that the Commerce Department's going to have a state director for every state. And I think that's amazing. But they also should digital navigators to help support the building of

these diverse coalitions that can support states with their planning.

And I think take a -- last thing because I know you want me to shut up -- take a story or a good lesson from the FCC or Congress. Take a good lesson from Congress. We know EBB was implemented. The main feedback we got was there was no money for enrollment. I'm going to say this. There should be money that NTIA can put aside to help states build these diverse coalitions to do these plans. I think states want to do it. But that level of recruitment and identifying community stake leaders requires resources. And so, I'm going to just drop that mike there and let the universe take it for me.

MS. LEE: Oh, it's okay. You can always have the mike, Fallon, when you want to. That's why she runs the Black Church Coalition here and you can tell why because she's evangelist for broadband.

I want to run to a couple of questions that we have in the chat if you all don't mind for our remaining time. And some of these we've actually answered. There have been questions around speed concerns, technology. Is the digital divide affordability versus availability?

I want to bring up this question. It's from Amanda Bruno. Which is what role can institutions of higher education play in helping move the United States towards universal broadband? This is like these other actors that actually, you know, should be part of the equation versus all of us who normally show up at the table. Anybody have something to say? Go ahead, Dr. Wilson.

MS. WILSON: I would just quickly say digital navigators, students, locally housed at universities and need community service work, digital navigator resources for the state. That would be my most immediate response to that.

MS. LEE: Okay. Anybody else in terms of higher education or if you've already used them?

MS. SCHAFFER: Well, we've had a number of -- we have, I guess, we call them interns. Maybe they're not called that anymore. But they are working -- actually, they're working with AARP, which sort of this interesting thing, right? We have these community connectors which are part of AARP, but their coordinator is a college intern. And so, they are doing that kind of work. And, you know, I've been on a number of calls with -- we're a very old -- older community, where the people working on it were all under 30. And it was sort of like, this is great, really great to bring this energy and this interest into it.

We also actually use, you know, law students to do some research for us about what is the best strategy here? We got a little problem with this, you know, how do we finance it. What about municipal broadband? How do we make it easier? And law students have been a big help in that process.

MR. RANTANEN: I think there's a, you know, an opportunity here for, you know, four-year institutions to look a little different as education is changing, as things have gone online, as things have been less accessible for folks. You know, a four-year program isn't for everyone. But a four-year university has some of the resources that everyone could benefit from even if they didn't manage a four-year program.

So, reaching out to youth, you know, 15- to 18-year-old kids in communities that don't normally have a pathway to a four-year university. You know, engaging in programs that potentially would get them involved with their education, but not actually, you know, queued up on a four-year program, some of them will eventually end up in the four-year program. But, you know, catering to everyone, especially in communities surrounding these universities that they, you know, need to support.

You know, introductory programs into, you know, what's available at the university. And then a lot of the -- some of the best things that go around the world and help people build things like networks and digital inclusion and things like that are housed at

universities but are sort of encapsulated in the four-year space. You know, enable them to come out and act independently of the university, you know, to help communities as, you know, they go through these issues.

MS. LEE: Yeah. Fallon has talked about it as sort of the navigators. I've talked about it as a digital service corps. Something that, to your point, we actually engage the Corporation for National Service to help us actually give people money when they're out there building broadband infrastructure, learning broadband infrastructure, helping people schedule doctors' appointments through telehealth. But create a digital service corps, one that is like a Teach for America model that allows people to go out there and build the digital equity within their community. I put it out there more to come on that as well. But this is the problem with this issue. You can talk a lot about so many areas of it.

I want to bring up one more question. This is from Maria Curry (phonetic), which I think is actually really interesting. It sort of speaks to Matthew's question about, you know, this delay in funding, as well to Peggy and others. You know, is there a way that NTIA can sort of bring in some private capital? Her question is, is there anything NTIA can do to ensure Internet service providers are not also delaying service in unserved areas, and perhaps be using their private capital to help, you know, keep advancing networks?

MS. SCHAFFER: Well, the program does require a 25 percent match, the IJJA does require a 25 percent match.

MS. LEE: Perfect.

MS. SCHAFFER: That brings in some private capital. The thing that I would that -- we're worried about in Maine about that, right, is because there are going to be some areas and I know this is the same problem in Minnesota, there are some areas where a 25 percent match is actually too much, right? The grant shouldn't be 75 percent. Maybe it should be 50 percent. But there are other areas that the grant may be 90 percent or more.

And so, giving states the flexibility about what that 25 percent means that it's not per project, that's it's overall, would be really important in terms of how we figure this out.

You know, I think there is an interesting -- we're seeing a role for equity capital in Maine, which is very interesting. And in some areas it's not in areas that we're going to build, right? It's in the sort of places that are already served. And so, that brings up that quality of service in those sort of areas that already have some level of service. It brings up quality. It brings up competition.

But there is a space for equity capital in this. Most of these networks eventually create revenue. And that is a -- so far the thinking around broadband has always been you could do it by yourself or you need a grant. There is a lot of room in between for other finance models. And that is -- it's another place where universities can help us. It's a place where banks can help us. But those are the kinds of puzzles that we, as a state, need to figure out to make sure that this money that we're getting through the IIJA and through the capital projects fund goes as far as it can, right?

MS. LEE: That's right.

MS. SCHAFFER: So, it isn't just this money. It's how we build the capital stack to make sure that we're not only -- that we're providing service to even more people and that we can include this whole piece around digital equality.

MS. LEE: Yeah, you know, I kind of, you know, I think that that's actually a really interesting way to look at it. I haven't thought about that. I'm thinking, Matt and Fallon, you remember, and Diane, the Community Reinvestment Act money when we saw banks actually put money towards broadband. There's possibly the same type of synergy we could see to fill in some of the gaps.

Because I do want to remind people that even though we're going to have these areas that are harder to serve, we still have places in urban areas that are still hard to

serve or there's not enough competition. So, we got to find ways to ensure that they get the capital as well. Which, in some respects, may not count as an unserved or underserved area. So, I'm still concerned about that as well, as many of you are.

Listen, we have run out of time. It's actually a good problem to have because you don't want to keep people sitting in a seat too long talking about these discussions. We actually want many of you who have actually joined us to have further questions and to sort of interrogate what you're hearing and do some factfinding in terms of the things that you also heard in terms -- you know, and how it applies to you in particular.

I want to thank all of our panelists for being on this conversation. I want to also suggest to all of you that what we also heard. I'll say it again. Is that this is an iterative process. And it's one that is actually being done in the midst of some really strict guidelines. And so, the more we have these conversations and some flexibilities of who's at the table in determining these outcomes I think is going to be really important.

Lastly, I'd like to just say this. Yesterday, we lost a really important figure in the civil rights community who has worked on broadband access, and I know that because she was a personal friend. So, some of you may say, how could she be doing this panel after losing somebody she loved so dearly. Bishop Steve Smith, I'm going to continue to actually push forward broadband efforts on your behalf because this is something you cared about as well.

So, with that, keep following us at Brookings on these issues. Keep following the work of all the panelists here and thank you so much for joining us. Follow us at TechTank as well. And if you want to, indulge us in the TechTank podcasts. I'm Dr. Nicol Turner Lee and I look forward to seeing you all again. Thank you, everybody.

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CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

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