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HOUSE DEMOCRATIC POLICY COMMITTEE

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House of Representatives
COMMONWEALTH OF PENNSYLVANIA

HOUSE DEMOCRATIC POLICY COMMITTEE HEARING
Topic: Improving Internet Access for Education and Telehealth
G-50 Irvis Office Building – Harrisburg, PA
October 6, 2020

AGENDA

2:00 p.m. Welcome and Opening Remarks

2:10 p.m. Panel from Pennsylvania Utility Commission:
- Gladys Brown Dutrieuille, Chairman
- Joseph Witmer, Counsel to the Chairman

2:20 p.m. *Questions & Answers*

2:30 p.m. Panel Two:
- Kyle Kopko
  Director, The Center for Rural Pennsylvania
- Sascha Meinrath
  Palmer Chair in Telecommunications, Pennsylvania State University
- Wayne Campbell
  President, Pennsylvania State Grange
- Najja Orr
  President and CEO, Philadelphia Corporation of Aging

3:00 p.m. *Questions & Answers*

3:20 p.m. Panel Three:
- Thomas Musgrove
  Government Affairs Manager, Crown Castle International Corporation
- Ashley Henry Shook
  Spokesperson, Pennsylvania Partnership for 5G

3:30 p.m. *Questions & Answers*

3:50 p.m. Closing Remarks

Prepared Testimony of

Gladys Brown Dutrieuille
Chairman

Pennsylvania Public Utility Commission

Before the

House Democratic Policy Committee

October 6, 2020

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Good afternoon, Chairman Sturla, Representative Malagari, and Honorable Members of the House Democratic Policy Committee. As an initial matter, I want to state that the views provided today are my own and are not the views of the entire Commission. I appreciate this opportunity to speak with you today about the specific challenges when it comes to using broadband service to provide education and healthcare to Pennsylvanians. Those challenges have become particularly evident in light of what we have learned about the important role that broadband plays in education and healthcare in the wake of COVID 19. I will close with some comments on our current education efforts on broadband on our webpage.

The items that I will discuss broadly are the Commission's jurisdiction, the *2020 Joint State Government Report*, and the Center for Rural Pennsylvania 2019 study of what broadband consumers are actually receiving, broadband mapping in Pennsylvania, and Commission efforts at customer education.

Broadband in General. The terms "Broadband" or "Broadband Access" and "Broadband Service" are the terms that the public often uses when they are talking about Broadband Internet Access Service (BIAS). BIAS is the internet service that residential, commercial, industrial, educational, and health care consumers purchase from an Internet Service Provider (ISP). Everyone needs BIAS today to communicate, compile data, do research, stream video over the Internet, and, now, obtain education and healthcare. BIAS may be indispensable to education and health care, but it is still far from ubiquitous, a fact that is vividly demonstrated in the ongoing pandemic.

Commission Jurisdiction:

The Commission's current regulatory authority over BIAS is set out in Chapter 30. Chapter 30 requires the availability of BIAS. It mandates that a participating incumbent local exchange telephone company, or ILEC, and an ILEC alone, must make BIAS available at speeds defined to be 0.128 megabits per second (Mbps) for uploads and 1.544 Mbps for downloads. The Commission must ensure that the ILECs comply with the duty to make BIAS available within ten business days of a request at those speeds. There is no Pennsylvania-specific mandate to provide higher speeds or ensure that the content delivered with BIAS is not subject to discrimination between providers. There is no direct mandate ensuring that the BIAS provided is safe, adequate, reliable, of high quality, or affordable. Finally, the BIAS speeds set out in Chapter 30 have been overtaken by time, technological advances, applicable federal standards, and consumer expectations.

Broadband for education and healthcare is part and parcel of a general concern with the broadband challenges Pennsylvania faces. I have testified before, and reiterate today, about the legal need to classify broadband as a telecommunications service along the lines of a common carrier public utility service. "The Commission took the position that BIAS is a type of public utility service, similar to telecommunications, and that the providers, in this case the ISPs, should treat all communications alike. The ISPs should not be allowed to discriminate between communications provided by those with whom

they have business relationships compared to those with whom they do not."[1] This position is supported by a February 2020 *Brookings Study* which considers broadband to be an essential infrastructure.[2]

As I have testified before, moreover, broadband policy development is a two-part challenge.[3] The first challenge is to build networks for broadband in high cost, typically rural, areas. But, as I pointed out in my statement at our recent public meeting about reforming our regulations for telephone service in Chapters 63 and 64, the "last mile" infrastructure used to provide broadband to most consumers on a wireline network is over 90% owned by two industries. Those are the telephone and cable industries.[4] Moreover, these two networks do not go everywhere, and they are not subject to the same legal standards. In many places without cable service, the telephone company is the major provider of broadband. Satellite service can be obtained but it has had capacity, latency

[1]Testimony of Chairman Brown Dutrieuille, Joint Senate & House Democratic Committee (January 9, 2020), particularly pp. 3-4 (*Net Neutrality Testimony*) available at http://www.puc.pa.gov/General/pdf/Testimony/BrownDutrieuille-HS_Dem_Comm-NetNeutrality010920.pdf (text) and http://www.puc.pa.gov/General/pdf/Testimony/Chair_GBD-Net_Neut_Appx010920.pdf (appendices).

[2]Adie Tomer, Lara Fishbane, Angela Siefer, and Bill Callahan, "Digital Prosperity: How Broadband Can Deliver Health and Equity to All Communities," (Brookings: Metropolitan Policy Program, February 2020) (*Brookings Study*) available at https://www.brookings.edu/research/digital-prosperity-how-broadband-can-deliver-health-and-equity-to-all-communities/ (last checked 10/1/20).

[3] Testimony of Chairman Brown Dutrieuille Before the Senate Technology and Commerce Committee (September 3, 2019), particularly pp. 1-5 (*Broadband Telehealth Testimony*) available at http://www.puc.pa.gov/General/pdf/Testimony/BrownDutrieuille-Senate-RuralHealth090319.pdf

[4] Statement of Chairman Brown Dutrieuille, Proposed Rulemaking Order – Competitive Classification of Telecommunications Retail Services, Docket No. L-2018-3001391 (August 27, 2020) available at http://www.puc.pa.gov/pcdocs/1675029.pdf.

and transmission limits. Wireless service may be an alternative service but it is not available everywhere. Today it is not considered a viable substitute for wireline service.

The *Brookings Study* shows that broadband service is still far from ubiquitous and that broadband works best when consumers have access to wireline and wireless services – not just one or the other.[5] Without ubiquitous service, local school districts or colleges and universities attempting to offer online education to their students using digital technology cannot provide that service. Doctors seeking to provide digital healthcare to their patients do not have adequate broadband to do that.

The second challenge is ensuring that broadband service is affordable in all areas of Pennsylvania i.e., urban, suburban, and rural, at just and reasonable rates. Affordability means reasonable subscription prices and universal access to devices. It means making sure that consumers have the skills to use those devices and that an agency exists to ensure reliability and has the capability to resolve disputes. Affordability is now the main barrier to broadband adoption.[6]

The construction of broadband-capable networks, sometimes called the "brick" facilities needed to provide this service, and the delivery of broadband over those bricks, sometimes called the "clicks" of BIAS, are capital intensive.[7] This impacts the prices

[5] *Brookings Study*, pp. 3-4 available at https://www.brookings.edu/research/digital-prosperity-how-broadband-can-deliver-health-and-equity-to-all-communitieas/ (last checked 10/1/20)
[6] *Broadband Telehealth Testimony* (September 3, 2019), p. 3, n. 3 citing the FCC's 2016 Lifeline Order of April 26, 2016 in FCC Docket Nos. 11-42 and 10-90 available at http://www.puc.pa.gov/General/pdf/Testimony/BrownDutrieuille-Senate-RuralHealth090319.pdf
[7] *Broadband Telehealth Testimony* (September 3, 2019), particularly pp. 3-5.

charged for broadband for education and healthcare. Moreover, there may not always be a solid economic case from the provider's perspective to build networks in high cost areas. This arises from their fiduciary duty to maximize value for their shareholders; the delivery of broadband where costs exceed revenues may violate that duty. This remains even if legislators, regulators, the public, and recent studies show that broadband is an essential infrastructure like electricity, gas, transportation, and water service.[8]

Even though the costs to build broadband networks are high and the fact that BIAS technology changes very rapidly, the Commission initiated a reform of our long-standing telecom regulations in Chapters 63 and 64 to address service. One alleged benefit from reforming our long-standing regulations for the first time in 30 years is that any reduction in compliance costs might be directed to fund broadband. This goal must be balanced with the need to retain network reliability and universal service at reasonable rates.

The Federal Communications Commission's (FCC) most recent auction proposal to support broadband in unserved areas of Pennsylvania is about $51 million a year. This FCC support does not address affordability. This FCC's $51 million offer to successful carrier bidders totals about $500 million over ten years – the period needed to build that broadband network.

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[8] *Brookings Study*, p. 4. *Accord* General Assembly of the Commonwealth of Pennsylvania, Joint State Government Commission, *Delivery of High-Speed Broadband Services In Unserved Areas and Underserved Areas of the Commonwealth of Pennsylvania, Report of the Advisory Committee on High Speed Broadband* (September 14, 2020), pp. 5-9, particularly Recommendations 2, 5, 6, and 8 *(2020 Joint State Government Report)* available at http://jsg.legis.state.pa.us/publications.cfm?JSPU_PUBLN_ID=497.

To get that $500 million, Pennsylvania must have bidders in an upcoming auction that will occur on October 22, 2020. The application period closed in July 2020. Those bidders must win that support to serve the unserved areas that the FCC is willing to support. Otherwise, this support that other carriers are getting today to serve those areas may leave Pennsylvania if bidders in other states agree to provide faster service there.

This $500 million offered to Pennsylvania bidders over the next ten years will not deliver broadband to all unserved Pennsylvanians who need broadband for education and healthcare let alone employment or entertainment. That support is repurposed support that the FCC is already providing to carriers to provide voice and lower-speed broadband. To get that support in the future, bidders must offer at least 25 Megabits down and 3 Megabits up (25/3). This is the "Netflix" speed that the FCC is using to decide if an area does or does not have broadband. It is used because it is considered the minimum needed to optimize *inter alia* the streaming audio and video needed for education and health care. This minimum speed changes over time. There are already FCC advocates seeking to increase the broadband definition to at least 100 Mbps up/down to decide if an area has broadband service.[9] Those who offer faster speeds will get that federal support over bidders who offer only 25/3.

This repurposed support is not going to make broadband available let alone affordable throughout Pennsylvania. That is because the deployment mandate is limited

[9] See, e.g., Statement of FCC Commissioner Jessica Rosenworcel available at https://docs.fcc.gov/public/attachments/FCC-20-112A2.pdf calling for at least 100 Mbps speeds.

and there is no affordability mandate. The support and deployment mandate will only be provided to unserved areas that fall within cost "ranges" as well. No support will be provided if costs are below the auction floor or above the auction ceiling. There is no affordability requirement.

This limited support means that about 50% of Pennsylvania's unserved areas will not benefit from the auction. That is because those areas are either below the support floor or above the support ceiling. The $51 million support over the next ten years that Pennsylvania carriers will get if they win the auction will only reach about 50% of our unserved areas. This is important because 44% of Pennsylvania's census block are without broadband at the minimum speed of 25/3 today.[10]

Center for Rural Pennsylvania 2019 Study:

The recent 2020 Center for Rural Pennsylvania (*CRP 2019 Study*) on broadband in Pennsylvania is instructive.[11] The *CRP 2019 Study* shows what broadband speed consumers are actually getting if they buy broadband. There is a marked discrepancy between the providers' claimed speeds and what consumers are actually getting based on

[10] These figures come from presentations by Penn State University's Rural Extension (PSU) on the maps that they have developed in consultation with the Commission. The Commission has been consulting with Penn State to support their goal of creating credible and easy-to-under broadband maps for Pennsylvania using public information. PSU wants to identify ***all*** areas that are unserved and build upon public sources to address deployment, affordability, and delivery.

[11] Center for Rural Pennsylvania, Broadband Availability and Rural Access in Pennsylvania (June 2019), pp. 42-43 (*CRP 2019 Broadband Study*) available at https://www.rural.palegislature.us/publications_broadband.html

speed tests.[12] There is no Pennsylvania county where at least 50% of the populace received "broadband" connectivity at 25/3 as defined by the FCC.[13] These findings strongly suggest that broadband marketing is different from what consumers are getting. This suggests that more, not less, regulatory oversight may be appropriate because oversight ensures that consumers get what they pay for.

Moreover, as my statement about our rulemaking indicates, there are other important issues. This includes reliability and universal service, quality of service, and public education, and dispute resolution. Requirements are needed here so that providers deploying broadband-capable networks will offer their cache of services to consumers.

2020 Joint State Government Report:

The most recent *2020 Joint State Government Report* is instructive and warrants detailed consideration and not just because I was part of that work. Those recommendations raise issues that need to be addressed when it comes to deploying broadband-capable networks in a ubiquitous manner so that Pennsylvania citizens can receive broadband-based education and health care services.[14] I note that the FCC can act consistent with, and in furtherance of, federal law. This includes a universal service

[12] *CRP 2019 Broadband Study*, pp. 65-66.
[13] *CRP 2019 Broadband Study*, pp. 65-66.
[14] General Assembly of Pennsylvania, Joint State Government Commission, Report of The Advisory Committee on High Speed Broadband Service (September 2020), particularly pp. 5-9 (Recommendations), pp. 31-37 (Education), and pp. 39-45 (Healthcare) (collectively 2020 *Joint State Government Report*) available at http://jsg.legis.state.pa.us/publications.cfm?JSPU_PUBLN_ID=497 (last checked 10/1/20).

mandate to ensure that there are comparable rates for comparable services in rural and urban America. The Committee could consider an approach similar to the *2020 Joint State Government Report* by not designating a Pennsylvania specific broadband speed for education and health given continual and rapid technological advances when it comes to delivery of broadband.[15] That way the Commonwealth is not disadvantaged over time compared to other states. Our providers will remain eligible for federal support. That support will be important to broadband education and health care.

It should also be noted that the *2020 Joint State Government Report* does not view 5G wireless as a solution for rural broadband.[16] The same is likely to prove true when it comes to affordable wireline and wireless broadband service as well.

The *2020 Joint State Government Report* also recommended the establishment and creation of an independent broadband authority to oversee and support broadband deployment. This includes a particular emphasis on grants and loans, including federal funding. The entity's existence is limited to six years.[17]

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[15] Testimony of Gladys Brown Dutrieuille before the Pennsylvania House of Representatives Consumer Affairs Committee, House Bill 1417 (August 24, 2015), p. 12. (*HB 1417 Testimony)* available at http://www.puc.pa.gov/General/pdf/Testimony/Brown_HB_1417_Final_Testimony_8-24-2015.pdf; *Net Neutrality Testimony,* p. 20 available at http://www.puc.pa.gov/General/pdf/Testimony/BrownDutrieuille-HS_Dem_Comm-NetNeutrality010920.pdf (text) and http://www.puc.pa.gov/General/pdf/Testimony/Chair_GBD-Net_Neut_Appx010920.pdf (appendices).

[16] *2020 Joint State Government Report,* p. 17.

[17] *2020 Joint State Government Report,* p. 5-6.

The Federal Communications Commission's (FCC) first effort to support broadband created a funding program called the Connect America Fund Phase II that went on for five or six years. At that effort comes to an end, broadband remains unavailable to 44% of Pennsylvania's census blocks. The upcoming federal auction set to begin October 22, 2020 envisions a new ten-year time to build broadband but that benefits about 50% of all of our unserved areas.[18]

The proposed six-year time period for a state-run broadband funding program warrants serious examination given the experience with federal efforts. This is important because federal efforts benefit about half of our unserved areas over 10 years. This suggests that a longer funding commitment to provide funding may be warranted. It also suggests that the focus should be not only on anchor institutions like schools and medical facilities but also at a consumer's home, office, or commercial establishment.

The *2020 Joint State Government Report* does not contain recommendations on who monitors and advances affordability. However, the recommendation does focus on network institutions, such as schools and community facilities, by establishing a minimum high-speed tier and support for special construction charges like one-time build out costs to provide fiber connectivity to schools and libraries. This will likely be the

[18] This number ais also derived from the mapping efforts PSU has undertaken in consultation with the Commission.

focus of other parties today. I need not discuss this except to note that no such recommendation exists when it comes to healthcare.

The last two recommendations in the *2020 Joint State Government Report* recognize that market conditions for network deployment do not exist in all areas. They recommend incentives for deployment and a line-item appropriation in the Commonwealth's annual budget for broadband. There is passing reference to verifiable standards and objective accountability but that is not explained in detail so it may need more consideration.[19] While there is clearly an accord on using a line-item approach to fund broadband, what that line-item should be and how it operates needs more discussion.

Mapping:

A funding authority, however long it exists, and consumers will need publicly available mapping and broadband data that relies on open source data and verifiable public information. This ensures that funding agencies, educators, health care providers, and the public have access to information that accurately identifies what areas require broadband support. Correct mapping has been a challenge for many years now.

One challenge noted by the Nobel Prize winning economist, Dr. Jean Tirole, in his study of the concentrated telecommunications industry, is that information is often

[19] *2020 Joint State Government Report,* pp. 8-9.

asymmetrical.[20] Today most detailed maps on and information about broadband are proprietary and confidential. While the FCC is under a mandate to develop new and accurate maps, that has not yet started in earnest, and remains incomplete.

Moreover, the last public mapping in Pennsylvania occurred under the American Reinvestment and Recovery Act of 2009. Those maps are now outdated if not obsolete. They should not be relied on as accurate and updated information is needed to identify where providers should deploy their broadband-capable networks, particularly for agency funding decisions. Better maps and information are also needed to ensure that the providers consistently deliver the requisite speeds for their proffered broadband service.

However, Pennsylvania is ahead of federal mapping efforts today. This is primarily due to mapping results produced by Penn State Rural Extension (PSU) in consultation with the Commission.

This mapping effort focuses not only on networks but will focus on affordability and delivery going forward. The first PSU map was created in response to the Commission's concern to get Pennsylvania bidders to participate in that upcoming auction of over $16 billion in federal support in which $51 million is earmarked for

[20] Royal Swedish Academy of Sciences: Scientific Background on the Sveriges Riksbank Prize in Economic Sciences, *Jean Tirole: Market Power and Regulation* (October 3, 2014), particularly p. 14 (*Tirole*) available at https://www.nobelprize.org/uploads/2018/06/tirole-lecture.pdf

Pennsylvania. The link to that map is on our website.[21] Neither the FCC auction nor the PSU map address affordability. The most recent PSU map was developed in consultation with the Commission in response to a request from our Consumer Advisory Council to show where broadband is availability in counties and in our 500 public school districts. That map shows what areas within counties or school districts lack broadband at the 25/3 speed used by the FCC to show what areas do not have broadband.

Those current PSU maps use public information to demonstrate every area in Pennsylvania that is without broadband today. They will be updated as the FCC makes new data available. The Commission and PSU have already done multiple mapping demonstrations of these mapping results to the FCC's Mapping Taskforce, Purdue University, the White House Broadband Task Force, the Pennsylvania Department of Education, and multiple bidders and county or school district officials in Pennsylvania. The goal is to help them visually see where Pennsylvania faces broadband challenges. PSU is also working with the Commission to address the mapping of affordability and delivery to consumers in response to the *CRP 2019 Broadband Study* and the *2020 Joint State Government Report.*

Consumer Education:

I will briefly address the Commission's current webpage education efforts on broadband. As I stated earlier, the Commission has assisted PSU in developing

[21] The PSU auction map can be access on the Commission website below.
http://www.puc.state.pa.us/consumer_info/telecommunications/broadband_high_speed_internet_service.aspx

additional maps showing what areas do not have broadband in Pennsylvania. The earlier PSU map only showed areas without broadband that were eligible for support within the ranges of the FCC auction. The latest PSU maps show what areas, within a county or school district, lack broadband today. These maps are far broader because they include that 50% of Pennsylvania's unserved areas that are not in the auction. These maps will also be posted on our webpage.

The Broadband Bill of Rights was developed to educate the public about their rights to broadband under Chapter 30 at Chapter 30 speeds within 10 days of a request. Such a Bill of Rights could be modified to reflect any change in Pennsylvania law addressing the classification of broadband as a public utility service or additional obligations and consumer protections adopted in any new law.

The Lifeline Assistance Program is federal support only. Lifeline provides eligible consumers $9.25 in federal support for a voice and/or broadband service regardless of the price charges for that service. That support for voice alone will be reduced to $5.25 a month come December 1, 2020. A requisite platform of the current Lifeline program is the Commission's grant of Eligible Telecommunications Carrier (ETC) status. ETC designation is a precondition to receiving federal universal service support to build a network or to provide service to eligible Lifeline consumers. The states use ETC designation to ensure network reliability, quality of service, 911, and resolution of consumer complaints.

Pennsylvania does not have a supplement to that support. That might be a matter of concern to the Committee given the fact that affordability is the number one impediment to broadband adoption. A recent New York City study showed that 40% of New York City residents do not have broadband at home despite the availability of broadband networks – a challenge likely facing Philadelphia and rural areas as well. Another study showed a $4 return for every $1 invested in rural broadband and that 75% of that return would benefit urban areas.

Conclusion:

As stated above, the Commission's legal authority is limited only to the "availability" of broadband under Chapter 30 within 10 days of a request for outdated broadband speeds. This mandate is devoid of any direct oversight for the reliability, quality of service, or affordability of that broadband.

One possible approach to secure broadband to support education and telehealth, although reflective of a regulatory sea change, would be to declare broadband tantamount to a public utility service to the extent permitted by federal law and to accompany that with a mandate to ensure the affordability of broadband services in support of federal law. This approach would maximize the use of any funding provided by an independent authority from a line-item budget. It would also minimize legal challenges or preemption by federal regulators. This approach will likely be vigorously opposed -- particularly if funding is tied to a mandate that the provider-recipient has a universal service mandate.

I recognize that Commission oversight and public utility certification grew out of the traditional "public utility model" which presupposes monopoly power over the last mile. The broadband model today when it comes to the last mile is not a monopoly. It is a model characterized as a patchwork duopoly in the areas where there is overlap between telephone and cable companies. There are reduced mandates in those areas even when there is only one provider and still newer proposals to even reduce that authority.

Any effort to oversee broadband networks and ensure reliable service at just and reasonable rates is decried as "regulating the internet" by opponents. In fact, regulatory oversight to support a broadband network that provides reliable service at just and reasonable rates is no more "regulating the internet" than the US Postal Service is "regulating the contents of the mail" when they set uniform standards and prices for the delivery of stamped mail.[22]

Moreover, the two providers in today's patchwork duopoly model do not have the same legal mandates.[23] Cable providers are not classified as telephone companies under federal law. They have no mandate to provide access to competitors. They have no mandate to comply with any state universal service mandate to serve all consumers in

[22] See, e.g., *Net Neutrality Testimony* at http://www.puc.pa.gov/General/pdf/Testimony/BrownDutrieuille-HS_Dem_Comm-NetNeutrality010920.pdf (text) and http://www.puc.pa.gov/General/pdf/Testimony/Chair_GBD-Net_Neut_Appx010920.pdf (appendices).
[23] *Net Neutrality Testimony*, pp. 10-11.

their service territory. Any deployment or quality of service oversight is done by the local franchising entity.

Telephone companies are required to provide competitors' access under federal law but the FCC's forbearance and preemption decisions have largely removed that mandate for fiber networks and, most recently, copper networks. The telephone companies have a state universal service mandate. They have a federal universal service mandate when they receive federal support. Telephone network reliability and quality of service are regulated by the Commission but there are proposals to reduce that authority.

Any "modified" public utility model approach, such as occurred when broadband was considered a Title II common carrier service but then reversed by the FCC, will likely require funding and oversight. This will be needed so that broadband networks are built and that they provide reliable service at just and reasonable rates. Efforts to do that are likely to be opposed by citing to robust competition.

One innovative but likely contentious way to extend that universal service mandate imposed on voice and other essential infrastructure would be through use of a "pay or play" approach. A "pay or play" approach is one where all providers who deliver broadband service contribute to a public universal fund based on their revenues. This public fund supports not only network deployment but also reliable and affordable service at just and reasonable rates. This approach is modeled on the Carrier of Last Resort (COLR) obligations already imposed on other essential infrastructure like

electricity, gas, transportation, water, and voice service. Those who do not have a universal service mandate remain free to focus on market deployment. However, they must pay into a public fund that pays an identified or selected provider to undertake build a network that provides reliable and affordable service at just and reasonable rates in areas where there is no market case to do that. My prior testimony raised this matter in suggesting that expansion of a universal service contribution base may be an optimal solution to do just that.[24]

This suggestion is consistent with the need to recognize and address affordability and to prioritize service to unserved or underserved areas as noted in the fifth and sixth recommendations of the *2020 Joint State Government Report*.[25] These recommendations recognize that broadband availability will not occur without financial support and that support for lower income consumers is an important part of broadband availability.

When it comes to broadband for education and healthcare, there is less focus on what regulatory oversight is needed to ensure that deployment commitments are met and that consumers have access to reliable broadband service at just and reasonable rates.

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[24] *HB 1417 Testimony*, pp. 13-16 available at http://www.puc.pa.gov/General/pdf/Testimony/Brown_HB_1417_Final_Testimony_8-24-2015.pdf. The testimony provides a good overview of broadband challenges in high cost areas whereas today's testimony focuses not only on broadband networks but also broadband universal service because, since 2015, broadband is now considered an essential infrastructure. Prior Staff presentations to the legislature on the background history of telecommunications and broadband is also available at http://www.puc.pa.gov/General/pdf/Testimony/Screven-House_Broadband_Caucus_092518.pdf (David Screven) and http://www.puc.pa.gov/General/pdf/Testimony/Witmer-House_Broadband_Caucus_092518.pdf (Joseph Witmer).

[25] *2020 Joint State Government Report*, p. 6.

They are important but they should also include what forum will resolve disputes between consumers and their provider. This already occurs today with the other essential infrastructure like electricity, gas, transportation, voice, and water. The recommendation for a uniform price as a low-cost alternative limited to lower income subscribers is noteworthy. It is a variation on the current Lifeline program of the FCC.

I restate a fundamental tenet of current law which is that Broadband as a Title II common carrier service is eligible for federal support but broadband as a federal "information" service is not.

I thank you for the opportunity to provide this testimony and stand ready to answer any questions that you may have.

Testimony of Dr. Kyle C. Kopko
Director, The Center for Rural Pennsylvania
October 6, 2020

Thank you, Representative Malagari, and members and staff of the Policy Committee, for the opportunity to speak before you today. My name is Dr. Kyle C. Kopko and I am the Director of the Center for Rural Pennsylvania. As you may know, the Center for Rural Pennsylvania is a bipartisan, bicameral legislative agency that serves as a resource for rural policy within the Pennsylvania General Assembly.

In 2019, the Center published one of its most important research reports, titled "Broadband Availability and Access in Rural Pennsylvania," authored by Professor Sascha Meinrath and colleagues at Penn State University and other academic and non-profit institutions. I am grateful that Professor Meinrath can join me today for this discussion.

The Center will soon publish another study by Professor Meinrath and his colleagues addressing demand for broadband in rural versus urban areas. The report identifies the price points at which rural and urban residents are most likely to adopt broadband services with 25Mbps download speeds and 3Mbps upload speeds – this is the so-called "Netflix" broadband speed. This also is the definition of broadband utilized by the Federal Communications Commission, or FCC. We expect that report to be released within the next month, pending approval by our Board of Directors.

We are all aware of the importance of broadband connectivity for use in education, telemedicine, and commerce in general. If anything, since the Center's 2019 report, the need for reliable and accessible broadband services has only grown. However, many of our rural communities continue to lag behind in their access to broadband.

According to internet speed data gathered by the Measurement Lab between March 2, 2020, and September 13, 2020, 25 of Pennsylvania's 67 counties (or 37% of counties) failed to attain a median download internet speed of 25Mbps. In addition, 12 counties (or approximately 18% of counties) failed to attain median upload speeds at or above 3Mbps. The Measurement Lab relied on a sample of more than 3,000,000 internet speed tests across the Commonwealth to arrive at these findings.

Furthermore, according to the most recent release of the American Community Survey conducted by the U.S. Census Bureau, approximately 253,000 rural households in the Commonwealth do not have internet access at all. That is 15% of the 1.65 million rural households in the Commonwealth.

In light of the COVID pandemic, we have all heard anecdotes and stories of students being unable to access Zoom and other remote platforms to engage in

schoolwork. Because of a lack of high-speed broadband service, some students must connect in parking lots to obtain free Wi-Fi, or teachers have relied on sending packets of paper materials to students, or they have engaged in conference calls. This will continue to be a problem until reliable high-speed internet service is available to residents throughout the Commonwealth.

"Why is this the case?" one may ask. There are a variety of reasons, and I am sure that my colleagues who join me on today's panel will offer additional insights on this, but a combination of market forces and policies offer some explanation.

First, internet service providers, or ISPs, have argued that the cost of building broadband infrastructure in some rural areas is too expensive and will not result in a positive return on investment due to uptake rates. Although, Professor Meinrath's forthcoming study provides greater insight on this issue and suggests that demand for broadband in rural areas is greater than what may be expected.

Second, as a matter of law, Pennsylvania defines broadband as a download speed of 1.544 Mbps and an upload speed of 0.128 Mbps. 66 Pa.C.S. § 3012. This, again, contrasts with the FCC definition of broadband as a 25 Mbps download speed, and 3 Mbps upload speed.

Third, state law generally does not allow municipalities and other political subdivisions to provide broadband services. They may only do so if a "local exchange telecommunications company or one of its affiliates has not agreed to provide" the requested broadband services. 66 Pa.C.S. § 3014(h).

Fourth, there are problems in gaining access to easements and right of ways, which are documented in the Center's 2019 report.

Fifth, even if broadband internet is available, some households simply cannot afford internet access. Based upon the most recent American Community Survey data, the median income among Pennsylvania households with internet access was $62,812. But those without internet access had a median household income of $24,314. And, generally speaking, those households without internet access relative to those with internet access are more likely to have incomes below the poverty threshold, are more likely to be older residents, and are less likely to own a home.

Given these conditions, it is unlikely that differences in broadband access will subside any time in the near future, unless there is a policy intervention. There is no "silver bullet" to address this issue, but there are a range of policy considerations that could help bridge this digital divide. Again, I am sure that my co-panelists will speak to policy solutions in more detail, but I would like to highlight a few items based upon the Center's research.

First, the General Assembly could incentivize and provide support for electric cooperatives to supply internet access. HB 2438 and SB 1118 both address this issue. At the Center's August Board of Directors meeting, we received a presentation from Tri-County Rural Electric Cooperative on its work to provide broadband services in Potter County, which will expand to other parts of its service area in the coming years. This undertaking appears poised for success.

Second, the General Assembly could consider allowing municipalities, political subdivisions, and related entities a greater opportunity to facilitate or engage in broadband services – which could take a variety of forms. The Joint State Government Commission report of September 2020 issued recommendations that expressly call for such legislative changes with regard to "last mile" connectivity. While this is a complicated matter, it is nonetheless worthy of further discussion.

Third, the Commonwealth should consider revising its definition of broadband. This, too, is a recommendation noted in the Joint State Government Commission's report. And, broadly speaking, if the General Assembly wishes to make faster progress in broadband proliferation, it should seriously consider the recommendations noted in the Joint State Government Commission's 2020 report. As a reminder, that report highlights some of the same issues as the Center's 2019 report.

Please know that that the Center for Rural Pennsylvania is more than happy to help advance broadband access in any way that we can, consistent with our enabling legislation.

Thank you for your time and consideration of my comments.

Executive Summary

Broadband Availability and Access in Rural Pennsylvania

Research team:
Sascha D. Meinrath, Palmer Chair in Telecommunications,
Pennsylvania State University,
with Hannah Bonestroo, Georgia Bullen, Abigail Jansen, Steven Mansour,
Christopher Mitchell, Chris Ritzo, and Nick Thieme

June 2019

Over 800,000 Pennsylvania residents do not have access to broadband connectivity, according to the Federal Communications Commission (FCC). However, recent research has documented that these official estimates are downplaying the true state of the digital divide because they rely on self-reported data by Internet Service Providers (ISPs).

Therefore, informed policy requires systematic analysis to both verify the FCC's numbers and accurately determine the true state of broadband connectivity across Pennsylvania.

This research collected more than 11 million broadband speed tests from across Pennsylvania in 2018. These tests measured broadband speeds in every Pennsylvania county and found that median speeds across most areas of the state do not meet the FCC's criteria to qualify as broadband.

This research leveraged the expansive resources available via the Measurement Lab (M-Lab) platform, which is an open source project of researchers, industry and public-interest partners, and an international team of network researchers whose expertise span from Geographic Information System (GIS) visualization and telecommunications technologies, to federal, state, and municipal broadband policies. Over the course of the project, the research team developed a transparent and replicable methodology that used open source tools for collecting broadband data.

This year-long research effort focused on precisely measuring median broadband speeds within specific geographic areas, and on identifying the extent of variances between "official" estimates of broadband availability and broadband speed measurements gathered "from the field."

The main findings from these analyses have profound implications for existing and future efforts to bridge the digital divide. The key findings are:

1. The FCC's official broadband maps from December 2017 (updated May 2019) show 100 percent availability across all of Pennsylvania of broadband speeds that exceed 25 megabits per second (Mbps);
2. The research team collected more than 11 million broadband speed tests from across Pennsylvania in 2018 and found that median speeds across most areas of the state did not meet the FCC's criteria to qualify as a broadband connection;
3. At the county level, the 2018 data showed that there were 0 (zero) counties in Pennsylvania where at least 50 percent of the populace received "broadband" connectivity, as defined by the FCC;
4. Connectivity speeds were substantially slower

The Center for Rural Pennsylvania
A Legislative Agency of the Pennsylvania General Assembly

This project was sponsored by a grant from the Center for Rural Pennsylvania, a legislative agency of the Pennsylvania General Assembly.

The Center for Rural Pennsylvania is a bipartisan, bicameral legislative agency that serves as a resource for rural policy within the Pennsylvania General Assembly. It was created in 1987 under Act 16, the Rural Revitalization Act, to promote and sustain the vitality of Pennsylvania's rural and small communities.

 For more information, contact the Center for Rural Pennsylvania, 625 Forster St., Room 902, Harrisburg, PA 17120, (717) 787-9555, info@rural.palegislature.us, www.rural.palegislature.us.

in rural counties than in urban counties; and

5. By combining 2018 data with a historical archive of an additional 15 million tests from Pennsylvania residents, the research team identified that, since 2014, the discrepancy between ISPs' self-reported broadband availability in the FCC's broadband maps and this research's speed test results collected via the M-Lab platform has grown substantially in rural areas, but not in urban areas; this may indicate a growing overstatement of broadband service availability in rural communities.

To enable further exploration and refinement of these data, the research team is freely and publicly releasing all of the data, mapping methodologies, scripts, and visualization tools.

This research provides a considerable level of documentation and insight into the state of broadband connectivity experienced by rural residents across Pennsylvania. Unfortunately, efforts to bridge the digital divide have, thus far, fallen far short of official broadband speed goals; and while these efforts have improved connectivity for many, the divide between rural and urban areas may be growing – a divide that is further clouded by the official FCC maps.

As a part of this project, the research team has produced an open, easily-reproducible methodology in collaboration with experts in the field. The goal has been to help create a new "gold standard" for this type of research – a methodology that can be generalized to other states and national efforts and one that represents a best practice for future efforts aimed at determining the extent of broadband access. This project has specifically explored the availability of 25/3 Mbps broadband across the state and provides options for government, community, and civic organizations that want to help support universal broadband availability.

The main implications stemming from the research findings are that successfully addressing the digital divide will require a variety of tactics, some old, but many new. Major investments in both the documentation of on-the-ground realities, as well as directly in infrastructure, should be considered.

Finally, the project team's archival research documents that broadband connectivity has been successfully deployed to previously underserved communities, both within Pennsylvania and across the country, using a diverse array of business models. Therefore, the research team recommends maximizing the options for service provision to ensure true broadband deployment across rural Pennsylvania.

For a copy of the report, *Broadband Availability and Access in Rural Pennsylvania,* visit www.rural.palegislature.us. For the live data, visit https://pa.broadbandtest.us.

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1P0619-350

Testimony of

Sascha D. Meinrath

Palmer Chair in Telecommunications

The Penn State University

Before the Pennsylvania State House

Democratic Policy Committee

Hearing on Improving Internet Access for Education and Telehealth

Harrisburg, PA & Virtually

Tuesday, October 6, 2020

Introduction

Thank you, Chairman Malagari and members of the Committee, for this opportunity to discuss the current state of broadband connectivity across Pennsylvania.

My name is Sascha Meinrath, the Palmer Chair in Telecommunications at Penn State University. For 15 years I've led mapping efforts to document the state of broadband: in 2006, I co-founded the Cooperative Measurement and Modeling of Open Networked Systems Initiative at the Center for Applied Internet Data Analysis, in San Diego.

In 2008, I founded the Open Technology Institute, a DC-based policy think tank; in 2009, I co-founded Measurement Lab, which has grown to become the world's largest open broadband measurement data repository. More recently, in 2015, along with joining Penn State Faculty, I founded X-Lab, a tech policy institute devoted to exactly the type of vanguard research that brings me before you today.

Over the past three years, my team and I have been hired by Center for Rural Pennsylvania to research broadband speeds and pricing across the Commonwealth. In 2018, we conducted an in-depth analysis of connectivity speeds. Our findings, delivered to the Pennsylvania legislature in June 2019's, "Broadband Availability and Access in Rural Pennsylvania" report were -- as Center for Rural PA director, Kyle Kopko, summarized -- quite stark.

Key 2019 Findings: Broadband Speeds

We developed hundreds of maps documenting substantial differences between official availability measures and results collected from over 11 million speed tests run by PA residents. We found many communities experience **much** slower speeds than ISPs claimed were available; and that the discrepancies between official measures of broadband availability and on-the-ground speeds grew substantially over the past half-decade -- especially in rural areas of the state.

Our data support what Pew Research Center found -- broadband penetration is beginning to flatline -- but "official measures" systematically hide this by *increasingly overstating* broadband availability and speed, particularly in rural areas. Our data also aligned with what Microsoft later reported -- while the FCC claimed roughly 20 million Americans were without broadband access, the actual number was closer to 50% -- or, as Microsoft summarized: "162.8 million people are not using the internet at broadband speeds."

As I testified before the PA legislature in September, 2019:

> "Our results systematically document that we face a dire crisis that is undermining our economy, our educational system, our health care, our access to media and information, and availability of untold additional resources that broadband connectivity makes possible."

Post-COVID Realities

Pennsylvania's post-COVID broadband reality is calamitous. Following our 2018 study, we have continued to collect broadband speed results from across the state: 8,264,040 tests through mid-September. These 2020 results document that huge swaths of the state *still* do not have adequate access to broadband. The Coronavirus pandemic focused our attention upon this longstanding shortcoming because it has acted as a "force-multiplier" for the detrimental impacts of the digital divide:

1. Students learn less without broadband access -- and children learn *far* less when distance learning is so prevalent.

2. Entrepreneurs have difficulty thriving without broadband -- today's local businesses face far greater disadvantages when they cannot pivot to online operations.

Because of this, administrators are compelled to send students to school, even when it's dangerous; local businesses stay open because they have no meaningful online capacity (and even if they did have connectivity, their customers too often do not); and these communities face greater risk that may be measured in increased sickness and mortality rates. And when residents on the wrong side of the digital divide feel ill, they have less access to telehealth -- doubling down on the detrimental health impacts of the divide.

This state of affairs is particularly troubling for Pennsylvania residents, since, unlike other states, we've actually already paid for universal broadband service guarantees that were never actually delivered. When the state granted tax breaks and "rate flexibility" -- resulting in higher costs for PA residents -- it was in return for an explicit commitment. To quote Verizon:

> "Bell commits to deploy the technologies necessary to provide universal broadband availability in 2015. In order to meet this commitment, Bell plans to deploy a broadband network using fiber optics or other comparable technology that is capable of supporting services requiring bandwidth of ***at least 45 megabits per second***..."

While it is difficult to determine just how much money Pennsylvania residents have already paid for universal broadband by 2015, the consumer watchdog group, Teletruth, conducted in-depth investigations looking at Verizon's SEC filings and tax documents. Teletruth's founding director, Bruce Kushnick, estimated that:

> "...by the end of 2014, Verizon PA overcharged customers about $18 billion for a fiber optic future they never got."[1]

Today, Verizon continues to state that it has, "...met its Chapter 30 obligations to deliver broadband to 100% of its Pennsylvania service territory by the end of 2015."[2]

[1] Available from: https://www.verizon.com/about/sites/default/files/pa_hsi.pdf
[2] Ibid.

Key 2020 Findings: Broadband Pricing

Our current research initiative for the Center for Rural PA[3] collected survey/polling data from over 1400 PA residents regarding broadband speeds, pricing, willingness-to-pay, and demographics. Key findings include:

1. Substantial service provision differentials exist between urban and rural communities; urban respondents report higher use of cable and fiber Internet, and rural respondents report higher use of dial-up, DSL, and satellite connections;
2. Pricing data alone hides substantial differentials within speed tiers between urban and rural constituencies; within pricing tiers, rural areas are overrepresented with slower speeds, while urban areas are more likely to have faster speeds; thus, dollar for dollar, rural areas receive slower speeds than urban areas;
3. Survey responses document a "sweet spot" in terms of high willingness to pay for broadband, as well as relatively static "unwillingness-to-pay" for services over $80/month; and, at lower price points (under $61/month), rural constituencies have consistently *higher* willingness-to-pay than urban respondents;
4. Pennsylvania's current definition of "broadband" is antiquated and should be harmonized to meet or exceed long-established federal standards. Currently, the Commonwealth's definition is more than an

[3] Tentatively titled, "Broadband Demand: The Cost and Price Elasticity of Broadband Internet Service in Rural Pennsylvania," which will be available via the Center for Rural PA website.

order-of-magnitude slower than the current FCC definition of "broadband" connectivity; and,

5. The state should establish standardized public disclosure of broadband service characteristics including speed, pricing, service limitations, and guaranteed minimum service levels, so that consumers can comparison shop and make informed decisions about which service to purchase.

Of immediate import, Pennsylvania would be far better positioned to leverage federal broadband support mechanisms if the State developed a comprehensive broadband mapping initiative using best-practices from the scientific and research community.[4]

Economic Costs of Pennsylvania's Digital Divide

The opportunity costs of continuing inaction are enormous. The National Bureau of Economic Research estimated that broadband connectivity supplies roughly $2,000 a year *per household* in economic value.[5] This cost isn't just due to increased job prospects, but also cheaper flights, less expensive diapers, better medical advice, access to online resources, and e-commerce cost-savings.[6] Likewise, the National

[4] Funding sources include the $16 billion Rural Digital Opportunities Fund administered by the Federal Communications Commission, and potentially tens of billions of dollars in broadband support proposed by Congress through programs like the HEROES Act and the Moving Forward Act.

[5] See: http://www.nber.org/papers/w21321.pdf

[6] And that opportunity costs is without taking into account the bolstering of home property values associated with broadband connectivity. Researchers Steven Deller and Brian Whitacre released a 2019 study looking at 887 rural communities looking at the effect of broadband connectivity on home value. Among their many interesting findings, one, in particular, stood out: "...higher access to broadband, regardless of the specific estimator used, has a positive impact on remote rural housing values." (Pg. 15). According to Deller and Whitacre, these results translated to fairly extensive benefits that a "10% increase in coverage of at least 0.2Mbps results in the median house value increasing by $661." Thus, for an unserved community, increasing even baseline connectivity by even a modest amount may

Federation of Independent Business (NFIB) found that lack of broadband access, especially in rural areas, hurts start-ups and small business prospects.[7]

Economic Take-Home Message

In 2015, the US Census Bureau reported that Pennsylvania had 1.35 million rural households. Based on the FCC's *optimistic* estimates, about 40% of rural households (540,000 households) do not have broadband connectivity. Taking into the $2000/year opportunity cost, **the current lack of broadband costs rural Pennsylvania residents over $1 billion a year in lost economic opportunity**.

Together with the $18 billion in overcharges and tax subsidies already paid to Verizon and other ISPs since the mid-1990s, **Pennsylvania's lack of universal broadband connectivity has likely already cost the state well over $25 billion**.

Conclusions

In conclusion, Pennsylvania's rural residents face a trifecta of digital disadvantage:

1. Official measures overstate broadband availability;
2. The magnitude of the discrepancy is greater for rural areas than urban locales, thus hiding the extent of the divide; and,

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have an impact of thousands of dollars *per house* within that local community. [From: https://blogs.extension.wisc.edu/cced/files/2019/07/Deller-Whitacre-2019.pdf]

[7] According to the NFIB, "...for business owners in rural communities, [broadband] has become an issue they can't ignore. As more industries and day-to-day operations rely on fast and reliable connectivity, areas that lack the essential tool are increasingly left in the dust." [See: https://bit.ly/2F8LeFW]

3. Even when connectivity is available, dollar for dollar, rural residents appear to receive worse service than urban constituents.

As a first step to solving these problems, Pennsylvania should invest in the independent, longitudinal documentation of the state of broadband connectivity across the Commonwealth. Not only will a comprehensive documentation effort increase access to broadband buildout funding (likely more than paying for itself), it would also enable more effective implementation of broadband interventions by more accurately identifying underserved areas.

Furthermore, longitudinal speed and pricing data will empower the State of Pennsylvania to objectively measure which strategies and ISPs have been most effective at bridging the digital divide and improving broadband affordability over time. And in the immediacy, the State should substantially increase investment in immediate buildout efforts to slow the hemorrhaging of economic wealth, well-being, and vitality from communities across Pennsylvania.

Thank you for this opportunity to discuss our research and its import for Pennsylvania. I look forward to answering any follow-up questions you may have.

Broadband Demand: Cost and Price Elasticity of Broadband Internet Service in Rural Pennsylvania

Presented by:

Sascha D. Meinrath
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sascha@psu.edu

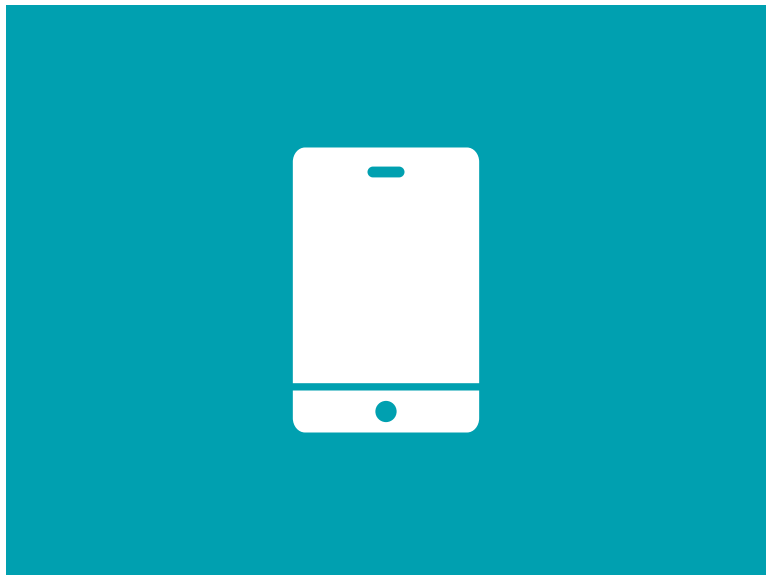
Summary

Follow up to the Center for Rural Pennsylvania research initiative and report: “Broadband Availability and Access in Rural Pennsylvania.”

Access is a prerequisite to adoption; together, these reports demonstrate how rural communities are less likely to have access to broadband.

By exploring rural and urban broadband pricing and willingness-to-pay for broadband service, this initiative provides a look at several relatively under-explored phenomena.

Methodology

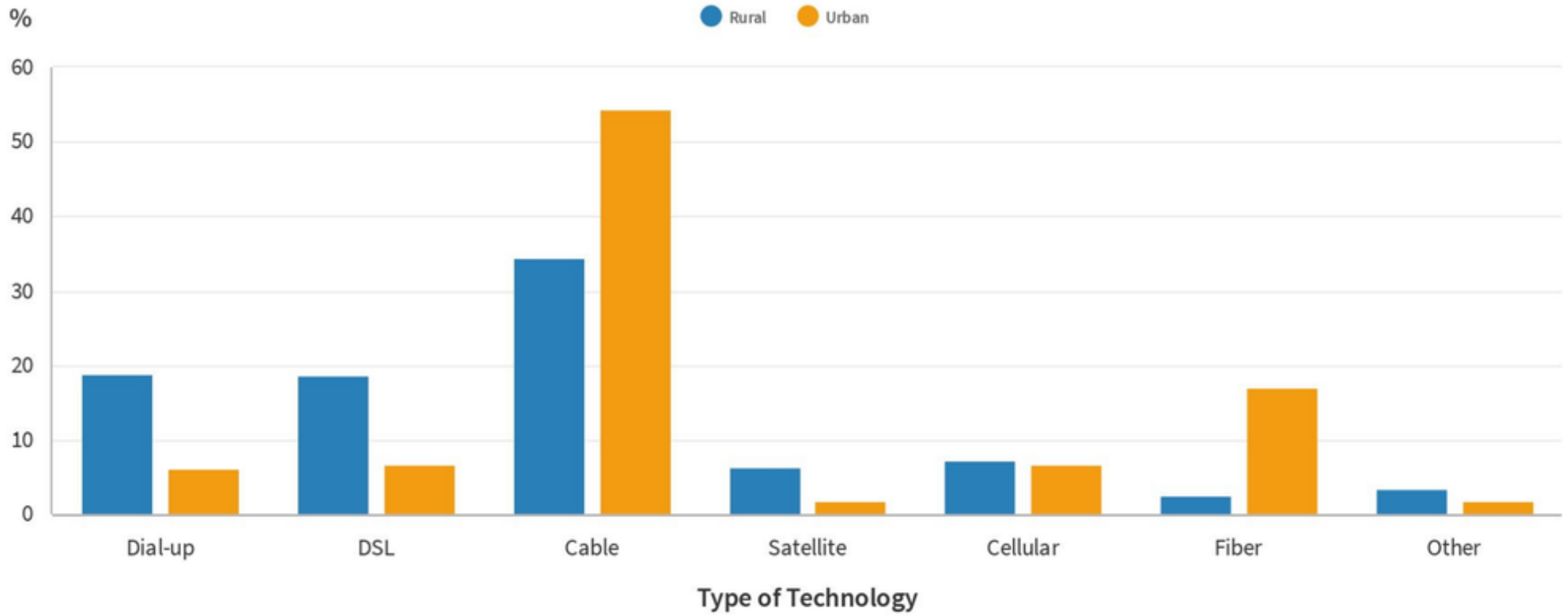


An interactive voice response survey and a targeted interactive text messaging protocol were developed to determine local broadband demand and price elasticity in conjunction with a national polling partner.

Survey instrumentation was designed to ensure maximum granularity in the data and accuracy in representing Pennsylvania's rural and urban makeup. Survey questions were answered by 1,446 participants spanning 670 zip codes from across the Commonwealth.

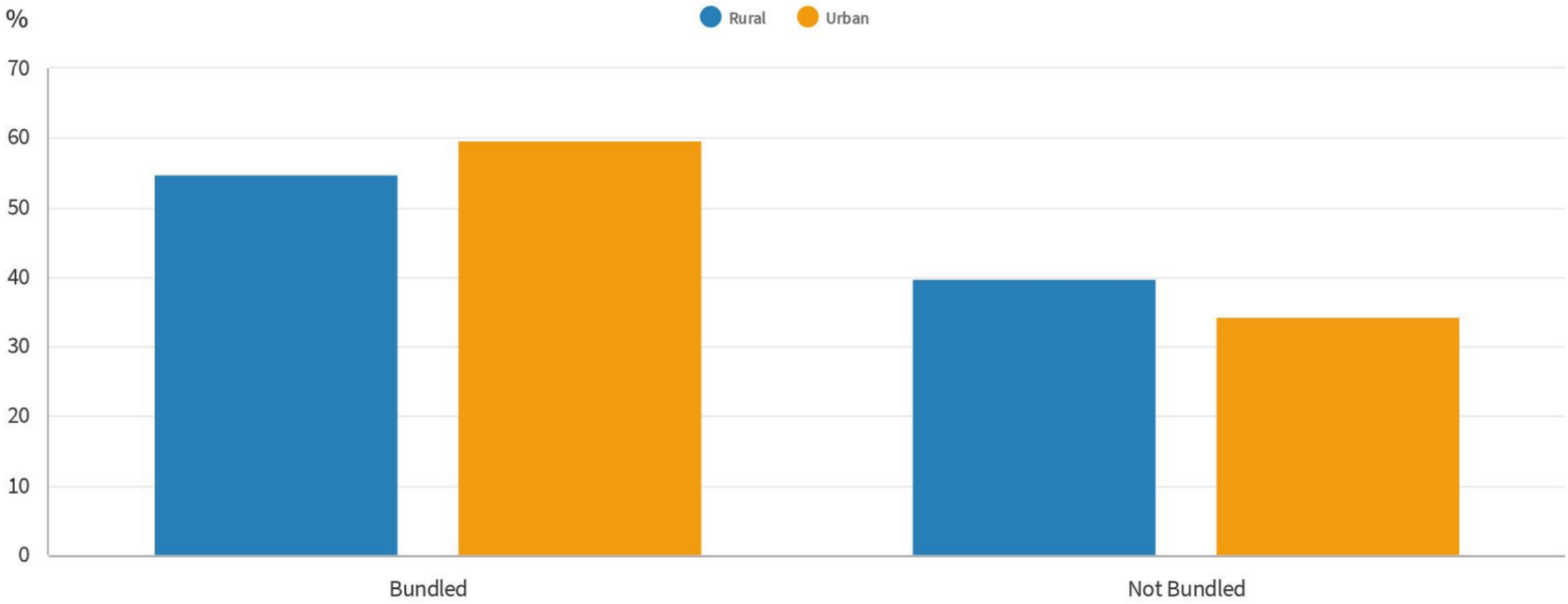
The report uses a representative sample of rural and urban communities based upon key demographics (e.g., geolocation, level of education, etc) and compiles existing pricing and demand characteristics for both rural and urban areas.

Primary Home Internet Connection Technology



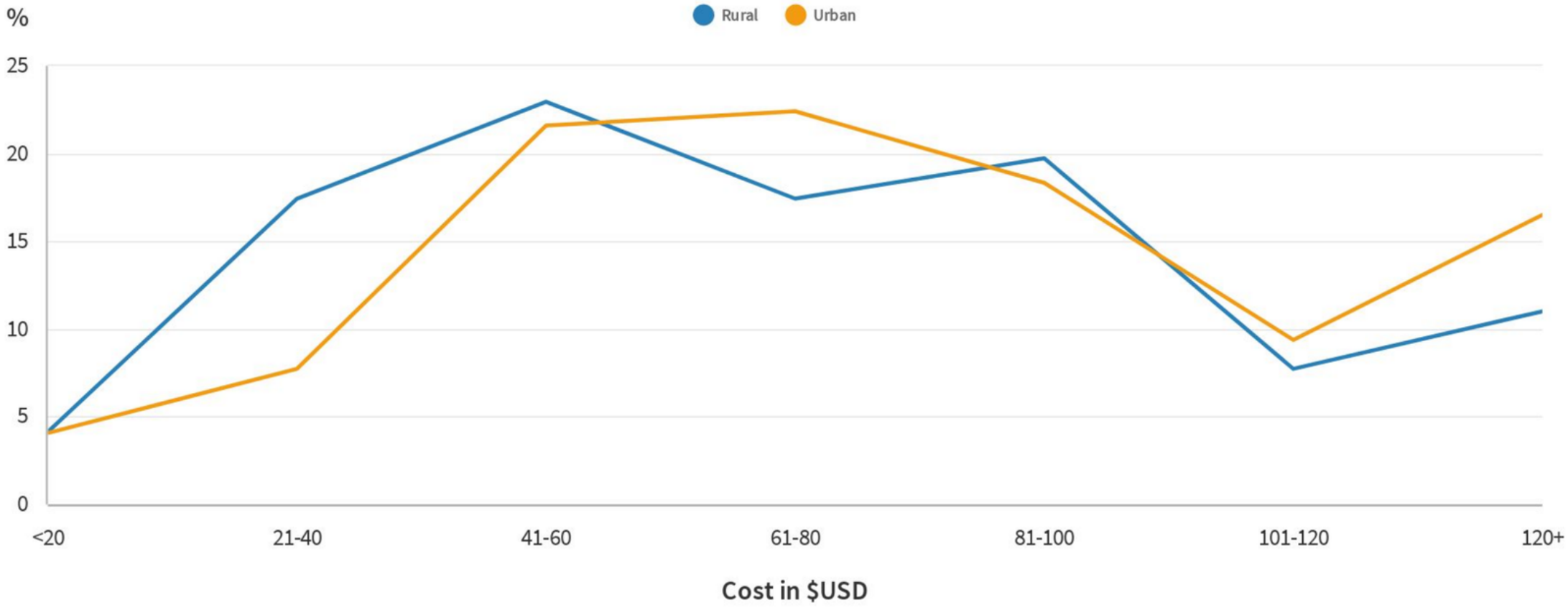
- 54.4% of urban residents have a cable Internet connection, vs 34.4% for rural.
- For rural residents, dial-up (18.8%) and DSL (18.6%) are more common than for urban residents (6.1% and 6.7%).
- The same is true of satellite Internet (6.3% vs. 1.9% for rural vs. urban).
- But the opposite is true for fiber: 17.1% of urban homes and only 2.6% of rural homes are served.

Internet Bundling with Cable TV and/or Phone Service



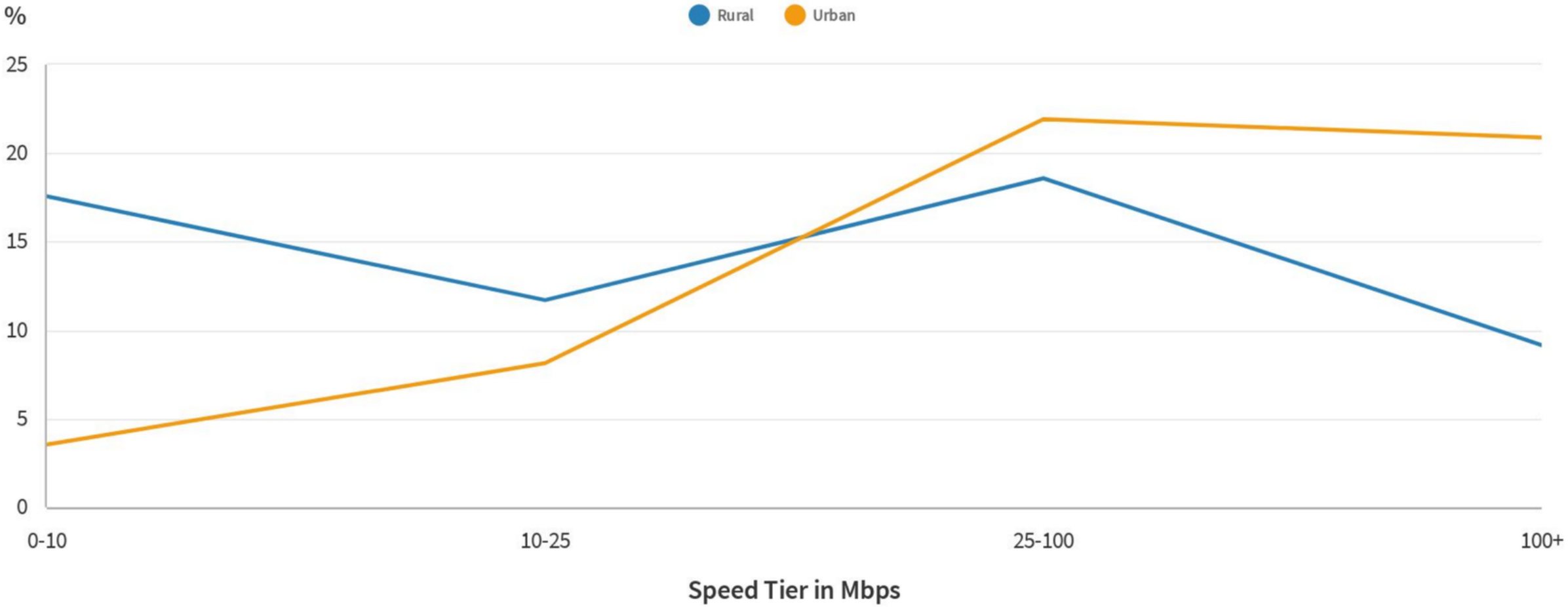
Urban vs rural breakdown of bundled vs unbundled service shows similar numbers for both demographics, with a slightly higher rate of bundled users in urban areas (59.6%) than in rural areas (54.9%).

Monthly household cost of home Internet service

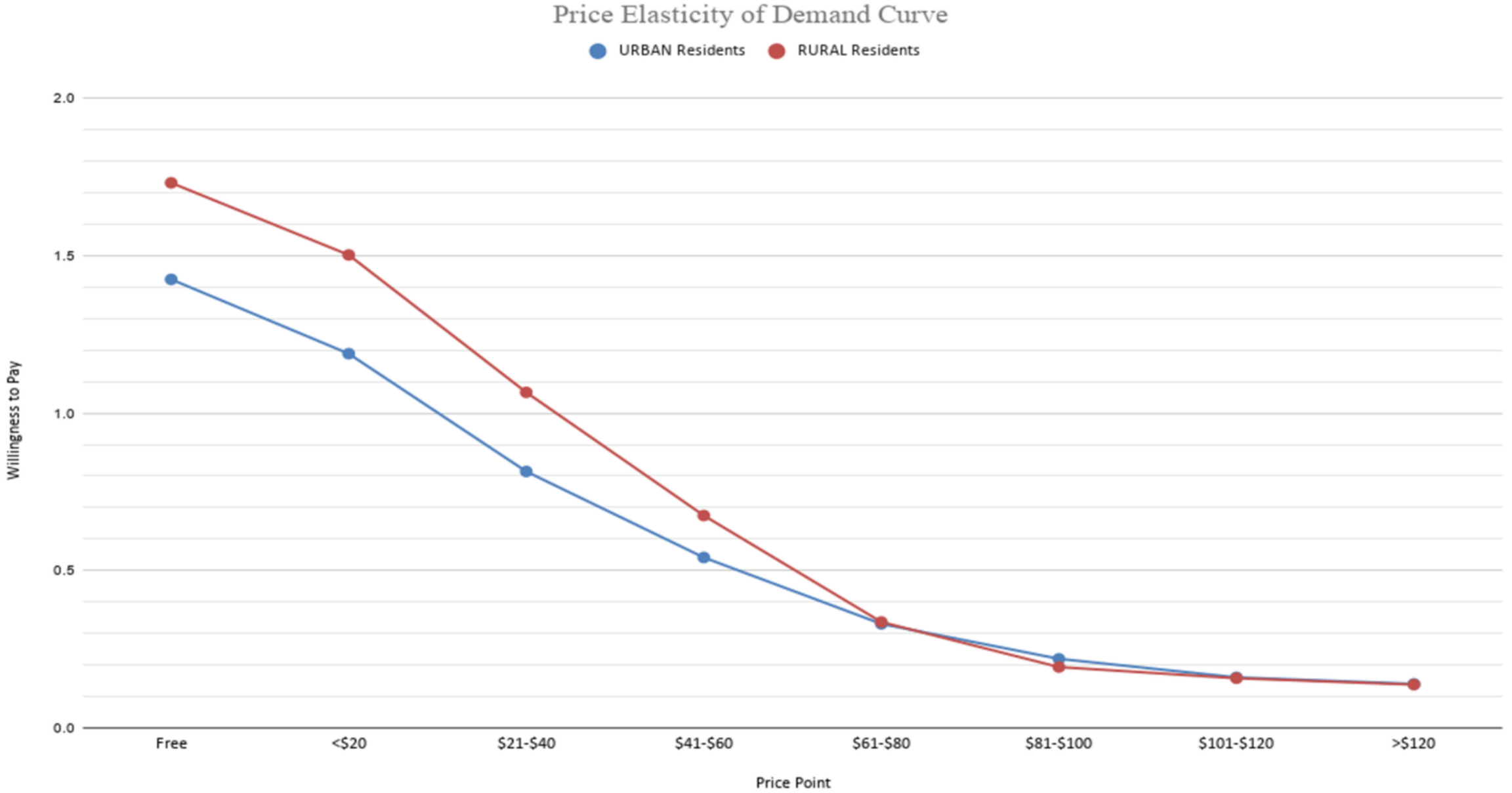


Percentage of users whose monthly broadband costs fall within each pricing band. [NOTE: this graph does not account for broadband speeds, but simply looks at the cost for access to the broadband Internet plan.]

Home Internet Download Speed



Far more rural constituents reported 0-10 Mbps home connectivity speeds (17.6%) than urban constituents (3.6%); while far more urban respondents reported 100+ Mbps speeds (20.9%) than rural respondents (9.2%).



[See next page for analysis.]

Price Elasticity of Demand Curve:

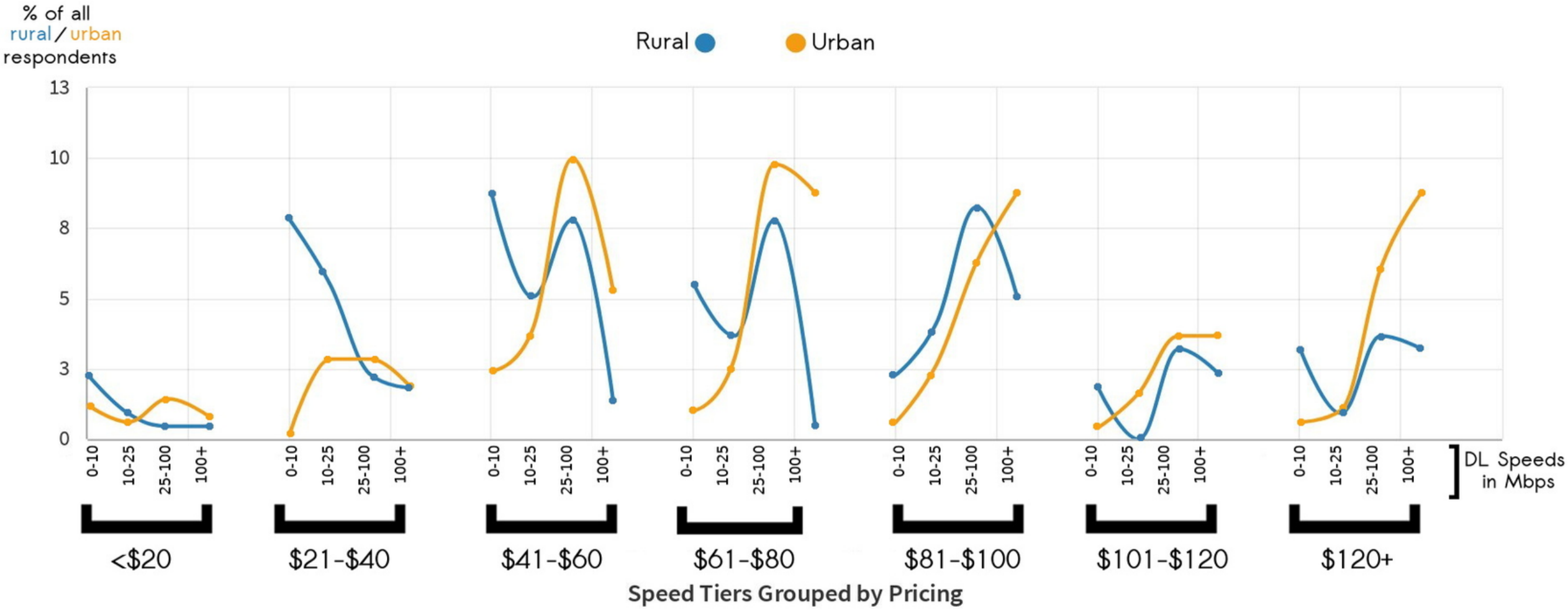
1. Broadband demand is significantly higher for rural constituents than for urban constituents at every monthly price point less than $61/month.

2. Demand drops off significantly for both rural and urban respondents, and demand "flatlines" at rates greater than $80/month.

3. To meaningfully increase broadband adoption, prices should not exceed $60/month.

4. Below $61/month, diminishing price points increase broadband demand more for rural areas than urban constituencies.

Rural vs Urban Speed Tier by Pricing



[See next page for analysis.]

Rural vs Urban Speed Tier by Pricing:

1. At every price point, there are considerably more rural constituents with a broadband speed of 0-10 Mbps than urban respondents; this discrepancy is pronounced across $21 - $80/month price points.

2. At every price point, rural constituents tend to pay higher prices than their urban counterparts for the same - or slower - broadband speeds.

3. 100+ Mbps broadband adoption is far more prevalent in urban areas than in rural areas, regardless of price point.

4. Taken together: dollar-for-dollar, rural residents receive slower speeds than urban constituents; while urban residents are more likely to receive faster speeds than rural residents for the same price.

Implications & Conclusions

1. Service provision differentials exist between urban and rural areas; urban respondents report higher use of cable and fiber connectivity, while rural respondents report higher uptake of dial-up, DSL, and satellite;

2. Pricing data evaluated on its own can mask important differences in speed tiers between urban and rural constituencies;

3. Within pricing tiers, rural respondents were overrepresented within slower tiers; while urban respondents were more likely to have faster speeds;

4. The price elasticity of demand curve for broadband service provides evidence that an adoption “sweet spot” in terms of willingness to pay in the under $61/month range,

5. Policy implications for this research are important: urban and rural constituencies receive systematically inequitable service - not only in regards to broadband speed, but also in differential pricing for service. Holding speed and price stable, rural constituencies have a higher willingness to pay for broadband than urban residents.

Contact: Bruce Kushnick, bruce@newnetworks.com

FACT SHEET2: The History of Fiber Optic Broadband in Pennsylvania

- **1991:** The Clinton-Gore presidential ticket put forward a plan called the "Information Superhighway", to replace the existing copper wires in the state utilities, (that could be 50-70 years old) with a fiber optic wire that could deliver new services and compete with cable.
- **1991-1997:** The hype for these networks makes the 5G Wireless noise look like a whisper.
  - **"PA Senate OKs Fiber Optics Bill"** June 24, 1993, Philadelphia Daily News.
  - **"PA Legislature Compromises on Fiber-Optics Bill. The Measure Calls for the State to Be Wired By 2015".** June 25, 1993, Philadelphia Inquirer.
  - **"Phone Bill Goes To House. The Pa. Measure Would Limit Rate Increases and Require A Fiber-Optic Network by 2015".** May 24, 1993, Philly Inquirer
- **1992:** "Opportunity Pennsylvania" was presented and it was a cookie-cut plan created by Deloitte & Touche that was used in NJ, PA, IA, OH and IL.
- Instead of having the government build these networks, the incumbent phone companies-including Bell Atlantic, which controlled Bell of PA, claimed they would do the work if there were changes in the state laws; Verizon PA was granted "alternative regulations" (also called "price caps" or "incentive regulations").
- **1993:** The PA state legislature created "Chapter 30" which modified the State utility code.
- Then the PA Public Utility Commission (PAPUC) put together an agreement with Verizon PA so that they would upgrade the entire territory, 100%, in rural, urban and suburban areas equally, completed by 2015 with speeds of 45 Mbps in both directions.
- **1993:** At the same time, Bell Atlantic filed "video dialtone" applications with the FCC to upgrade the copper wires to fiber, which included PA. In fact, almost every phone company submitted similar proposals, and these were approved.
- **1994:** Verizon PA took a $1.2 billion tax deduction for the "technology deployment plans",
- **1996:** Bell Atlantic announces it will spend $11 billion on fiber optic broadband and have 12 million households wired by 2000, starting in Philly and Pittsburgh.
- **2002:** Nothing had been deployed. New Networks Institute (and Teletruth) filed a complaint, claiming that $1,134.00 had been collected per household through changes in the state laws; by then it was up to $4 billion dollars.
- **2002:** The PA PUC also found that Verizon PA had not fulfilled its obligations.
- Unfortunately, there was a wrinkle; the original legislation only required 1.5 Mbps in one direction. There was some pushback from the state Advocate,
- **2004:** The PA State law was again changed, immortalizing the speed of 1.5 Mbps, but it kept the Verizon PA timeline to complete broadband coverage, 100%, by 2015.
- **Bait-and Switch:** Somewhere along the way, Verizon PA was allowed to substitute the wireless service for wireline broadband.
- **2005-2007:** Depending on the state, Verizon started the roll out of FIOS, its fiber optic service. But it was short lived.
- **2010:** Verizon announced it was stopping the FiOS deployments except where there were previous commitments.
- **2015:** Verizon filed with the State claiming they had 96% of the Verizon Pennsylvania territory finished and on schedule for completion by the end of 2015.
- **2015:** We estimated that only 37-42% of the state had been upgraded to fiber optics.
- **1994-2015:** Verizon PA overcharged customers an estimated $18 billion for a fiber optic future they never got. This does not include the monies from the cross-subsidies of the wireless networks and other lines of business which we recently uncovered.
- **VERIZON PA FIBER OPTIC FAILURE RESOURCES**
- http://irregulators.org/verizonparesources/

House Democratic Policy Committee

Testimony on Broadband Access

Pennsylvania State Grange

October 6, 2020

Wayne Campbell
President
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Thank you very much for having the Pennsylvania State Grange testify. I am Wayne Campbell, Pennsylvania State Grange President.

Pennsylvania State Grange has represented rural Pennsylvanians, not only agricultural producers, but rural and urban citizens, since 1873. For several years in Harrisburg, we have been pushing for universal access to Broadband for rural Pennsylvania as our number one legislative priority. To understand this issue fully, look back to the early days of the last century to the days before and after rural electrification.

What transformed rural America to give it electrical equity with urban areas was a concerted effort by government, the private sector and especially the formation of rural electrical cooperatives. Rural electrification allowed rural America to fully be a part of the American economic miracle and helped to end the isolation and sense of exclusion of rural America.

Broadband access is to this century what rural electrification was to the 1900s.

Although legislators from rural areas are familiar with the need, please take my testimony and the testimony from others today to heart. **Suffice it to say that the need is critical and the need is now**. Please talk with Rep. Pam Snyder (D-Greene/Fayette/Washington). Besides being a leader in Broadband legislation, she is co-chair of the House Broadband Caucus.

Sadly, despite efforts to gain traction, strong interest has not come about until this year. I am glad that the General Assembly is moving several bills forward even though none are yet law. Let me give you a non-legislative case in point. In preparing for this testimony, I talked to someone in Perry County government where I'm from. They told me that Perry County had been trying unsuccessfully to get a grant from an economic development entity for the past five years for construction of a cell phone tower, only to be met with multiple bureaucratic delays. Five years. Then, after the COVID-19 crisis hit, suddenly, all the impediments seemed to disappear. I have mixed feelings about what they told me. On one hand, I am happy with the result as it looks like some folks in my county will finally have cell phone access. On the down side, this application languished for five years before the crisis woke people up to the critical need rural Pennsylvanians have. That is why I am glad you are convening this hearing.

They also told me something clearly way beyond Pennsylvania's ability to help with. When Washington passed the CARES Act, Perry County received a needed grant of several million dollars. When the County pursued trying to use part of it for Broadband development, they found out that they could not because any project would have had to be completed by the end of December 2020. As you know, a Broadband project does not get completed overnight. I am telling you this because they wanted legislators to know some of the problem counties have to deal with – again, out of your jurisdiction but important nonetheless.

COVID-19 and the Internet

What this COVID-19 crisis has done is to make it painfully aware that we live in a state with "haves" and "have nots". This has now become known as The Digital Divide.

COVID-19 forced the closure of schools. If you're a "have", your kids can learn remotely because they have Internet access via their smart phones, laptops, or a desk top computer at home, or a Chrome Book.

If you live in much of rural Pennsylvania as the Penn State Study showed, you are a "have not". Parents drive their kids to locations where they can do their homework. Why? They cannot get access to high-speed Broadband at home. That's not learning. That's coping and this type of coping is hurting education because kids hurry to get the work completed so mistakes are made. In these cases, not only do parents want to get back home, so do they.

COVID-19 imposed necessary self-isolation. This meant not receiving health care except when urgent. This was understandable since medical facilities had to re-tool quickly to prepare for COVID-19 patients. Routine procedures? Checkups? You had to wait. Recently, there have been media stories to the effect that patients who were forced to wait for procedures or diagnostic treatment are adding significantly to the costs and burdens of American health care.

The solution for the haves is Telemedicine or Telehealth. For the "haves", it is good news. For the" have-nots", it is less access to quality health care.

This month, the PA Joint State Government Commission issued its long-awaited Senate Resolution 47 Report on options to bring about universal access to high-speed Broadband. I hope that you will have them present their findings to this committee.

Pennsylvania State Grange had the honor of being the only member-based rural group chosen to work on this report.

There were sections in that Report dealing with Health Care and Education. In the interests of time, I am concentrating on Healthcare. Realistically, you could talk for hours on each topic.

Education and the Internet

There is one education note that I have to make. In June 2019, the General Assembly passed Senate Bill 440 which became Act 64 of 2019. It addressed the question of how students could still learn (intended to address the number of school days lost by winter conditions) when school buildings were inaccessible. This law made it a requirement that both public and private schools had to provide remote learning. 2020 is the year when school buildings were made inaccessible because of COVID-19. Without universal high-speed Broadband, how can schools complete their legal responsibilities? How can students learn?

Health Care and the Internet

This is a summary of medical technology from the Broadband Report.

> Broadband has an important role to play in ensuring the delivery of quality healthcare to all the residents of Pennsylvania. Its most significant aspects involve the ability to share records and information among providers and to allow patients and providers to interact remotely in real-time.

> The practice of telemedicine is the use of electronic information and telecommunication technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration. The electronic communication technologies refer to interactive telecommunication equipment which includes, at a minimum, audio and video equipment, but may also include videoconferencing, store-and-forward imaging, streaming media, and terrestrial and wireless communications. Currently, there are three main types of telemedicine: remote patient monitoring; store-and-forward; and interactive services. "Telehealth is different from telemedicine in that it refers to a broader scope of remote health care services than telemedicine. Telemedicine refers specifically to remote clinical services, while telehealth can refer to remote non-clinical services."

Telehealth methods used in Pennsylvania include:

- Live real-time videoconferencing (either clinical or educational);
- Live real-time remote monitoring;
- Online video recording (either clinical or educational);
- Online diagnostic scans (such as radiology);
- Online remote monitoring (stored);
- Electronic health records;
- Diagnostic decision support systems; and
- Web-based discussion boards.[171]

Technologies used include videoconferencing, the Internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications.

The bottom line on the Internet and Healthcare? You can't use Telemedicine or Telehealth unless you have Internet and access to high-speed Broadband. **Telemedicine does not work if there is no connectivity**. Remote monitoring of a health condition? NO. The doctor reviewing a medical condition with a patient communicating in real-time data? NO. Given current attention on rural mental health and mental health parity, know that it is a serious problem especially felt by those who are elderly or isolated. Remote counseling? NO.

Recommendations

The Pennsylvania State Grange should do more than just identify the problems. It should suggest action steps the House can take. The House of Representatives has a host of bills relating to Broadband. We hope that the House will pass them and that the House Democratic Caucus will play a leading role. The list of bills is long. Here again, I think a conversation with Rep. Pam Snyder would be very productive for the Members.

We have four recommendations for the House Democratic Policy Committee.

Senate Bill 835

The closest legislation to you right now is Senate Bill 835, Printer's Number 1144. It seeks to establish a Broadband Authority which would coordinate efforts by state agencies and outside businesses and groups to achieve universal access to high-speed Broadband. It passed the Senate on September 8 on a 50-0 vote. Most recently, the House Consumer Affairs Committee reported out this legislation unanimously, 24-0 on September 29. Despite the few days remaining in this legislative session, the House has a historic opportunity to significantly help all Pennsylvanians reach the goal of universal access to high-speed Broadband. All it would take would be for the House to finally pass the bill and send it to the Governor for his signature. Receiving that legislation could make his day since it is a truly bipartisan approach to addressing a state-level problem.

Non-Taxpayer Funding for Broadband Expansion: A New Option

Although SB 835 is needed, $5 million is a drop in the bucket relative to need. The question has always been how the proverbial last mile is paid for. Telecommunications companies cannot break even financially because of so few people. The Pennsylvania State Grange would like to suggest another way to fund expansion of high-speed Broadband. **Similar to the 911 fee that is on telephone bills, we ask that the General Assembly enact a modest fee of one or two dollars a month for each cell phone in use in the Commonwealth. This would build up quickly and could be a reimbursement for the expansion AFTER the telecommunications companies complete their work or be used as a matching funds pool.**

Is this feasible? Yes.

As early as 2011 there were 327 million cell phones in the U.S. compared to a population then of 315 million – more cell phones than people *(source: Media Tech Reviews 2018).* In 2020, there were 275.7 million smart phone users in the U.S. *(source: statista.com).* The Pew Research Center (2019) reported that 96% of U.S. adults used some type of cell phone. In PA, the population in July 2019 was 12,801,989 with 79.4% being over 18 years old *(source: US Census Bureau).* A nominal monthly fee would generate huge amounts, especially since many people have more than one cell phone. Note that these statistics do not include the number of cell phone users under 18 years of age.

Restore PA is another option that has been proposed. Despite the amount of money sought ($4.5 billion dollars), the numbers allocated to Broadband have never been disclosed. We are concerned because there are at least nine other priorities on the Restore PA wish list such as flood mitigation, PA parks, urban and rural town blight, etc. We prefer a new source of revenue dedicated to this purpose that will not be tapped for other types of projects.

Telemedicine House Bill 2454

This is another piece of legislation that should be considered. Do you remember the bill on Telemedicine that passed the General Assembly but was vetoed by Governor Wolf because of abortion language?

Now, Rep. Christina Sappey (D-Chester) introduced **House Bill 2454 to regulate Telemedicine** and mandates that insurance companies pay those claims. It is similar to the other bill but it does not include the language that prompted the Governor's veto. We ask that support it.

Funding for the Governor's Office of Broadband Initiatives

The fourth recommendation is the State Budget – the second half. **Pennsylvania State Grange urges you to create a line item for the Governor's Office of Broadband Initiatives**. Despite the fanfare when formed, the Office has been crippled because no money was ever budgeted to do its work. It has no resources and no full-time staff. It tries to do what it can but right now, it cannot do much. Please give the Governor's Office of Broadband Initiatives what it needs to become effective. Although these are tough budget times, that Office has the potential in attracting millions of USDA's Rural Development dollars providing that we have a coordinated Plan. This Office is the entity best suited to working with agencies, businesses and stakeholder groups like the Grange to develop this plan and capture Federal resources now going to other states.

Thank you again for inviting the Pennsylvania State Grange to testify today. Please count on us as a resource.

Philadelphia Corporation for Aging Testimony

Pennsylvania House Democratic Policy Committee

Public Hearing on Improving Internet Access for Education and Telehealth

October 6, 2020

Presented by:

Najja Orr

President and CEO

Philadelphia Corporation for Aging

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Good afternoon. My name is Najja Orr and I am the President and CEO of Philadelphia Corporation for Aging, also known as PCA. I would like to start by thanking Chairman Sturla and Representative Malagari, as well as the remaining members of the Pennsylvania House Democratic Policy Committee for convening this hearing regarding improving internet access for all Pennsylvanians.

Philadelphia has the second highest proportion of impoverished older adults of the 10 largest cities in the United States. As the Area Agency on Aging for Philadelphia County, PCA has coordinated a broad range of services for more than 140,000 older adults annually to fulfill our mission to improve the quality of life for older Philadelphians and people with disabilities, and to assist them in achieving their maximum level of health, independence, and productivity for nearly 50 years.

The COVID-19 pandemic has greatly accelerated the nation's reliance on technology for business, education, health, and socialization. This rapid transition has also left many of Pennsylvania's most vulnerable without a means to connect, and has amplified the necessity of prioritizing equity in internet access.

A recently-published letter released in the *Journal of the American Medical Association* examined the results of the 2018 National Health and Aging Trends Study, led by Johns Hopkins University and the University of Michigan with support from the National Institute on Aging. After surveying 4,525 community dwelling older adults, researchers found that more than one-third of older adults age 65 or older across the nation face potential difficulties seeing their health care professional via telemedicine. The authors stated that 67 percent of older adults in the lowest income bracket, 72 percent of those age 85 or older, and 77 percent of older adults with the poorest self-rated health were unready to participate in telehealth appointments. Additionally, 60 percent of Black non-Hispanic and 71 percent of Hispanic older adults also identified as unready to participate in telehealth appointments.[i]

The authors of this study defined participants as "unready" when any of the following challenges regarding use of the technology were met: "(1) difficulty hearing well enough to use a telephone (even with hearing aids), (2) problems speaking or making oneself understood, (3) possible or probable dementia, (4) difficulty seeing well enough to watch television or read a newspaper (even with glasses), (5) owning no internet-enabled devices or being unaware of how to use them, or (6) no use of email, texting, or internet in the past month."[i] Until the barriers preventing readiness are addressed, older adults and those most vulnerable will continue to be unable to participate in telehealth and other online resources.

The barriers to internet access are exacerbated for many older Philadelphians from diverse communities and those living in poverty. For older adults age 60 and older, 31 percent of Latinx individuals do not have internet access at home. That number increases to 33 percent for Black non-Hispanic individuals, and to 43 percent for those living below 200 percent of the federal poverty level. Additionally, the proportion of older Philadelphians living at 100 percent of the federal poverty level without access to the internet at home is higher than the state average.

In addition to access to essential healthcare, remaining socially connected is vital to a person's physical health status. Prior to the pandemic, 35 percent of older Philadelphians were living alone and at risk of social isolation.[ii] According to the National Institute on Aging, social isolation increases the risk of depression and comorbidities, and increases the risk of decline in cognitive functioning, nutrition, and physical activity. While older adults are

more likely to have internet access if they reside with family in multigenerational households, those living alone are more isolated. Approximately 40 percent of Pennsylvania's linguistically-isolated households are in Philadelphia.[ii]

As focal points in the community, senior centers play an integral part in engaging active older adults. Approximately 20,000 of Philadelphia's older adults attend senior centers to connect socially and recreationally, engage in programs that support physical, social, and mental well-being, and receive a nutritionally balanced meal. As a result of the pandemic, senior centers have had to suspend most programming to comply with stay-at-home and social distancing guidelines. During this time, senior center staff has made wellness calls to participants to ensure safety, provide information and resources, encourage response to the census, complete nutrition screenings, and they have transitioned to grab-and-go meal programs. As of October 1, 2020, PCA funded senior centers in Philadelphia are required to provide 1 - 2 virtual programs per day. Unfortunately, many older adults do not have access to the technology required to participate in online programming, further compounding concerns for social isolation.

It is important to note the impact of social isolation on elder abuse as well. According to the National Council on Aging, social isolation makes older adults more vulnerable to elder abuse and neglect.[iii] PCA operates the Older Adult Protective Services Unit for Philadelphia, where the number of investigations has nearly doubled since 2013. The pandemic has exacerbated the concern of social isolation for many older adults. If barriers to improved internet access were removed, PCA staff, and other professionals, would be able to stay in closer connection with older adults to better monitor their needs and safety concerns in the home.

In conclusion, the pandemic has expedited the need for increased online resources, programs and services. Future generations of older adults will have greater familiarity with and higher expectations for digital platforms, however, current older adults, particularly in low-income communities, often do not have access to the technology needed to stay connected. This lack of connection continues to fuel social isolation, and diminishes access to critical programs and needed health care. Increased funding for access, necessary devices, and education are needed to bridge the digital divide in our communities.

Once again, I would like to thank Chairman Sturla and Representative Malagari, as well as the remaining members of the Pennsylvania House Democratic Policy Committee for convening this important hearing.

Najja Orr
President and CEO
Philadelphia Corporation for Aging

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[i] Lam, K., Lu, A.D., Shi, Y., Covinsky, K.E. (2020, August 3). Research Letter, Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. *JAMA Internal Medicine*, E1- E3. https://jamanetwork.com/

[ii] Glicksman, A. (2020, September 27). Report on Older Philadelphians and the Digital Divide: Additional Findings. Philadelphia Corporation for Aging.

[iii] National Council on Aging. Elder Abuse Facts. https://www.ncoa.org/public-policy-action/elder-justice/elder-abuse-facts/#intraPageNav3

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317

October 6, 2020

House Democratic Policy Committee
Testimony by: Tom Musgrove, Government Affairs Manager, Crown Castle

Chairman Sturla and Members of the House Democratic Policy Committee,

Thank you for the opportunity to speak with you today about our Company, Crown Castle and our infrastructure that impacts connectivity throughout the Commonwealth. Crown Castle is the Nation's largest provider of shared communications infrastructure with over 40,000 cell towers, 70,000 small cells and over 80,000 route miles of fiber. In Pennsylvania alone, we have over 2,100 towers and 11,000 route miles of fiber that support local governments, schools and public safety entities throughout the Commonwealth. Additionally, our largest office resides in Southwest Pennsylvania where about a quarter of our 5,000 employees live and work.

In order to talk about connectivity, we need to first understand how Crown Castle's infrastructure – towers, small cells, and fiber - works.

We have our towers, which are the large, steel structures ranging from 100' to over 1000' high, that you see off in the distance, typically located on the top of a ridge, by a roadside, or on private or in some cases, government property. These towers allow the carriers to provide wireless coverage over large swaths of geography. Crown Castle operates a shared infrastructure business model, meaning we manage and maintain towers for multiple carriers which limits the need for multiple towers in the vicinity; this is known as "collocation".

Additionally, we have over 70,000 small cells operational or in development across the U.S. Small cells are like towers in what they do, but they are significantly smaller, with antenna less than 3 cubic feet on a pole ranging anywhere from 25-45 feet in height. Where towers provide wireless coverage over large areas, small cells are more strategic, and they are placed in the public right of way, closer to the user. There are a few reasons for this. Small cells are lower powered antenna placed on utility poles and most of the time they are designed to blend in to the surrounding environment. They will often be placed on a light post or a utility pole. Small cells do two things: They provide both network coverage and capacity in a smaller area. I would like to provide you with a couple of examples to illustrate the reasons small cells are an integral part of wireless infrastructure.

The first reason is to increase wireless capacity. When too many devices are located within a smaller geographic area; this can cause congestion on the network – too much data is trying to flow across the network at any given time. That's why you could be at a sporting event with 100,000+ fans, have 5 bars on your phone and you cannot access the internet or upload photos. Small cells help offload data and are placed in strategic locations to ease congestion on network. In the future, when we have more applications that will create exponential increases in wireless data consumption, like autonomous vehicles or autonomous drone delivery systems, small cell infrastructure will keep applications and devices running smoothly and without interruption.

The other use for small cells is to provide 'micro' coverage solutions where towers simply cannot reach. Pennsylvania has many topographical challenges where either geography, like a ravine, creates a geographical barrier or existing buildings in metro areas create a physical barrier for signals to reach users. We can use small cells in the public right of way to backfill any gaps in coverage.

The third and final piece of infrastructure I want to discuss is fiber. This is the most important part of any wireless network. Fiber acts as the lifeblood to the entire shared communications system. Without fiber, cell towers and small cells would be rendered ineffective. Together, small cells, towers, and fiber, serve as the three legs of the connectivity stool.

Subsequently, public policy should focus on how all three legs of the stool are reasonably regulated to cultivate an environment that will spur private investment in the buildout of Pennsylvania's wireless infrastructure network, thus increasing internet service into remote portions of the state and densified areas as well.

There are a number of bills currently under consideration that address broadband. SB 835 provides funding for rural broadband, HB 2438 removes restrictions to deploy fiber across rural electric cooperative easements and one bill in particular that addresses small cell deployment – HB 1400, the Small Wireless Facilities Deployment Act for urban and suburban communities.

In Pennsylvania, we have over 2,500 individual municipalities and each of those municipalities are given the opportunity to govern small cells in the public ROW within FCC guidelines. What HB 1400 does is take pre-existing FCC guidelines and standardizes the processing of small cell applications and fee structures across all 2,500+ municipalities.

In addition to standardizing process and fees, HB1400 also provides municipal protections that the FCC does not. It provides a municipality to enforce zoning regulations when an application for a new small

cell exceeds aesthetic standards. It also, protects municipalities from being overwhelmed from an influx of applications and creates a “batching” mechanism that reduces the number of applications that a municipality can receive within a specific timeframe. Finally, it provides protections for a municipality for the restoration of the Right-of-Way penalizing providers that do not adequately restore the right of way.

Due to unpredictable timeframes for processing small cell permits and fee structures that exceed FCC recommendations, Pennsylvania is missing out on the expansion of connectivity and jobs building this essential infrastructure in Pennsylvania backed by private capital from companies like Crown Castle and the wireless providers. 30 other states, Puerto Rico and the District of Columbia have all passed similar legislation to HB1400.

I would like to give you a real-world example about the challenges that HB1400 could help overcome.

Over the past two years we worked on a small cell project for an individual carrier that increased wireless coverage from southwest PA to State College. We needed permits for 97 individual small cells located in 62 different municipalities. We completed the permitting of all the sites in 674 days, just short of two years. On average, it took a municipality 187 days to approve a small cell permit. This is unacceptable if we are going to improve connectivity to our residents. Our industry in Pennsylvania spends more time, effort and money permitting infrastructure than we do building it and as a result, many major network operators build in other states where it is more consistent and more predictable.

Wireless carriers are expected to make a private investment of $275 billion to build out 5G networks across the country. It is expected that there will need to be 800,000 small cells and associated fiber to meet the connectivity needs in the United States. Pennsylvania needs to create a regulatory environment that ensures we receive our fair share while simultaneously improving our ability to connect.

In 2021, improving connectivity in Pennsylvania for ALL communities which include rural, urban and suburban requires a collaborative effort and a commitment from companies like Crown Castle, the major network providers, internet service providers, the legislature, the Governor’s Office of Broadband Initiatives and local municipalities all working TOGETHER to create processes and policies which standardize the deployment of broadband infrastructure for all Pennsylvanians.

Thank you.

TO: Members of the Pennsylvania House Democratic Policy Committee
SUBJECT: Testimony, Oct. 6 House Democratic Policy Committee on Internet Access
FROM: Ashley Henry Shook, Spokesperson, PA Partnership for 5G
DATE: October 6, 2020

Esteemed Members of the Pennsylvania House Democratic Policy Committee:

My name is Ashley Henry Shook, and I am the Spokesperson for the Pennsylvania Partnership for 5G, a business and technology advocacy group supporting the deployment of 5G technology infrastructure throughout the Commonwealth.

The PA Partnership for 5G currently has 52 members, including UPMC, the PA Chamber, Philadelphia FOP, Pocono Mountains Visitors Bureau, Robert Morris University, and Highmark Health, to name a few. A full listing of our members is attached to this testimony.

On behalf of our members, thank you for convening a committee hearing devoted to discussing the need for improved internet access.

The pandemic has certainly illuminated the importance of connectivity. After all, we're learning from home; we're working remotely; and telemedicine visits are surging. We're even holding this forum virtually.

Despite our collective recognition that connectivity matters to every household, student, and business across the Commonwealth, Pennsylvania does not have the infrastructure in place to provide residents with fast and reliable internet access. This is due, in part, to the lack of statewide legislation to streamline deployment of the infrastructure.

As noted in previous testimony, cell towers, fiber, and small cell nodes work together to provide wireless coverage and capacity. Small cells will also serve as the backbone for 5G, the fifth generation of mobile networks. The innovative potential of 5G is not only expected to be a boon for economic development, it will also support a whole host of technological advancements, including remote surgery and patient monitoring, robotic deliveries, autonomous vehicles, and various Smart City applications. None of it can work without fiber though; fiber acts as the lifeblood to support both cell towers and small cell nodes.

The sentiment exists that because adequate cell tower coverage is generally available in cities and suburban localities, those jurisdictions don't typically encounter connectivity constraints.

Yet, unfortunately the pandemic has exposed the connectivity challenges that both urban and rural jurisdictions continue to face. But why?

In short, a lack of coverage is experienced in rural areas and a capacity issue often plagues urban areas. Thus, it's a two-part infrastructure problem that requires a two-pronged solution –

one that provides for rural broadband investment to address coverage concerns and one that streamlines the deployment of small cells to address capacity struggles.

The PA Partnership for 5G is supportive of an all-of-the-above connectivity solution – one that improves connectivity for urban, suburban, and rural communities alike. Moreover, the PA Partnership is supportive of statewide legislation that sets standards for fees, provides a streamlined permitting process, and creates an environment which enables small cell deployment. Statewide small cell legislation is active at the moment - the Small Wireless Facilities Deployment Act or HB 1400 was introduced last June and remains in the House Consumer Affairs Committee. We are cautiously optimistic that Senate companion legislation is forthcoming.

From our perspective there are two reasons why statewide small cell legislation is needed – time and money.

At present, each individual municipality has established its own process for small cell deployment. With over 2,500 municipalities in Pennsylvania, there's a different process, timeframe, and cost associated with how this infrastructure is getting deployed across the state.

On average in Pennsylvania, it takes any single municipality 187 days to approve a small cell permit.

If it took you 187 days to secure a permit for a home improvement project, how much costlier of a project would it become? How likely would you be to just abandon the idea or change up your plans completely? Unfortunately, Pennsylvania has not cultivated an environment that is 5G-friendly and that is causing Pennsylvania to miss out on the $275 billion in private investment that is up for grabs.

In fact, more than 70% of the 5G deployments that have occurred in the U.S. to date have happened in states where statewide legislation has already been adopted. Without statewide small cell legislation, Pennsylvania is jeopardizing its rightful place at the 5G table.

At this very moment, children are trying to learn from home and seniors are trying to access medical treatment from home. Ironically, all while we're having this conversation about the role and need for improved connectivity over a virtual platform. It's obvious really. We're living in a world where timely and speedy access to a connected device is absolutely critical, much like electricity and water. All the more reason for the PA Legislature to adopt policies like the Small Wireless Facilities Deployment Act. It's policies like HB 1400 that will bolster our ability to stay connected and improve our wireless capabilities.

Respectfully,

Ashley Henry Shook
PA Partnership for 5G
www.papartnershipfor5G.com

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About the PA Partnership for 5G: The Pennsylvania Partnership for 5G aims to educate different sectors about 5G technology and the infrastructure it requires. The Partnership brings together various leaders from a diverse set of industries and constituencies to help forge a technologically progressive Pennsylvania.

- Wireless Infrastructure Association
- Facebook
- Pennsylvania Chamber of Business & Industry
- Pennsylvania Fire & Emergency Services Institute
- Pennsylvania Professional Firefighters Association
- Pennsylvania Wireless Association
- Pennsylvania Economic Development Association
- Accelerate PA
- Velocity Network
- Innovative Technology Holdings
- OSP
- Biondo Creative
- S4W
- Philadelphia Fraternal Order of Police, Lodge #5
- Philadelphia Alliance for Capital and Technologies
- Philly By Air
- Amphenol Antenna Solutions
- PerfectVision Manufacturing
- The Technology Council of Central PA
- Omni Bedford Springs Resort
- The Susquehanna Technology Association
- Pocono Mountains Visitors Bureau
- Greater Pittsburgh Chamber of Commerce
- Allegheny County
- The Pittsburgh Technology Council
- Visit Pittsburgh
- Southwestern Pennsylvania Commission
- The Pittsburgh Film Office
- Pittsburgh Downtown Community Development Corporation
- Omni William Penn Hotel
- Pittsburgh Riverhounds SC
- AE Works
- Attribution Cyber Consulting
- connecTel Wireless Inc.
- Crown Castle
- DQE Communications
- Ectobox
- Expedient
- Highmark Health
- Robert Morris University
- SDLC Partners
- Sierra Experts
- TrailBlaze Creative
- Wall-to-Wall Studios
- Dagostino Electronic Services, Inc.
- National Electrical Contractors Association, Western Pennsylvania Chapter
- National Electrical Contractors Association, Penn-Del-Jersey Chapter

- Washington County Chamber of Commerce
- PA Drone Association
- Pennsylvania E-Sports Coalition
- Innovative Public Safety
- UPMC

House Democratic Policy Committee
Public Hearing on Improving Internet Access for Education and Telehealth
October 6, 2020
Department of Community and Economic Development
Written Testimony Provided by Secretary Dennis Davin

Good afternoon Representative Sturla, Representative Malagari, and members of the House Democratic Policy Committee. On behalf of the Department of Community and Economic Development, I appreciate the opportunity to provide this written testimony and to express the need for expanded and improved access to broadband services across the commonwealth.

When it comes to the matter of connectivity, the challenges associated with infrastructure investment, access, affordability, and digital literacy are experienced throughout the commonwealth. According to several of the most recent Federal Communications Commission's Broadband Deployment Reports, approximately 600,000 to 800,000 Pennsylvanians lack access to robust, reliable, high-speed internet. As this information is reported by internet service providers according to census tracts, the full picture of infrastructure deployment, affordability, and achieving the 25/3 Mbps connection speeds may not be fully captured.

While challenges associated with infrastructure investment, access, affordability, and digital literacy are experienced throughout the commonwealth, rural populations face the largest gap in access. The FCC projects that over 15% of households across rural Pennsylvania lack connectivity. Communities of color, in both urban and rural areas, are also less likely to gain access to affordable broadband services. Although the FCC has reported a slight improvement in recent years, access to service for many communities remains largely unchanged.

These limitations to accessing reliable service have become ever more apparent since the onset of the COVID-19 pandemic. As public health concerns demand a reduction in many standard or in-person services, secure internet connections have become even more essential for businesses and households. As some Pennsylvanians continue working and learning from home, inadequate connectivity has presented as an overbearing obstacle to quotidian life.

Education and Workforce Development

The lack of reliable, high-speed internet access has proven to be a substantial obstacle within the field of education, generating challenges for Pennsylvania students and faculty. Without affordable, high-speed connectivity, school districts will continue to face delays in implementing innovative educational initiatives in their classrooms. As schools across the commonwealth engage in virtual learning during the COVID-19 pandemic, the digital divide has become even more apparent, impacting student learning across K-12, college, and professional development programs. From dropped video calls during class time to the inability to complete online assignments, the lack of reliable internet services is placing an immense burden on students and teachers. These limitations to learning in the classroom, at home, or in the community, place some of Pennsylvania's students and future workforce are at a significant disadvantage.

Telehealth and Community Wellbeing

As the nation continues to experience the closures of hospitals and health clinics in rural areas, some communities are looking towards telehealth services to address their medical needs. The demand for such services has grown exponentially since the emergence of the COVID-19 pandemic. With the implementation of additional precautions to minimize community spread and reduce the burden on Pennsylvania's health care systems, many residents have been forced to postpone routine or elective medical appointments. Access to telehealth consultations allow for both additional safety and continued access to services, even during these challenging times. The benefits of broadband are also recognized during emergency situations, as first responders depend on adequate connectivity to address the needs of patients and share information with nearby health facilities. While telehealth resources have been a welcomed option for some households, those who lack reliable broadband have been unable to fully utilize such services. As the state of health care continues to evolve, high-speed connectivity has become increasingly important to ensure that medical practitioners can effectively assess their needs of their patients.

Appalachian Regional Commission (ARC)

DCED has continued to identify opportunities that might support local initiatives for broadband expansion. One such ongoing effort has been through the department's work with the Appalachian Regional Commission. The Appalachian Region, as defined in ARC's authorizing legislation, is a 205,000-square-mile region that follows the spine of the Appalachian Mountains from southern New York to northern Mississippi. It includes all of West Virginia and parts of Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee and Virginia. Fifty-two of Pennsylvania's 67 counties are located within the region and are eligible to submit projects for consideration.

Each year, the ARC provides funding for numerous projects in the Appalachian Region, supporting a wide range of program areas. The Governor, in consultation with the DCED, is responsible for developing the commonwealth's plan, which establishes priority project types and guides proposals. The projects funded in the program areas create thousands of new jobs, increase school readiness, expand access to health care, assist local communities with strategic planning, and provide technical and managerial assistance to emerging businesses. Grants and contracts from funds appropriated to the Appalachian Regional Commission by Congress are utilized to fund critical infrastructure projects, including broadband.

Over the past few years, several broadband projects in Pennsylvania have been funded to address the needs of unserved and underserved communities across the commonwealth's eligible counties. These projects, which also leverage other federal, state, local, and private investments, can provide support for a variety of broadband-related activities. Such projects have included the development of a broadband feasibility study to identify opportunities for broadband or cellular expansion, a pilot program for free public Wi-Fi in federally designated opportunity zones, and the construction of fiber to provide access to 581 households, as well as 60 businesses, across three counties.

COVID-19 County Relief Block Grant

This past June, DCEDoversaw an additional opportunity for broadband deployment. Act 24 of 2020 authorized the department to distribute $625 million in county block grants, utilizing funding under the Coronavirus Aid, Relief, and Economic Security Act (CARES Act). This COVID-19 County Relief Block Grant was designed to offset the costs associated with county efforts to respond to the demands of COVID-19. Along with support to businesses and municipalities, broadband deployment was also among the list of eligible expenditures.

While funding for broadband deployment projects that benefit unserved or underserved communities was included under the block grant, the structure and time requirements of the CARES Act proved to be a challenge for some counties. As part of the CARES Act, all COVID-19 project expenditures must be incurred between March 1, 2020 and December 30, 2020. This accelerated timeline has not been conducive with the development of new broadband initiatives and construction projects.

Recommendations

The lack of access to reliable and affordable broadband has been a persistent issue for many communities across the commonwealth. This challenge existed well before the introduction of COVID-19 and will only continue until adequate funding becomes available to address the issue. In the meantime, students will continue to fall further behind, educators will be burdened by additional stress, and many community health concerns will go unaddressed. While the Department has looked to federal funding opportunities through the ARC and USDA, it has not been nearly enough to address the gaps in service.

As this committee is aware, the Wolf Administration has spent significant time meeting with community leaders, businesses, educators, emergency services providers, and citizens across the commonwealth to learn about regional infrastructure challenges and discuss the pillars of Governor Wolf's Restore Pennsylvania initiative, one of which is broadband. Although this has not been taken up by the General Assembly, the Restore Pennsylvania initiative offered a financial solution to one of our commonwealth's biggest challenges. Absent funding through this initiative, it remains unclear where funding would come from to address this ever-present and expanding issue.

DCED recognizes the need to identify sustainable funding for broadband deployment and infrastructure improvement throughout the commonwealth. We remain committed to collaborating with the General Assembly, local communities, and broadband service providers in this effort.

Thank you for your attention and interest in the challenging, yet critical issue.

TESTIMONY ON
IMPROVING INTERNET ACCESS FOR TELEHEATLH

Presented to the House Democratic Policy Committee

By
Melissa Anese, Government Relations Associate, CCAP
Lucy Kitner, Executive Director, PACA MH/DS

October 6, 2020

The County Commissioners Association of Pennsylvania (CCAP) is a non-profit, non-partisan association providing legislative, educational, insurance, research, technology, and similar services on behalf of all of the Commonwealth's 67 counties. The Pennsylvania Association of County Administrators of Mental Health and Developmental Services (PACA MH/DS) represents county mental health and intellectual disability program administrators from all of Pennsylvania's counties. PACA MH/DS is an affiliate of the County Commissioners Association of Pennsylvania.

We appreciate the opportunity offer our remarks on the importance of expanding broadband access to all of Pennsylvania's residents. Counties are a key partner with the state and federal government in solving the technological divide, and we appreciate the continued attention of the General Assembly on this issue.

Rural broadband expansion was a top priority for counties in both 2019 and 2020, long before the current distanced, digital environment in which we find ourselves. We recognize that high-quality communication infrastructure is essential to our communities and critical for education, employment, economic development and the provision of efficient and effective services to our residents. High speed and reliable internet access have become a necessity, and our rural communities cannot continue to wait for infrastructure that is critical to our economic vitality and our personal quality of life. Without broadband, a significant number of Pennsylvanians are missing access to opportunities, while rural areas find it harder and harder to attract and retain residents and encourage business development.

Every citizen in the Commonwealth deserves the access to broadband. Without broadband access opportunities are missed; access to broadband increases access to healthcare, education, and business. Whether it is a farmer seeking advice from an extension office, a senior studying to graduate, a parent asking medical advice, or an individual seeking counseling, all could benefit from broadband access. The void in broadband is eroding cornerstones to healthy growth for thousands of citizens. Through the pandemic, communities had to adapt and develop new alternatives to access education and telehealth through broadband, further exposing the lack of availability and the need of Pennsylvanians for high speed and reliable internet access. Some individuals get to continue to healthy growth while others wait and potentially whither. Broadband, or the lack of it, is creating an arbitrary divide based on geography and economics. To create a viable and vibrant future with a healthy and educated public, broadband access throughout Pennsylvania is necessary.

The need for access to broadband continues to be echoed at all levels of government as one of the biggest hurdles of the 21st century. Counties have been engaging in their own local solutions to provide internet connectivity for their residents, especially in rural areas, and better bandwidth capacity statewide. In many rural parts of the state, where internet service providers have to build the infrastructure over long distances for few customers, which is often cost-prohibitive. County initiatives piloted throughout the state include leveraging of existing structures, investment into dark fiber and development of centralized community location hotspots. From innovators to investors and funders, counties convene stakeholders and act as

support systems to give our communities this basic need.

Additionally, many counties have plans to utilize some of the County Relief Block Grant dollars from the federal CARES Act to develop, deploy and expand broadband. As society transitions into a more digital, physically distanced world, broadband will continue to remain a key focus of budget and legislative conversations at the state and federal levels.

Counties understand how critical this issue is and so we keep searching for solutions. For instance, Pennsylvania's counties have partnered with the National Association of Counties (NACo) to assess broadband download and upload speeds to better provide data about broadband coverage across not only the commonwealth, but the entire nation. NACo's Understanding the True State of Connectivity in America synthesizes information from the TestIT app, which measured broadband upload and download speed information to create more accurate broadband speed maps nationwide.

Data from more than 78% of the nation's counties was collected over a year, and showed 76% of counties averaged cellular connections below the FCC's minimum of 25 mbps download and 3 mbps upload, and 59.6% of counties were experiencing fixed-wireless internet below the FCC minimum. In addition, more than 65% of counties were experiencing the internet at speeds slower than the levels reported by the industry.

The report also focuses on what the lack of connectivity and discrepancies in service mean for different aspects of life including challenges to economic development, education, workforce development, health and human services, justice and public safety, and agriculture. It further identifies reasons for gaps in coverage, including incomplete and inaccurate data, prohibition of local solutions and the high cost of deployment. While this report does not solve the broadband issue, it is one step in the path to solving the issue of access to broadband.

CCAP supports moves toward closing the technology access gap and looks forward to working with the General Assembly on issues related to accessing technology more broadly.
As we continue to discuss the road forward on deployment of high-speed broadband across the commonwealth, counties must have a seat at the table as a partner in these discussions. The commonwealth must also develop partnerships among federal, state and local government, as well as the private sector, that can help to deploy the resources and data needed to make meaningful progress on rural broadband expansion. The state can also learn from the best practices and innovative ideas, such as regional cooperative models, that have seen success in Pennsylvania and throughout the country. This issue cannot be tackled unless government and industry partner together to make broadband availability a reality.

Thank you for your consideration of these comments. We would be pleased to follow up on any questions you may have.

M·E·M·O·R·A·N·D·U·M

TO: PA House of Representatives Democratic Policy Committee

FROM: Amy Sturges, Director of Governmental Affairs, PML and PSATC
Ed Troxell, Director of Governmental Affairs, PSAB

RE: Hearing to Improve Internet Access for Education and Telehealth
Re: HB 1400 "Small Wireless Facilities Deployment Bill"

DATE: October 9, 2020

Thank you for convening the hearing on October 6 on "Improving Internet Access for Education and Telehealth." As stated eloquently at the hearing, ensuring access to high-speed internet service for virtual education and quality healthcare is a critically important issue, especially during a pandemic. PML, PSAB and PSATC strongly support the deployment of broadband services throughout the Commonwealth to improve education and telehealth.

We would like to take a moment, however, to correct a few misstatements that were made at the end of the hearing regarding HB 1400, entitled the "Small Wireless Facilities Deployment Bill".[1] As you know, this bill is the third in a series of bills on this issue that have been considered by the House Consumer Affairs Committee over the past four years.[2] At the hearing on October 6, the Government Affairs Manager for Crown Castle made certain statements that we believe need to be corrected:

1. **Statement**: There is "less municipal resistance" to HB 1400 today and that "the dynamic has changed since the bill was initially introduced."

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[1] The statements to which this memorandum responds were taken from the Pennsylvania Legislative Services written summary of the hearing dated October 6, 2020.

[2] The wireless facilities regulation bills that were predecessors to HB 1400, namely HB 1620 and HB 2564, were also considered by the Consumer Affairs Committee in 2016-18 and not acted upon.

Correction: This is not correct. PML, PSAB, and PSATC are as strongly opposed to HB 1400 today as we were when the bill was first introduced. The reason is that the bill undermines municipal right-of-way authority and would not expedite the deployment of wireless facilities in Pennsylvania. We have made our views known to both chambers of the General Assembly. In fact, just today we provided a redline to Senator Browne of his draft legislation that is similar to HB 1400. Our redline includes key compromises on the part of the municipal associations that we believe would allow the wireless industry and Pennsylvania municipalities to resolve our differences and reach common ground. We would be happy to share that language and discuss it with the Committee.

2. Statement: The Federal Communications Commission ("FCC") created "guidelines" to deploy small cells and we need to make these "guidelines" applicable to Pennsylvania.

Correction: The regulations contained in the FCC's 2018 Third Report and Order ("Order") are not "guidelines". On the contrary, they are binding and enforceable rules applicable to all local governments. The Order imposes strong restrictions on municipal regulation of small wireless facilities in the ROW. These include, but are not limited to, "shot clocks" mandating timely municipal action on wireless applications, limits on fees that can be assessed on wireless providers, and restrictions on the scope of design guidelines that may be enacted by municipalities.

There is no need to enact state legislation on the same issue. Indeed, any such state legislation would be counterproductive, as it would lead to confusion for municipal officials that are struggling to properly address and manage new wireless facilities being installed in the public rights-of-way. In the absence of state legislation, Pennsylvania municipalities have welcomed and approved thousands of small wireless facilities in the rights-of-way since these facilities were introduced in Pennsylvania in 2012. The only purpose of state legislation, such as HB 1400, is to strip municipalities of their rights.

3. Statement: "House Bill 1400 provides municipal protections that the FCC does not."

Correction: This statement is false. HB 1400 takes away crucial municipal protections permitted by the FCC. It does not add any protections. Here are a few examples of the current federal protections that are eliminated by HB 1400:

a. HB 1400 eliminates local zoning authority over wireless facilities in the ROW. Preservation of local zoning authority over wireless facilities is a longstanding tenet of federal law. The Telecommunications Act preserves local zoning authority over wireless facilities and this is authority is maintained in the FCC Order. HB 1400 eliminates municipal zoning authority by only allowing regulation of wireless facilities by means of "applicable codes," which do not include municipal wireless ordinances.

b. HB 1400 eliminates the right of a municipality to exceed the FCC's "presumptive" fees based on costs. The FCC Order prescribes "presumptively reasonable" fees for wireless facilities in the ROW, including application fees and recurring ROW fees. The Order permits municipalities to assess higher fees if their costs for processing wireless applications and/or managing the facilities are higher than the FCC's fees. HB 1400 eliminates this option, forcing municipalities to subsidize wireless providers even when they can clearly document their costs.

c. HB 1400 eliminates the right to enact design guidelines for wireless facilities**.** Federal law permits local governments to impose design standards on wireless facilities in the ROW to prevent deployments that undermine public safety or are obtrusive. The FCC Order details the proper scope of such design standards. Despite the statement by Crown Castle at the hearing that HB 1400 allows municipalities to enforce aesthetic standards, it in fact eliminates this current right. This is a critically important issue to many Pennsylvania municipalities.

d. HB 1400 requires that wireless facility regulations be the same as those applied to unrelated utilities. The bill requires that local regulations be "competitively neutral" with other ROW users. This means that wireless facilities must be regulated in the same manner as underground gas pipes, aerial electric lines, etc. Given the stark differences among these facilities, this requirement effectively prohibits any local regulation of wireless facilities. For this reason, federal appeals court that reviewed the FCC Order struck down this same language in the Order as being legally invalid.

4. Statement: On average, it takes a municipality in Pennsylvania 187 days to approve a small wireless facility application.

Correction: There is no basis for this statement. Although the Crown Castle representative references the State College area, he does not identify any municipalities, identify the wireless carriers, or provide the actual time frames for municipal approval. Based on discussions with our members, the time frames for permitting small wireless facilities is much shorter than 187 days.

More important, the FCC Order prescribes specific "shot clocks" for municipal approval of a small cell facility from the day of application to the issuance of a permit. For collocated antennas on existing poles, the shot clock is 60 days. For new poles with antennas, the shot clock is 90 days. There is no flexibility on this rule in the FCC Order. If a municipality allows an FCC "shot clock" to lapse without taking action on a wireless facility application, the Order allows wireless providers to obtain an "expedited injunction" in court permitting installation of the proposed facility.

Thank you very much for allowing us to correct the record regarding HB 1400. We would welcome the opportunity to discuss any of these issues with you at your convenience.