

JOINT STATE GOVERNMENT COMMISSION

General Assembly of the Commonwealth of Pennsylvania

DELIVERY OF HIGH-SPEED BROADBAND SERVICES IN UNSERVED AND UNDERSERVED AREAS OF THE COMMONWEALTH

Fourth Annual Report
of the Task Force and Advisory Committee
on High-Speed Broadband Service

July 2023



*Serving the General Assembly of the
Commonwealth of Pennsylvania Since 1937*

REPORT

Senate Resolution 47 of 2019

*Delivery of High-Speed Broadband Services in Unserved
and Underserved Areas of the Commonwealth*

Fourth Annual Report

Project Manager:	Yvonne Llewellyn Hursh, Counsel
Project Staff:	Lydia L. Hack, Staff Attorney Allison N. Kobzowicz, Policy Analyst Bryan W. DeWalt, Public Policy Analyst Wendy L. Baker, Office Manager/Executive Assistant
The report is also available at http://jsg.legis.state.pa.us	

JOINT STATE GOVERNMENT COMMISSION

Room 108 Finance Building
613 North Street
Harrisburg, PA 17120

Telephone: 717-787-4397
Fax: 717-783-9380
E-mail: jntst02@legis.state.pa.us
Website: <http://jsg.legis.state.pa.us>

The Joint State Government Commission was created in 1937 as the primary and central non-partisan, bicameral research and policy development agency for the General Assembly of Pennsylvania.¹

A fourteen-member Executive Committee comprised of the leadership of both the House of Representatives and the Senate oversees the Commission. The seven Executive Committee members from the House of Representatives are the Speaker, the Majority and Minority Leaders, the Majority and Minority Whips, and the Majority and Minority Caucus Chairs. The seven Executive Committee members from the Senate are the President Pro Tempore, the Majority and Minority Leaders, the Majority and Minority Whips, and the Majority and Minority Caucus Chairs. By statute, the Executive Committee selects a chairman of the Commission from among the members of the General Assembly. Historically, the Executive Committee has also selected a Vice-Chair or Treasurer, or both, for the Commission.

The studies conducted by the Commission are authorized by statute or by a simple or joint resolution. In general, the Commission has the power to conduct investigations, study issues, and gather information as directed by the General Assembly. The Commission provides in-depth research on a variety of topics, crafts recommendations to improve public policy and statutory law, and works closely with legislators and their staff.

A Commission study may involve the appointment of a legislative task force, composed of a specified number of legislators from the House of Representatives or the Senate, or both, as set forth in the enabling statute or resolution. In addition to following the progress of a particular study, the principal role of a task force is to determine whether to authorize the publication of any report resulting from the study and the introduction of any proposed legislation contained in the report. However, task force authorization does not necessarily reflect endorsement of all the findings and recommendations contained in a report.

Some studies involve an appointed advisory committee of professionals or interested parties from across the Commonwealth with expertise in a particular topic; others are managed exclusively by Commission staff with the informal involvement of representatives of those entities that can provide insight and information regarding the particular topic. When a study involves an advisory committee, the Commission seeks consensus among the members.² Although an advisory committee member may represent a particular department, agency, association, or group, such representation does not necessarily reflect the endorsement of the department, agency, association, or group of all the findings and recommendations contained in a study report.

¹ Act of July 1, 1937 (P.L.2460, No.459); 46 P.S. §§ 65–69.

² Consensus does not necessarily reflect unanimity among the advisory committee members on each individual policy or legislative recommendation. At a minimum, it reflects the views of a substantial majority of the advisory committee, gained after lengthy review and discussion.

Over the years, nearly one thousand individuals from across the Commonwealth have served as members of the Commission's numerous advisory committees or have assisted the Commission with its studies. Members of advisory committees bring a wide range of knowledge and experience to deliberations involving a particular study. Individuals from countless backgrounds have contributed to the work of the Commission, such as attorneys, judges, professors and other educators, state and local officials, physicians and other health care professionals, business and community leaders, service providers, administrators and other professionals, law enforcement personnel, and concerned citizens. In addition, members of advisory committees donate their time to serve the public good; they are not compensated for their service as members. Consequently, the Commonwealth receives the financial benefit of such volunteerism, along with their shared expertise in developing statutory language and public policy recommendations to improve the law in Pennsylvania.

The Commission periodically reports its findings and recommendations, along with any proposed legislation, to the General Assembly. Certain studies have specific timelines for the publication of a report, as in the case of a discrete or timely topic; other studies, given their complex or considerable nature, are ongoing and involve the publication of periodic reports. Completion of a study, or a particular aspect of an ongoing study, generally results in the publication of a report setting forth background material, policy recommendations, and proposed legislation. However, the release of a report by the Commission does not necessarily reflect the endorsement by the members of the Executive Committee, or the Chair or Vice-Chair of the Commission, of all the findings, recommendations, or conclusions contained in the report. A report containing proposed legislation may also contain official comments, which may be used to construe or apply its provisions.³

Since its inception, the Commission has published over 450 reports on a sweeping range of topics, including administrative law and procedure; agriculture; athletics and sports; banks and banking; commerce and trade; the commercial code; crimes and offenses; decedents, estates, and fiduciaries; detectives and private police; domestic relations; education; elections; eminent domain; environmental resources; escheats; fish; forests, waters, and state parks; game; health and safety; historical sites and museums; insolvency and assignments; insurance; the judiciary and judicial procedure; labor; law and justice; the legislature; liquor; mechanics' liens; mental health; military affairs; mines and mining; municipalities; prisons and parole; procurement; state-licensed professions and occupations; public utilities; public welfare; real and personal property; state government; taxation and fiscal affairs; transportation; vehicles; and workers' compensation.

Following the completion of a report, subsequent action on the part of the Commission may be required, and, as necessary, the Commission will draft legislation and statutory amendments, update research, track legislation through the legislative process, attend hearings, and answer questions from legislators, legislative staff, interest groups, and constituents.

³ 1 Pa.C.S. § 1939.

TASK FORCE

Senator Tracy Pennycuik
Communications & Technology, Chair

Senator James (Jimmy) Dillon
Communications & Technology, Minority Chair

ADVISORY COMMITTEE

Brian F. Barno

Vice President, Government Affairs
Broadband Communications Association of
Pennsylvania

Honorable Jennifer Berrier

Secretary, Pennsylvania Department
of Labor & Industry
**Designee:* Thomas Foley, Policy Director

C. Kim Bracey (2020-2022)

Executive Director, Governor's Center
for Local Government Services
Pennsylvania Department of Community
& Economic Development

Barbara A. Burba

CEO/Owner
Amerisite Wireless Development
President PA Wireless Association

Patrick M. Cicero, Esquire

Consumer Advocate
**Designee:* Barrett C. Sheridan
Assistant Consumer Advocate
Pennsylvania Office of Consumer Advocate

Brandon Carson

Executive Director
Pennsylvania Broadband Development
Authority
Pennsylvania Department of Community
& Economic Development

Stephen M. D'Ettorre (2020-2023)

Deputy Secretary, Office of Technology
and Entrepreneurship
Pennsylvania Department of Community
& Economic Development

Stephen M. DeFrank

Vice Chairman, Pennsylvania
Public Utility Commission
**Designee:* Joel H. Cheskis, Counsel

Gladys Brown Dutrieuille

Chairman, Pennsylvania
Public Utility Commission

**Designee:* David E. Screven
Deputy Chief Counsel, Law Bureau

Joseph H. Gerdes, III

Director of Government Relations
Pennsylvania State Association
of Township Supervisors

Honorable Khalid N. Mumin

Acting Secretary, Pennsylvania
Department of Education
**Designee:* Carrie Cleary, MLIS
Office of Commonwealth Libraries

Honorable Debra L. Bogen

Acting Secretary, Pennsylvania
Department of Health
**Designee:* Muneeza Iqbal, MPH
Deputy Secretary for Health Resources
and Services

Kyle C. Kopko, Ph.D.

Executive Director
Center for Rural Pennsylvania

Vince Phillips

Pennsylvania State Grange

Honorable Russell C. Redding

Secretary, Pennsylvania
Department of Agriculture
**Designee:* Mark Critz, Executive Director
of the Rural Development Council
and Western Regional Director

Steven J. Samara

President, Pennsylvania Telephone Association

Teresa Reed Wagner

Executive Director
Pennsylvania Office
of Small Business Advocate

Honorable Rick Siger

Acting Secretary, Pennsylvania Department
of Community and Economic Development
**Designee:* Paul Opiyo, Director
of Policy and Planning



General Assembly of the Commonwealth of Pennsylvania
JOINT STATE GOVERNMENT COMMISSION

Room 108 – Finance Building
Harrisburg, Pa 17120

717-787-4397
Fax 717-783-9380
<http://jsg.legis.state.pa.us/>

Executive Committee

July 2023

Senate Members

Kim L. Ward
President Pro Tempore
Joseph A. Pittman
Majority Leader
Jay Costa, Jr.
Minority Leader
Ryan P. Aument
Majority Whip
Christine M. Tartaglione
Minority Whip
Kristin Phillips-Hill
Chair, Majority Caucus
Wayne D. Fontana
Chair, Minority Caucus

House Members

Joanna E. McClinton
Speaker
Matthew D. Bradford
Majority Leader
Bryan D. Cutler
Minority Leader
Dan L. Miller
Majority Whip
Timothy J. O’Neal
Minority Whip
Michael H. Schlossberg
Chair, Majority Caucus
George Dunbar
Chair, Minority Caucus

Administrative Staff

Glenn J. Pasewicz
Executive Director
Yvonne M. Hursh
Counsel

To the Members of the General Assembly of Pennsylvania:

We are pleased to release, *Delivery of High-Speed Broadband Services in Unserved and Underserved Areas of the Commonwealth*, the fourth of five advisory committee reports to be released as directed by SR47 of 2019. This edition is an update on broadband in the fields of education, healthcare, agriculture, tourism, and community and economic development, and on barriers to development. It discusses changes in Pennsylvania’s state and local initiatives and other states’ activities and legislative actions. It includes a discussion about the Pennsylvania Broadband Development Authority (PBDA) and new federal funding for expansion and development in Pennsylvania. Advisory committee recommendations for the General Assembly’s consideration are to make mapping a permanent responsibility of the PBDA and to make insurance coverage of telemedicine a permanent and mandatory benefit offered through commercial health insurers.

On behalf of the Joint State Government Commission, we extend our thanks to the members of the Advisory Committee who lent their expertise and knowledge in the writing of this report. The full report is available at <http://jsg.legis.state.pa.us>

Respectfully submitted,

Glenn J. Pasewicz
Executive Director

TABLE OF CONTENTS

INTRODUCTION	1
RECOMMENDATIONS AND PROPOSED LEGISLATION	3
<i>New Recommendations</i>	3
<i>Review of Recommendations Proposed in Prior BBAC Reports</i>	4
CURRENT FUNDING PROGRAMS AND OPPORTUNITIES	9
<i>The Bipartisan Infrastructure Law</i>	9
<i>American Rescue Plan Act – Capital Projects Fund</i>	17
<i>U.S. Department of Agriculture</i>	20
<i>Pennsylvania Department of Labor and Industry</i>	21
ROLE OF MUNICIPAL NETWORKS	23
<i>Status in Pennsylvania</i>	23
<i>Relationship to Bipartisan Infrastructure Law</i>	25
<i>Municipal Broadband in Other States</i>	25
UPDATE: DEFINING, DELIVERING AND REGULATING BROADBAND	43
<i>Defining Broadband</i>	43
<i>Delivering Broadband</i>	43
<i>Regulating Broadband</i>	44
UPDATE: EDUCATION	47
<i>Home Internet Connection for Students</i>	47
<i>Higher Education</i>	50
UPDATE: HEALTHCARE	51
<i>Telehealth</i>	51
<i>Telehealth in Post-Pandemic Pennsylvania</i>	53
<i>Telehealth Access in the Post-Pandemic Era</i>	56
<i>Increased Wellness and Economic Return of Universal Broadband Infrastructure</i>	60
UPDATE: AGRICULTURE	65
<i>Precision Agriculture</i>	67
<i>Right to Repair Farm Equipment</i>	68
<i>Agricultural Innovations</i>	69
UPDATE: COMMUNITY AND ECONOMIC DEVELOPMENT	71

UPDATE: DEPLOYMENT BARRIERS	73
<i>Adoption by Consumers</i>	73
<i>Digital Literacy</i>	73
<i>Access and Affordability</i>	76
UPDATE: ADDITIONAL FUNDING SOURCES	77
<i>Current Federal Grant and Loan Programs</i>	77
<i>Current Pennsylvania Grant and Loan Programs</i>	81
UPDATE: RECENT PENNSYLVANIA STATE AND LOCAL INITIATIVES	83
<i>Regional Efforts</i>	83
<i>County Mapping Initiatives</i>	84
<i>County and Local Government Partnerships</i>	85
<i>Proposed Legislation</i>	89
UPDATE: DEVELOPMENT AND EXPANSION ACTIVITIES IN OTHER STATES	91
APPENDIX	
<i>Senate Resolution No. 47 of 2019</i>	93

INTRODUCTION

Senate Resolution 47, Printer's No. 951, adopted on June 26, 2019, created a legislative task force on high-speed broadband services, and directed the Joint State Government Commission to conduct a study on the delivery of high-speed broadband services in unserved and underserved areas of the Commonwealth. The Commission was further directed to establish an advisory committee to assist in its study. The Broadband Advisory Committee (BBAC) includes representatives from Commonwealth agencies with an interest in broadband delivery, as well as Internet service providers, and related cable, wireless, and other technology industries, and associations. Nationally, the COVID-19 pandemic continues to highlight the need for expanded connectivity in rural areas as well as pockets of urban areas that are unserved by high-speed Internet.

This is the fourth of five reports the Commission. This report will provide an update on the role of including the role of broadband in the fields of education, healthcare, agriculture, tourism, and community and economic development, barriers to development, funding resources, recent developments in Pennsylvania state and local initiatives, recent activities and legislative enactments in other states, and efforts to identify unserved and underserved communities in Pennsylvania. Additionally, it will discuss the creation of the Pennsylvania Broadband Authority and the impact of new federal funding on broadband expansion and development in Pennsylvania.

The advisory committee met twice since the release of the 2022 report, via Internet conferencing, on January 12, 2023 and May 17, 2023. Further work on the project occurred via group emails.

Finally, it should be noted that the recommendations contained in this report represent the general consensus of the Advisory Committee. They are not unanimously endorsed and should not be considered the official position of all the organizations represented on the committee.

RECOMMENDATIONS AND PROPOSED LEGISLATION

New Recommendations

Permanent Mapping Project

The Advisory Committee has suggested in previous reports that the Pennsylvania Broadband Development Authority be amended to become permanent entity with annual appropriations in addition to the federal funding under the Bipartisan Infrastructure Law. The Advisory Committee recommends that the mapping aspects of the PBDA be made the permanent responsibility of either the PBDA, or if the authority it allowed to expire, another permanent agency of the government to ensure that broadband coverage provided today does not evaporate in the future. Providers may come and go or may find an area to have become financially disadvantageous after a period of time and withdraw from coverage. A permanent, ongoing mapping project could monitor coverage and at some interval (perhaps every five years) verify that areas that have been identified as served continue to be served.

Permanent Use of Telemedicine

Providers of health services under Medicare and Medicaid (Medical Assistance in Pennsylvania) are authorized to provide telehealth services under federal and state guidance. As licensees of the Pennsylvania Department of State, health care providers in general can provide services within their existing scopes of practice via the use of telemedicine when appropriate, provided it is done according to accepted standards of care. However, commercial health insurers are not required to allow or reimburse for telemedicine.⁴ It is the recommendation of the Advisory Committee that telemedicine be a mandatory benefit for commercial insurers, with parity in payment between in-person and telemedicine services.

Municipal Broadband Providers

The Advisory Committee has not and is not likely to come to consensus on whether the “right of first refusal” currently possessed by local telecommunications carriers regarding startup of new municipal broadband networks should be repealed. This has the potential to cause confusion and litigation surrounding the federal broadband grant programs, including the digital equity grant program, whose parameters have not yet been established. While the Advisory Committee is unable to recommend a

⁴ The Pennsylvania Insurance Department (PID) surveyed the commercial insurers and determined that all insurers were covering telehealth services to some extent at the time of the survey. The Department has not been made aware of any significant changes since the survey was completed. Moreover, no insurer has reported that it is planning major changes for telehealth coverage post-PHE, but many of them indicated they will likely re-evaluate their policies at the end of the PHE. (PHE – Covid-19 public health emergency). Pennsylvania Department of State, Professional Licensing, Frequently Asked Questions about Telemedicine in Pennsylvania.

<https://www.dos.pa.gov/ProfessionalLicensing/Pages/Telemedicine-FAQs.aspx#:~:text=Does%20the%20Department%20of%20State,one%20that%20explicitly%20prohibits%20it.>

position to the General Assembly, a section of this report entitled “Role of Municipal Networks, beginning at page 23, includes a detailed description of the potential issue and a review of other state practices so that the legislature can make a fully informed decision regarding the practice.

Review of Recommendations Proposed in Prior BBAC Reports

2020 Report Recommendations

The Infrastructure Investment and Jobs Act (aka the Bipartisan Infrastructure Law) was signed into law on November 15, 2021 and includes \$65 billion for broadband deployment. Many provisions of the IJA address recommendations made by the BBAC in its 2020 report.

Under IJA, each state’s grant application must include a five-year plan that brings local and regional broadband development efforts into the process. Subgrants cannot exclude “cooperatives, nonprofit organizations, public-private partnerships, private companies, public or private utilities, public utility districts, or local governments from eligibility for such grant funds.”

This requirement of inclusiveness of potential subgrantees addresses BBAC Recommendations #2 and #3 regarding authorizing community-based entities to be eligible for state broadband grants.

Subgrantees must provide broadband service at speeds of at least 100/20 Mbps with low latency. They also must have an average of below 48 hours of outages over a 365-day time period. Providers must offer at least one low-cost option for broadband connection and must have their broadband service available to customers within four years of receiving the grant. Subgrant winners that are not in high-cost areas will be required to match at least 25 percent of a project’s cost with funding from a non-federal source.

The Assistant Secretary of Commerce for Communications and Information will also establish a grant program to make grants “on a technology-neutral, competitive basis to eligible entities for the construction, improvement, or acquisition of middle mile infrastructure.” \$1 billion will be allocated for fiscal years 2022-2026 for the middle mile grants. To be eligible for these grants, applicants must be willing to prioritize:

- (A) connecting middle mile infrastructure to last mile networks that provide or plan to provide broadband service to households in unserved areas;
- (B) connecting non-contiguous trust lands; or
- (C) the offering of wholesale broadband service at reasonable rates on a carrier-neutral basis.

Projects must be completed within five years of receiving the grant. The Assistant Secretary in authorizing grants will consider the applicant’s ability to support retail broadband service and provide connectivity to anchor institutions. The amount awarded in a middle mile grant must be less than or equal to 70 percent of the total project’s cost.

The Act also allocates \$14.2 billion to the Emergency Broadband Benefit Program, renamed the Affordable Connectivity Program. The program will be indefinitely extended to provide affordable broadband connection to low-income households, but the monthly subsidy for low-income households will be lowered from \$50 to \$30.

This provision and the Digital Equity Capacity Grant and Competitive Grant Programs (discussed in the following paragraph) help meet BBAC Recommendation #5 relating to availability of a low-cost minimum service alternative for lower income subscribers.

The Act establishes another program under the Assistant Secretary of Commerce for Communications and Information called the State Digital Equity Capacity Grant Program. States that apply for these grants must submit a State Digital Equity Plan that includes identification of barriers to digital equity in the state, objectives for increasing digital equity, how completing the objectives will benefit the state, and a description of a plan to collaborate with key stakeholders in the state. This program will receive \$1.5 billion. Additionally, a Digital Equity Competitive Grant Program will also be established, which will receive \$1.25 billion.

The Act establishes a statement of policy that all Americans should enjoy equal access to an ISP that provides comparable speeds no matter who they are or where they live. The Act calls upon the FCC to create rules that will prevent “digital discrimination of access based on income level, race, ethnicity, color, religion, or national origin.” The Commission will also create model policies that can be utilized on the state and local level to combat digital discrimination and the FCC’s public complaints process will be revised so consumers are able to report digital discrimination. These measures are being set in place in this Act to combat “digital redlining,” the systematic discrimination by ISPs against low-income communities.

This provision also addresses BBAC Recommendation #5, with respect to the making the same speed and access standards applicable to all lower income subscribers, regardless of geographic location. This provision at least partially addresses BBAC Recommendation #8, which calls for incentives to reach areas of marketplace failure.

The possible use of funds for the state subgrants are as follows:

- (1) unserved service projects and underserved service projects;
- (2) connecting eligible community anchor institutions;
- (3) data collection, broadband mapping, and planning;
- (4) installing internet and Wi-Fi infrastructure or providing reduced-cost broadband within a multi-family residential building, with priority given to a residential building that—
 - (A) has a substantial share of unserved households; or
 - (B) is in a location in which the percentage of individuals with a household income that is at or below 150 percent of the poverty line applicable to a family of the size involved

(as determined under section 673(2) of the Community Services Block Grant Act (42 U.S.C. 9902(2)) is higher than the national percentage of such individuals;

(5) broadband adoption, including programs to provide affordable internet-capable devices; and

(6) any use determined necessary by the Assistant Secretary to facilitate the goals of the Program.

Grant should be prioritized in order of unserved projects, underserved projects, and connecting community anchor institutions (those lacking access to one gigabit broadband service).

The eligibility of anchor institutions as prioritized grant recipients addresses BBAC Recommendation #7, which calls for support for anchor institutions in unserved and underserved areas to maintain minimum high speed wired services.

The Act also requires the FCC to establish a deployment locations map, an online tool to identify the location of each broadband infrastructure deployment project funded by the federal government.

This requirement would address the BBAC requirement for deployment reports from grantees under the grant programs established by the BBAC's version of the authority.

2021 Recommendations

The 2021 report included draft legislation to create a Pennsylvania Broadband Development Authority. On December 22, 2021, Governor Wolf signed Act 96, creating the Pennsylvania Broadband Development Authority (BBDA) as Chapter 61 of Title 64 (Public Authorities and Quasi-Public Corporations) of the Pennsylvania. While Act 96 is more narrowly drawn in terms of funding sources and overbuild protections than in the BBAC proposal, it accomplishes a lot of BBAC goals for the creation of such an authority.

The BBDA was created to receive and administer federal grants under the Infrastructure and Investment Jobs Act. The BBDA is set to expire in 10 years or until all of the federal money received is spent. Many of its provisions of Act 96 and the BBDA powers and duties are directly based on the requirements that must be met in order to receive those federal funds.

2022 Recommendations

As currently established in Act 96, the BBDA is composed solely of state government leaders. BBAC believes that the experience and expertise of the non-governmental bodies represented on BBAC could be of great value to the BBDA as it engages in its grant-making role.

Accordingly, the BBAC recommends that the BBDA create a subcommittee consisting of the membership of BBAC to serve in an advisory capacity.

The Broadband Development Authority has created four subcommittees on the topics of Data & Mapping, Technical, Workforce & Supply Chain, and Outreach and Education. A variety of stakeholders are represented on the subcommittees, including some of the entities that currently serve on Joint State Government Commission's Broadband Advisory Committee.

Act 96 is designed to endure until the federal funding under the Infrastructure and Investment Jobs Act is exhausted. The BBAC proposal would have funded the BBDA with federal appropriations, Pennsylvania general fund appropriations, the issuance of bonds and the establishment of grant and loan programs. The decision regarding the appropriateness of limiting the duration of the BBDA and its funding sources is a policy one, but if in the future the General Assembly determines that the BBDA should become a permanent entity, those funding sources could be added to the statute, and would otherwise provide for the permanent state funding proposed in BBAC Recommendation #9.

This recommendation continues to be supported by the Advisory Committee.

To counter the reluctance of some internet providers to submit plans for broadband projects to protect perceived competitive advantages, an amendment could be added to the BBDA grant application requirements.

Amend 64 Pa.C.S. § 6124(f) by adding a new paragraph to read:

(6.1) An affidavit that the eligible entity will comply with the requirements of the act of December 10, 1974 (P.L. 852, No. 287) referred to as the Unground Utility Line Protection Law.

This recommendation continues to be supported by the Advisory Committee.

Under FCC rules issued in 2015, if a state establishes a fund that covers special construction charges (one-time build-out costs) to bring fiber to schools and libraries that need it, the E-rate Program will increase an applicant's discount rate for these charges up to an additional 10% to match the state funding on a one-to-one dollar basis.

BBAC recommends that a general appropriation be made in the State Budget to the Department of Education for the sole purpose of grants for public library and school technology purposes in order to provide funds to public libraries and schools to use as state matching funds for special construction under the federal e-rate broadband program pursuant to 47 CFR 54.505.

This recommendation continues to be supported by the Advisory Committee.

CURRENT FUNDING PROGRAMS AND OPPORTUNITIES

The Bipartisan Infrastructure Law

The federal Infrastructure Investment and Jobs Act, signed into law on November 15, 2021, includes \$65 billion for broadband deployment nationwide. The funding is divided across multiple projects that are on different time frames. Some of the programs are close to launch in Pennsylvania while others are still in development.

Broadband Equity, Access, and Deployment (BEAD) Program

While originally guaranteed a minimum allocation of \$100 million from the Broadband Equity, Access, and Deployment (BEAD) program, NTIA released the final funding amounts in late June of 2023 and Pennsylvania's allocation was significantly larger, at slightly under than \$1.2 billion (\$1,161,778,272.41).⁵ The PA Broadband Development Authority submitted the planning funds application and received approval on November 15, 2022. Pennsylvania received \$5 million in planning funds thus far. The 5-Year Action Plan is due on August 12, 2023. The Pennsylvania Broadband Development Authority issued a request for proposals for a "Consultant with Broadband Expertise to Assist with Designing the State's 5-Year Action Plan and Digital Equity Plan." Proposals were due on February 20, 2023.⁶ An initial proposal for the use of funds is due 180 days after the notice of funding amounts is issued. The final proposal will be due 365 days after the initial proposal is approved.⁷ Actual receipt of the \$1.2 billion in BEAD funding will occur after a successful 5-Year Act Plan and Initial/Final Proposals submission.

Each state's grant application must include a five-year plan that brings local and regional broadband development efforts into the process. Subgrants cannot exclude "cooperatives,

⁵ U.S. National Telecommunications and Information Administration, Internet for All, "Biden-Harris Administration Announces State Allocations for \$42.45 Billion High-Speed Internet Grant Programs as Part of Investing in America Agenda," Press Release, June 26, 2023, https://internetforall.gov/news-media/biden-harris-administration-announces-state-allocations-4245-billion-high-speed-internet?_gl=1*18obdia*_ga*MTYzNDwNDYyMS4xNjg1NzI5MTI4*_ga_TMN4BJQD7E*MTY4ODQwNTg5MC4xLjEuMTY4ODQwNjA0OC4wLjAuMA..*_ga_PKZVCVK41D*MTY4ODQwNTg5MC4xLjEuMTY4ODQwNjA0OC4wLjAuMA..&_ga=2.50015393.68015266.1688405891-1634004621.1685729128

⁶ Pennsylvania Broadband Development Authority, RFP Number PBDA-2023-01, issued February 7, 2023, <http://www.emarketplace.state.pa.us/Solicitations.aspx?SID=PBDA-2023-01>.

⁷ "Broadband Equity, Access, and Deployment (BEAD)," *Pennsylvania DCED*, accessed April 25, 2023, <https://dced.pa.gov/programs-funding/broadband-in-pennsylvania/infrastructure-investment-and-jobs-act/broadband-equity-access-and-deployment-bead/>.

nonprofit organizations, public-private partnerships, private companies, public or private utilities, public utility districts, or local governments from eligibility for such grant funds.”⁸

The possible use of funds for the state subgrants are as follows:

- unserved service projects and underserved service projects;
- connecting eligible community anchor institutions;
- data collection, broadband mapping, and planning;
- installing internet and Wi-Fi infrastructure or providing reduced-cost broadband within a multi-family residential building, with priority given to a residential building that—
 - has a substantial share of unserved households; or
 - is in a location in which the percentage of individuals with a household income that is at or below 150 percent of the poverty line applicable to a family of the size involved (as determined under section 673(2) of the Community Services Block Grant Act (42 U.S.C. 9902(2)) is higher than the national percentage of such individuals;
- broadband adoption, including programs to provide affordable internet-capable devices; and
- any use determined necessary by the Assistant Secretary to facilitate the goals of the Program.

The subgrantees must provide broadband service at speeds of at least 100/20 Mbps with low latency. They also must have an average of below 48 hours of outages over a 365-day time period. Providers must offer at least one low-cost option for broadband connection and must have their broadband service available to customers within four years of receiving the grant. Subgrant winners that are not in high-cost areas will be required to match at least 25 percent of a project’s cost with funding from a non-federal source.⁹

Digital Equity Plans and Programs

Digital Equity grants are planned in three stages – the digital equity planning program, the digital equity capacity program, and the digital equity competitive programs.

Applications for the State Digital Equity Planning Grant Program, which will assist states in their goals of creating a State Digital Equity Plan, were due to the NTIA July 12, 2022. Awards were expected to be finalized by September 15, 2022, and announced September 29, 2022 on a rolling basis. The tentative amount of planning funds available for Pennsylvania is \$1,604,131.73.

⁸ H.R. 3684, 117th Cong. § 60102(h) (2021-2022). BEAD Program codified at 47 U.S.C. § 1702.

⁹ 47 U.S.C. § 1702. *See also* National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce, *Notice of Funding Opportunity* “Broadband Equity, Access, and Deployment Program.” <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>

The planning grant is only one piece of the State Digital Equity Capacity Grant Program but must be completed before additional State Digital Equity Capacity Grant Program funding is provided. Additional funding from this program will be announced by a Notice of Funding Opportunity within the next two years.¹⁰ The Request for Proposals for a consultant issued by the Broadband Development Authority includes assistance in preparing Pennsylvania’s digital equity plan. States that apply for these grants must submit a State Digital Equity Plan that includes identification of barriers to digital equity in the state, objectives for increasing digital equity, how completing the objectives will benefit the state, and a description of a plan to collaborate with key stakeholders in the state. A minimum 30-day comment period for feedback is also required.¹¹ The Capacity Grant Program is expected to launch in mid-2024 with a 5-year implementation plan.¹²

Additionally, a Digital Equity Competitive Grant Program will also be established, to be administered by the NTIA directly, which will receive \$1.25 billion to be distributed in discretionary grants over five years, and which is intended for organizations such as schools, libraries, nonprofits and others offering digital inclusion activities and promoting Internet adoption.¹³ The Digital Equity Competitive Grant Program is expected to launch in early 2025.¹⁴

Digital equity funds can be used for a variety of purposes:

- Develop, implement, and oversee digital equity plans
- Make awards to other entities to help in developing digital equity plans
- Improve the online accessibility and inclusivity of public resources
- Implement digital equity plans and digital inclusion activities
- Provide digital literacy and skills education to covered populations
- Facilitate the adoption of high-speed Internet by covered populations¹⁵

¹⁰ *Notice of Funding Opportunity, State Digital Equity Planning Grant Program Executive Summary* (NTIA), <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/DE%20PLANNING%20GRANT%20NOFO.pdf>. (Page not found on July 3, 2023). Additional information found at *State Digital Equity Planning Grant Program*, <https://grants.ntia.gov/grantsPortal/s/funding-program/a0g3d000000180IAAI/state-digital-equity-planning-grant-program>, visited July 3, 2023.

¹¹ 47 U.S.C. § 1723.

¹² Digital Equity Act Programs, Program Information Sheet, NTIA, https://www.internetforall.gov/sites/default/files/2022-05/digital-equity-act-info-sheet.pdf?_gl=1*1b0bj9b*_ga*MTYzNDAwNDYyMS4xNjg1NzI5MTI4*_ga_TMN4BJQD7E*MTY4ODQwNTg5MC4xLjEuMTY4ODQwNjc0NS4wLjAuMA..*_ga_PKZVCVK41D*MTY4ODQwNTg5MC4xLjEuMTY4ODQwNjc0NS4wLjAuMA..&_ga=2.259678605.68015266.1688405891-1634004621.1685729128

¹³ 47 U.S.C. § 1724.

¹⁴ *Supra*, note 13.

¹⁵ *Ibid*.

The Pennsylvania Broadband Authority has announced a series of community engagement events to solicit input and feedback on the BEAD and Digital Equity Programs. Some of these were scheduled in June and July 2023, with more anticipated in August and September 2023. Community organizations wishing to host their own events are able to request various materials from PBDA. A public input online community survey is also available on the Internet for All website under the Broadband Connectivity and Digital Access Survey section, as is other additional information.¹⁶

Affordability Connectivity Program

The Act also allocates \$14.2 billion to the Emergency Broadband Benefit Program, renamed the Affordable Connectivity Program. The program is indefinitely extended to provide affordable broadband connection to low-income households, but the monthly subsidy for low-income households was lowered from \$50 to \$30.¹⁷ Eligible households can also receive a one-time discount of up to \$100 to purchase a laptop, desktop computer, or tablet from participating providers if they contribute more than \$10 and less than \$50 toward the purchase price.

The Act also allows for the FCC to provide grants that would help promote education about the Affordable Connectivity Program¹⁸ A Notice of Proposed Rulemaking (NPRM) for such an outreach grant program was issued on January 14, 2022, with comments due March 16, 2022.¹⁹ The FCC announced a total of \$66 million in target funding allocations in March 2023. Three entities in Pennsylvania were named as recipients: The Pennsylvania Department of Human Services, \$500,000; the Technology Learning Collaborative (Philadelphia), \$300,000; and Computer Reach (Pittsburgh), \$350,000.²⁰ There are currently 600,799 Pennsylvanian's enrolled in the ACP program.²¹ In May 2023, the FCC Wireline Competition Bureau announced the creation of a new application landing place at GetInternet.gov to make access to consumers more user-friendly. According to the press release, ACP is now reaching over 17 million households.²²

¹⁶ Pennsylvania Department of Community and Economic Development, Internet for All, <https://dced.pa.gov/programs-funding/broadband-in-pennsylvania/internet-for-all/>

¹⁷ "Infrastructure Bill Allots \$65 Billion for Broadband Expansion," *Governing*, accessed November 12, 2021, https://www.governing.com/finance/infrastructure-bill-allots-65-billion-for-broadband-expansion?utm_source=National+Conference+of+State+Legislatures&utm_campaign=fa0fe8497b-Today_Nov_11&utm_medium=email&utm_term=0_1716623089-fa0fe8497b-377902076.

¹⁸ *Ibid.*, 400.

¹⁹ "FCC Proposes Outreach Efforts for Affordable Connectivity Program," *Federal Communications Commission*, accessed April 19, 2022, <https://www.fcc.gov/fcc-proposes-outreach-efforts-affordable-connectivity-program>.

²⁰ Federal Communications Commission, Public Notice, "Consumer and Governmental Affairs Bureau Announces ACP Outreach Grant Program Target Funding," WC Docket No. 21-450, March 10, 2023. <https://docs.fcc.gov/public/attachments/DA-23-194A1.pdf>

²¹ Universal Service Administrative Co. (USAC), "ACP Enrollment and Claims Tracker," as updated May 8, 2023, accessed May 10, 2023, <https://www.usac.org/about/affordable-connectivity-program/acp-enrollment-and-claims-tracker/#>

²² FCC, Public Notice, "Wireline Competition Bureau announces new Affordable Connectivity Program application landing page at GetInternet.Gov, May 4, 2023, <https://docs.fcc.gov/public/attachments/DA-23-366A1.pdf>

Connecting Minority Communities Pilot Program

Through the Connecting Minority Communities Pilot Program, Community College of Philadelphia received \$2,948,620. All of the funding for this program has now been distributed.²³

Mapping Efforts

The FCC released a pre-production draft of the new broadband maps on November 18, 2022, welcoming challenges from the public. Members of the public had the ability to go to broadbandmap.fcc.gov and search for their own address to check if the information listed was correct. If it was not, they could file a challenge through the mapping portal.²⁴ The Pennsylvania Broadband Development Authority partnered with Penn State Extension to submit challenges and hosted nine listening sessions across the state to increase awareness of the challenge process. Through these measures, Pennsylvania submitted 50,000 challenges by the January 13, 2023 deadline, and as of July 12, 2023, 31,990+ have been upheld.²⁵ According to data JSGC staff requested from PBDA, the largest number of challenges were found in Warren County (over 10,000), Snyder and Northumberland County (approximately 3,000 each), and Berks and Lancaster Counties (approximately 2,500). The PBDA's annual report released March 31, 2023, estimated that because of the challenges that had been upheld to that point, Pennsylvania would likely receive \$70 million more than originally estimated.²⁶ The FCC released its new maps on May 30, 2023, resulting in the addition of approximately one million new broadband serviceable locations (locations where internet service can be installed. This improved accuracy significantly contributed to Pennsylvania's higher allocation of funding than initially expected. Version 3 of the map was released on July 3, 2023.²⁷

Middle Mile Program

Pennsylvania did not apply for the Middle Mile Program but did send letters of support for seven entities that applied. The applications are still under review.²⁸ The PBDA will not be administering these funds.

²³ NTIA Office of Public Affairs, "Biden-Harris Administration Announces More Than \$175 Million in Internet for All Grants to 61 Minority-Serving Colleges and Universities," Press Release, February 27, 2023, <https://www.ntia.doc.gov/press-release/2023/biden-harris-administration-announces-more-175-million-internet-all-grants-61>.

²⁴ Federal Communication Commission, "FCC RELEASES NEW NATIONAL BROADBAND MAPS: A First Step Toward Building Comprehensive, Standardized Maps of Broadband Availability Throughout the U.S.," News Release, November 18, 2022, <https://docs.fcc.gov/public/attachments/DOC-389309A1.pdf>.

²⁵ Pennsylvania Broadband Development Authority, *Second Annual Report* (March 31, 2023), <https://dced.pa.gov/download/2023-pbda-annual-report/?wpdmdl=119596&refresh=64469d7ab4b001682349434>; updated data on the number of successful challenges provided by PBDA staff.

²⁶ Pennsylvania Broadband Development Authority, *Second Annual Report* (March 31, 2023).

²⁷ FCC, Public Notice, "Broadband Data Task Force Begins Accepting Challenges to June 2023 Broadband Serviceable Location Fabric," July 3, 2023. <https://docs.fcc.gov/public/attachments/DA-23-579A1.pdf>

²⁸ Email with PA DCED Representative, April 20, 2023.

Some pertinent information about the Middle Mile Program follows. A grant program will be established to make grants “on a technology-neutral, competitive basis to eligible entities for the construction, improvement, or acquisition of middle mile infrastructure.”²⁹ This program will be called the Middle Mile Broadband Infrastructure Program. \$980 million will be allocated for fiscal years 2022-2026 for the middle mile grants. To be eligible for these grants, applicants must be willing to prioritize:

- connecting middle mile infrastructure to last mile networks that provide or plan to provide broadband service to households in unserved areas;
- connecting non-contiguous trust lands; or
- the offering of wholesale broadband service at reasonable rates on a carrier-neutral basis.³⁰

Eligible entities include states, political subdivisions and Tribal government, private industry entities, non-profits, regional planning councils, and economic development authorities. Projects must be completed within five years of receiving the grant. The Assistant Secretary will in authorizing grants consider the applicant’s ability to support retail broadband service and provide connectivity to anchor institutions. The amount awarded in a middle mile grant must be less than or equal to 70 percent of the total project’s cost.³¹

NTIA expects to allocate awards ranging from \$5 million to \$100 million, though reasonable exceptions outside of this range could be made. Applicants must be able to demonstrate financial, managerial, technical, and operational capability, compliance with laws, and ownership. To receive a Middle Mile Grant, entities must comply with buildout benchmarks. Forty percent of the project must be completed within two years of the award, 60 percent in the third year, 80 percent in the fourth year, and 100 percent in the final year. Where technically and economically feasible, recipient entities must provide 1/1 Gbps connections to anchor institutions within 1,000 feet of middle mile infrastructure. Applicants must also demonstrate a commitment to fair labor practices, utilizing a highly skilled workforce, equitable workforce development, climate resilience, and civil rights and nondiscrimination. Applications must be submitted by September 30, 2022 and awards are expected to be decided on February 16, 2023 and issued March 1, 2023.³²

Broadband Consumer Labels

The FCC adopted rules on November 14, 2022, requiring ISPs to make available a label that discloses a monthly price, additional charges and terms, discounts and bundles, whether it participates in the ACP, speeds provided, data include with the monthly price, and the network management and privacy policy. The rules were adopted based on three hearings on March 11,

²⁹ 47 U.S.C. § 1741.

³⁰ Ibid.

³¹ Ibid.

³² *Notice of Funding Opportunity, Middle Mile Grant Program Executive Summary* (NTIA), <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/MIDDLE%20MILE%20NOFO.pdf>.

April 7, and May 25, 2022. Also during this time, the FCC collected comments on the original Notice of Proposed Rulemaking, including:

- Have broadband service offerings and consumers' use of broadband services changed sufficiently since the Commission approved labels in 2016 to necessitate modifications to the labels' content and/or format, or whether there are any other reasons to change the content or format of the labels?
- Where should the labels be displayed to best inform consumers?
- How should the Commission enforce the label requirement and ensure the accuracy of label content?³³

After a Notice of Further Proposed Rulemaking, the FCC collected comments on “issues related to more comprehensive pricing information, bundled plans, label accessibility, performance characteristics, service reliability, cybersecurity, network management and privacy issues, the availability of labels in multiple languages, and whether the labels should be interactive or otherwise formatted differently so the information contained in them is clearer and conveyed more effectively.”³⁴ Comments were due February 16 of 2023 and reply comments were due on March 16, 2023. The template offered by the FCC looks similar to a nutrition label on food packaging and will allow the consumer to compare different ISPs services and prices in a standardized and comprehensible fashion.

Some remaining points of disagreement in the comments for the Notice of Further Proposed Rulemaking are the allowance of discounts and promotions to be included in links, not visually displayed in the label, whether the labels should be produced in languages beyond those the companies market to, and whether performance and reliability information should be included in the label.³⁵ The FCC’s sample Broadband Label is included below.

³³ Broadband Consumer Labels,” *FCC*, accessed May 8, 2023, <https://www.fcc.gov/broadbandlabels>.

³⁴ *Ibid.*

³⁵ Nicole Ferraro, “Consumer Advocates, Industry Groups Still Quibbling over Broadband Label Rules,” *Light Reading*, last modified March 20, 2023, <https://www.lightreading.com/broadband/consumer-advocates-industry-groups-still-quibbling-over-broadband-label-rules/d/d-id/783920>.

Broadband Facts

Provider Name

Service Plan Name and/or Speed Tier

Fixed or Mobile Broadband Consumer Disclosure

Monthly Price [\$]

This Monthly Price [is/is not] an introductory rate. [if introductory rate is applicable, identify length of introductory period and the rate that will apply after introductory period concludes]

This Monthly Price [does not] require[s] a [x year/x month] contract. [only required if applicable; if so, provide link to terms of contract]

Additional Charges & Terms

Provider Monthly Fees [\$]
[Itemize each fee]

One-time Fees at the Time of Purchase [\$]
[Itemize each fee]

Early Termination Fee [\$]

Government Taxes Varies by Location

Discounts & Bundles

Click Here for available billing discounts and pricing options for broadband service bundled with other services like video, phone, and wireless service, and use of your own equipment like modems and routers. [Any links to such discounts and pricing options on the provider's website must be provided in this section.]

Affordable Connectivity Program (ACP)

The ACP is a government program to help lower the monthly cost of internet service. To learn more about the ACP, including to find out whether you qualify, visit affordableconnectivity.gov.

Participates in the ACP [Yes/No]

Speeds Provided with Plan

Typical Download Speed [] Mbps

Typical Upload Speed [] Mbps

Typical Latency [] ms

Data Included with Monthly Price [] GB

Charges for Additional Data Usage [\$/GB]

Network Management Read our Policy

Privacy Read our Policy

Customer Support

Contact Us: example.com/support / (555) 555-5555

Learn more about the terms used on this label by visiting the Federal Communications Commission's Consumer Resource Center.

fcc.gov/consumer

[Unique Plan Identifier Ex. F0005937974123ABC456EMC789]

Source: "Broadband Consumer Labels," FCC, accessed May 8, 2023, <https://www.fcc.gov/broadbandlabels>.

GAO Report

The U.S. Government Accountability Office (GAO) conducted a report commissioned by the Infrastructure Act to “review FCC's establishing, reviewing, and updating of the broadband speed benchmark.”³⁶

Through analyzing six FCC reports from 2015 to 2021, the GAO found that there were inconsistencies in the measurement and reporting of whether the speed benchmark was sufficient. This video conferencing was not included in the analysis of the speed benchmark in 2019. The FCC's 2015 report mentioned future speed needs whereas none of the more recent reports did. The 2015 report in which the FCC changed the speed benchmark included a thorough explanation for the change, whereas the following reports with no change had more vague explanations for not changing the benchmark. The single recommendation that came from this report is for the FCC. It is as follows:

FCC's chair should provide consistent communication in its reporting of how it determines whether advanced telecommunications capability is being deployed and when updating the related metrics it uses to assess broadband speeds and deployment. For example, FCC could report to the public the scope and steps of its research and analysis, the data and analysis used to support its assertions, and the rationale for why it agrees or disagrees with stakeholder comments it receives.³⁷

The FCC agreed with the recommendation, but as of May of 2023, the GAO has not confirmed what actions the FCC has taken in response to this recommendation.³⁸

American Rescue Plan Act – Capital Projects Fund

COVID-19 ARPA Broadband Infrastructure Program

The Capital Projects Fund awarded Pennsylvania \$200 million for broadband infrastructure improvements funded through Pennsylvania's Broadband Infrastructure Program, which is a competitive grant program for both large-scale regional projects and line extensions. It will serve around 15 percent of underserved locations in the state.³⁹ Grants will range from \$500,000 to \$10 million. The application period runs from May 10, 2023 to August 9, 2023.⁴⁰ DCED issued

³⁶ “Broadband Speed: FCC Should Improve Its Communication of Advanced Telecommunications Capability Assessments,” *GAO*, last modified April 25, 2023, <https://www.gao.gov/products/gao-23-105655>.

³⁷ *Ibid.*

³⁸ *Ibid.*

³⁹ *Capital Projects Fund Award Fact Sheet* (U.S. Department of the Treasury, April 2023), <https://home.treasury.gov/system/files/136/PA-Fact-Sheet-April-2023.pdf>.

⁴⁰ Pennsylvania Department of Community and Economic Development, Press Release, “Pennsylvania Broadband Development Authority Approves Guidelines for \$200 Million Broadband Infrastructure Grant Program, Will Begin Accepting Applications in May,” April 5, 2023., <https://dced.pa.gov/newsroom/pennsylvania-broadband-development-authority-approves-guidelines-for-200-million-broadband-infrastructure-grant-program-will-begin-p>

guidelines in April 2023, in accordance with U.S. Treasury guidelines.⁴¹ Of particular note is the eligibility section:

Any of the following entities may apply for a grant under the Program:

Business – A corporation, partnership, sole proprietorship, limited liability company, cooperatives, or other commercial entity.

Not-for-profit – Any private not-for-profit entities.

Municipalities – Includes any city, township, borough, town, county, or a home rule municipality.

Economic development organization – A not-for-profit corporation or association whose purpose is the enhancement of economic conditions in its community.

As outlined in the Authority’s legislative mandate, Act 96 of 2021, eligible entities include those with the technical, managerial, and financial expertise to design, build, and operate high-speed broadband service infrastructure within the Commonwealth.

Regional consortia of local governments may participate. Additionally, the Authority will consider covered partnerships consisting of one or more of the above entities and a provider of internet service.

Per U.S. Treasury guidance, the Program will prioritize projects that involve broadband networks owned, operated by, or affiliated with local governments, non-profits, cooperatives, and those with commitments to serving entire communities.

Concerns have been raised and communicated to the PBDA about various aspects of the Capital Projects Funds application process, included prevailing wage determinations, limitations with the application portal and lack of transparency of various portions of the grant review process.⁴² With respect to prevailing wages, concern has been raised that the use of the prevailing wage classification of “electric lineman” for all workers deploying broadband does not accurately reflect the skill levels and safety concerns associated with the positions of teledata linemen, fiber optic splicers, coaxial cable splicers, and installers. The Broadband Communications Association of Pennsylvania has argued that these four categories of workers have separate and distinct skill sets and safety requirements, and that separate and distinct prevailing wage levels should be set for each county for each category of teledata worker.⁴³

⁴¹ Pennsylvania Department of Community and Economic Development, “Covid-19 ARPA Capital Projects Fund Broadband Infrastructure Program,” Program Guidelines, p. 1, April 2023, <https://dced.pa.gov/download/covid-19-arpa-pa-broadband-infrastructure-program-guidelines/?wpdmdl=119544>

⁴² Letter from the Broadband Communications Association of Pennsylvania to the Pa. Broadband Development Authority, May 17, 2023. Copy of letter supplied to JSGC staff by BCAP.

⁴³ Letter from the Broadband Communications Association of Pennsylvania to the Secretary of the Pennsylvania Department of Labor, July 12, 2023. Copy of letter supplied to JSGC staff by BCAP.

Pennsylvania Multi-Purpose Community Facility Program

The Broadband Development Authority anticipates releasing guidelines and opening its application period for \$45 million in multi-purpose community facility grants under the Capital Projects Fund, potentially in August 2023. This is a competitive grant program that can assist community anchor institutions such as schools, libraries, recreation centers, community health centers, and other non-profit organization buildings owned or operated by units of local government in improving broadband access for the purpose of enabling work, education, and health monitoring. Projects must be designed to enable work, education, and health monitoring jointly and directly, but these activities need not be the exclusive function or purpose of the project.⁴⁴

Digital Access and Opportunity Grant Program

The Digital Access and Opportunity Grant Program will provide \$20 million to increase access to appropriate, affordable technology devices, such as laptops, tablets, desktop computers and wi-fi devices. The funding will support institutions equipped to distribute devices and equipment installed as part of public wi-fi structure, such as access points, repeaters, and routers to members of the public through short- or long-term loans of equipment, or to make such equipment available for use in public facilities. The equipment would remain the property of the grant recipient. It is envisioned that the PBDA will partner with schools, libraries, municipalities, workforce/training organizations, CareerLinks, non-profits, and other community anchor institutions. Guidelines are expected to be released in the fourth quarter of 2023, with grant awards to be announced in the first quarter of 2024. This would be a four-year program, closing out in 2026.⁴⁵

⁴⁴ Pa. Broadband Development Authority Public Comment Forum, <https://forms.office.com/Pages/ResponsePage.aspx?id=QSiOQsG1U2bbEf8Wpob3qD50183yK5Og8hdMIGSwN VUNUZZUII2S1IPWE9BVkRYTVRIVIBXRU5ONC4u&wdLOR=cCB5FEB61-B2C6-4074-A1F5-F074DA60164A>; and U.S. Department of the Treasury, “Guidance for the Coronavirus Capital Projects Fund for States, Territories and Freely Associated States, September, 2021, p. 6, <https://home.treasury.gov/system/files/136/Capital-Projects-Fund-Guidance-States-Territories-and-Freely-Associated-States.pdf>

⁴⁵ PBDA Special Meeting Packet, September 15, 2022. <https://dced.pa.gov/download/special-meeting-packet-09-15-2022/>

U.S. Department of Agriculture

Broadband ReConnect Program

The Bipartisan Infrastructure Law makes \$1.926 billion available for the Broadband ReConnect Program grants, loans, or loan-grant combinations administered by the USDA.⁴⁶ \$74 million will be provided to the existing Rural Broadband Access Loan and Loan Guarantee Program to finance loans for broadband construction and deployment.⁴⁷ Tribal Broadband Connectivity Grants will receive an additional \$2 billion.⁴⁸ \$250,000 will go to the Denali Commission to support development of broadband in rural Alaska.⁴⁹ \$600 million will support private equity bonds for rural broadband deployment.⁵⁰

\$10 million in funding will support the development of a Broadband Deployment Locations Map, which will indicate the “geographic footprint of each broadband infrastructure deployment project funded by the Infrastructure Act, the Coronavirus Aid, Relief, and Economic Security Act, the Consolidated Appropriations Act of 2021, the American Rescue Plan Act of 2021...” and other federally funded projects authorized after the passing of the Infrastructure Act.⁵¹

Broadband Technical Assistance Program

The Bipartisan Infrastructure Law allocated funding for the development of broadband in rural communities. The Rural Utilities Service of the USDA announced in April 2023 that \$20 million was available for technical assistance grants in 2023. Technical assistance providers could receive between \$50,000 to \$1 million, up to \$7.5 million of the allocation. An additional \$7.5 million is earmarked for technical assistance recipients, with grants ranging between \$50,000 and \$250,000. The remaining \$5 million is designated for projects supporting cooperatives, ranging from \$50,000 to \$1 per project. Grants are expected to be announced in September 2023. There are no matching funds required, and projects must include active participation by the Rural Utilities Service. Minimum speeds for unserved areas under this program are 25/3.⁵²

⁴⁶ “A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and Other Partners, p. 394. <https://www.whitehouse.gov/wp-content/uploads/2022/05/BUILDING-A-BETTER-AMERICA-V2.pdf>

⁴⁷ *Ibid.*, 399.

⁴⁸ H.R. 3684, 117th Cong. Title II (2021-2022).

⁴⁹ *A Guidebook to the Bipartisan Infrastructure Law*, 402.

⁵⁰ *Ibid.*, 387.

⁵¹ *A Guidebook to the Bipartisan Infrastructure Law*, 401.

⁵² U.S. Department of Agriculture, Rural Development, “Broadband Technical Assistance, accessed May 10, 2023, <https://www.rd.usda.gov/programs-services/telecommunications-programs/broadband-technical-assistance-program>,

Rural Digital Opportunity Fund (RDOF) Phase II

The RDOF Phase II Auction will be administrated in the same way as the initial Phase I Auction. There is \$11.2 billion in funding that will be available in this auction. The second phase has yet to declare an opening or closing date for the auction.⁵³

Pennsylvania Department of Labor and Industry

In April 2023, the Department of Labor and Industry announced an \$800,000 grant opportunity for registered apprenticeship programs to train individuals to build high-speed internet infrastructure. The Supporting Broadband Infrastructure through Apprenticeships Grant program was created in anticipation of the influx of funding from the Bipartisan Infrastructure Law and the perceived increase in demand for trained workers to assist in the buildout of new broadband connections.⁵⁴

The department has engaged in numerous ongoing activities and funding opportunities in the past few years, and a more detailed discuss of their efforts at workforce development and improving digital literacy skills can be found in the chapter entitled “Update: Deployment Barriers, beginning at page. 73.

⁵³ “Rural Digital Opportunity Fund,” *USAC*, accessed April 25, 2023, <https://www.usac.org/high-cost/funds/rural-digital-opportunity-fund/>.

⁵⁴ Pennsylvania Department of Labor and Industry, “Available Grant Opportunities,” accessed May 10, 2023 <https://www.dli.pa.gov/Businesses/Workforce-Development/grants/Pages/default.aspx>

ROLE OF MUNICIPAL NETWORKS

Status in Pennsylvania

Pennsylvania does not prohibit municipalities from establishing their own broadband networks. However, local telecommunications carriers (ILEC, or Incumbent Local Exchange Companies) are granted a “right of first refusal.” In essence, a municipality wishing to offer broadband service must first request that the ILECs in the proposed service area provide service. The ILECs have two months to respond if an ILEC is going to provide service or if it will decline the opportunity, which then opens the way for the municipality to proceed. If the ILEC agrees to provide the service, it has 14 months from the date of the initial request to do so.⁵⁵ Staff have had difficulty finding records of challenges but have been made aware of two instances where the right of refusal has come into play.

In the first, the Southern Alleghenies Planning and Development Commission created a non-profit, Alleghenies Broadband, Inc. in 2020 to develop broadband in the Commission’s six-county region that would not be subject to the right of first refusal. The PUC approved that interpretation in 2021 and the non-profit began development. However, a right-to-know request questioned the relationship between the non-profit and the regional commission and may have opened the door to challenges to the non-profit’s status as a non-governmental organization.⁵⁶

In 2015, Columbia and Montour Counties created an economic development organization named Driving Real Innovation for a Vibrant Economy (DRIVE)⁵⁷. In order to increase its ability to provide telehealth services in rural north central Pennsylvania, Geisinger Health System⁵⁸ funded a project to expand high-speed, broadband Internet access to much of Montour County, including many underserved areas in 2018.⁵⁹ Montour County’s then sole ILEC, Verizon, declined to provide the service and the project moved forward. Completed in January 2019, DRIVE was responsible for connecting Internet service providers to distribute the service. The providers remain responsible for sales, service, and billing to customers.⁶⁰ In late 2020, DRIVE announced

⁵⁵ 66 Pa.C.S. § 3114(h).

⁵⁶ Charlotte Keith, “The Disconnect,” Spotlight PA, June 2, 2022, spotlightpa.org/series/the-disconnect/; and Charlotte Keith, “A fight over public records could threaten novel approach to broadband in rural Pennsylvania,” June 10, 2022, <https://www.spotlightpa.org/news/2022/06/pa-broadband-public-records-transparency/>.

⁵⁷ Established in 2015, DRIVE is an economic development council of governments serving Columbia and Montour Counties. “Home,” *DRIVE*, accessed August 14, 2020, <http://driveindustry.com/>.

⁵⁸ Founded in 1915 as the George F. Geisinger Memorial Hospital, Geisinger Health System now includes 13 hospital campuses, a 600,000–member health plan, two research centers, and the Geisinger Commonwealth School of Medicine.

⁵⁹ Geisinger, “DRIVE and Geisinger Partner to Bring Expanded Internet Access to Montour County,” News Release, (November 19, 2018), <https://www.geisinger.org/about-geisinger/news-and-media/news-releases/2018/11/19/16/43/drive-and-geisinger-partner-to-bring-expanded-Internet-access-to-montour-county>.

⁶⁰ Geisinger, “DRIVE and Geisinger.”

plans to expand into the neighboring counties of Columbia, Northumberland, Snyder, and Union, which are collectively served by seven phone companies. Two of the companies argued that the right of first refusal letters were inadequate, and the case went before the PUC which was asked by DRIVE to approve the expansion plans. At least one carrier neither refused to provide service or to provide service. DRIVE ultimately withdrew its request from the PUC and proceeded to build the network before its CARES Act spending deadline expired.⁶¹

At a Public Meeting on April 20, 2023, the PUC concluded that DRIVE complied with the written request requirements of the statute and voted to grant DRIVE's Petition for Declaratory Order to that effect. The PUC further voted to clarify that "going forward, the parties and public are on notice that Section 3014(h)(2) requires that there be a reasonable nexus between what a political subdivision is asking of an ILEC and what the political subdivision intends to deploy. It will not be acceptable to mix last mile and middle mile networks unless they are part of a comprehensive deployment request."⁶² It is further unclear whether the ILECs failure to respond was a simple oversight or if it was a deliberate attempt to slow down the process.

Upon query to the Public Utilities Commission, staff were informed that records are not kept of instances in which an ILEC exercised the right of first refusal by agreeing to provide the data speeds requested by a municipality, effectively preventing the municipality from offering broadband service. This is believed to be a very rare occurrence. Some members of the advisory committee have speculated these situations are few because the rule has a chilling effect, in that municipalities rarely are willing to make the time and financial investment to set forth a proposal if it appears likely be delayed or stopped by the right of first refusal. However, there are also concerns that municipal broadband networks carry the financial risk of remaining solvent in the long term and that may be a significant stumbling block for municipalities. A 2017 study out of the University of Pennsylvania examined 20 municipal networks nationwide that report financial results separately from other operations. The study found that 11 projects reported negative cash flows for the period 2010-2014. The article noted:

For the nine projects that are cash-flow positive, seven would need more than sixty years to break even. Only two generated sufficient cash to be on track to pay off the debt incurred within the estimated useful life of a broadband network, which is typically projected to be 30 to 40 years. . . .

These results suggest that municipal leaders should carefully consider all of the relevant costs and risks before moving forward with a municipal fiber program. Underperforming projects have caused numerous municipalities to face defaults, bond rating reductions, and direct payments from the public coffers. In addition,

⁶¹ Matt Farrand, "Broadband net marketing the next task," The Standard-Journal (Milton, PA), February 9, 2022, https://www.standard-journal.com/news/local/article_4751b3cd-6bb5-55c7-8ebf-fdee7e2140f0.html; Charlotte Keith, "The Disconnect," Spotlight PA, June 2, 2022, spotlightpa.org/series/the-disconnect/.

⁶² Motion of Chairman Gladys Brown Dutrieuille, *Petition for Declaratory Orde of Driving Real Innovation For A Vibrant Economy*, Pennsylvania Public Utility Commission, Docket No. P-2021-3025296 (April 20, 2023). See <https://www.puc.pa.gov/pcdocs/1782092.pdf> and <https://www.puc.pa.gov/pcdocs/1782010.pdf>. The PUC is currently drafting a final order consistent with this motion.

troubled municipal broadband ventures take a toll on community leaders in terms of personal turmoil and distraction from other matters important to citizens.⁶³

Relationship to Bipartisan Infrastructure Law

This limitation on municipal broadband deployment raises questions about Pennsylvania's eligibility for federal infrastructure funding. While planning funding has been granted, the 5-Year Action Plan has not been completed, and it remains to be seen how Pennsylvania responds to the BEAD program requirements regarding non-traditional providers. The BEAD program notice of funding opportunity states that the proposal must include:

A description of efforts undertaken by the Eligible Entity to ensure the participation of non-traditional broadband providers (such as municipalities or political subdivisions, cooperatives, non-profits, Tribal Governments, and utilities), including an explanation for awards to traditional broadband providers when one or more non-traditional providers submitted competing proposals to serve an area consistent with the requirements Section IV.C.1.a.;⁶⁴

A representative of NTIA, interviewed by Fierce Telecom, indicated that “[t]here is nothing in our rules that any state’s or territory’s BEAD allocation would be delayed or reduced due to a state’s restriction on pre-existing public eligibility to compete for BEAD grants.”⁶⁵ While this essentially allays concerns about BEAD funding, this issue becomes even more important in the context of the digital equity capacity program. The State Digital Equity Plan must include identification of barriers to digital equity in the state, objectives for increasing digital equity, how completing the objectives will benefit the state, and a description of a plan to collaborate with key stakeholders in the state.⁶⁶ It is an open question whether Pennsylvania’s right of refusal would be considered a “barrier” to digital equity. The pending NTIA notice of funding opportunity should provide guidance on that question.

Municipal Broadband in Other States

The remainder of this chapter is a summary of a Congressional Research Office study of municipal broadband across the country.

⁶³ Christopher S. Yoo and Timothy Pfenninger, “Municipal Fiber in the United States: An Empirical Assessment of Financial Performance,” University of Pennsylvania, Penn Law School and the Center for Technology, Innovation and Competition, 2017, <https://www.law.upenn.edu/live/files/6611-report-municipal-fiber-in-the-united-states-an>

⁶⁴ National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce, Notice of Funding Opportunity “Broadband Equity, Access, and Deployment Program.” <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>

⁶⁵ Diana Gooovaerts, “States, NTIA say municipal broadband laws won’t delay BEAD funding,” April 17, 2013, <https://www.fiercetelecom.com/telecom/municipal-broadband-laws-probably-wont-delay-bead-funding>

⁶⁶ H.R. 3684, 117th Cong. § 60304(c) (2021-2022).

On August 25, 2022, The Congressional Research Service released *Expanding Broadband: Potential Role of Municipal Networks to Address the Digital Divide*.⁶⁷ After reviewing this report, Commission staff presents this summary of the potential role municipal networks may play in addressing the digital divide.

“Roughly 14.5 million Americans lack access to fixed broadband at speeds of 25/3 Mbps, according to the FCC’s Fourteen Broadband Deployment Report.”⁶⁸ The gap between those who have access to broadband services and those who do not have service has become known as the digital divide. Researchers at the College for Health, Community, and Policy at the University of Texas at San Antonio support, “broadband availability and affordability in areas with high concentrations of poor, minorities, or rural households provides the starkest examples of the digital divide. In many cases, providers will not enter the market in these areas because the prospect for high profit margins is too low to merit entry.”⁶⁹ In addition to the obvious infrastructure challenges of developing a broadband network, the rate of broadband user adoption is another contributing factor to the digital divide.

Historically, the federal government’s primary means “to encourage broadband deployment is to subsidize private sector providers to service unserved and underserved areas⁷⁰ Many areas unserved with broadband exhibit one or more characteristics—low population density, remoteness, and difficult geography—that make deployment of broadband expensive and may discourage private sector providers from investing in broadband infrastructure.”⁷¹

One solution to closing the digital divide is municipal broadband defined as service provided to a community by a local government. In the early 1990s, Glasgow, Kentucky was the first municipality to offer its residents public internet.⁷² In recent years, deployment of municipal broadband networks in the United States has increased rapidly. “[B]y 2018 over 100 communities nationwide were offering some form of high-speed internet service [;] ...today [March 28, 2022], over 600 communities offer municipal broadband in some capacity, an increase of more than 600 percent since 2018.”⁷³

A local government might provide broadband service to its residents in the following ways:

- municipality owned and managed networks that provide service directly to citizens;
- utility networks, generally operated by a municipal electric company, that sell broadband and telecommunications services to their customers;

⁶⁷ “Expanding Broadband: Potential Role of Municipal Networks to Address the Digital Divide,” *Congressional Research Service*, last modified August 25, 2022, <https://crsreports.congress.gov/product/pdf/R/R47225/1>.

⁶⁸ *Ibid.*, 15.

⁶⁹ *Ibid.*, 2.

⁷⁰ *Ibid.*, 1.

⁷¹ *Ibid.*, 2.

⁷² *Ibid.*, 4.

⁷³ *Ibid.*

- public-private partnerships, where a municipality contracts with a private company to provide broadband services to its residents using infrastructure provided by the municipality; and
- open access (wholesale) networks, where the city provides the infrastructure and offers it to multiple suppliers to provide retail service.⁷⁴

Both advantages and disadvantages accompany creating and supporting municipal broadband. An advantage of the municipality owning the infrastructure includes the municipality can control “when and how its residents and businesses are served as well as maintain control over service performance.”⁷⁵ A disadvantage of the municipality owning the infrastructure is as the network operator the municipality lacks experience providing this new service.⁷⁶

“A potential advantage of a utility playing a role in municipal broadband is that it has an extensive history with building and maintaining massive communications networks and may already have access to rights of way.”⁷⁷ In addition, utilities have built both customer relationships and trust with communities over decades by “providing electricity under regulatory obligations that ensure equitable service. However, utilities that became broadband service providers may have little experience in competitive markets.”⁷⁸

Another approach to providing broadband services is public-private partnerships, which allows each party to focus “on its area of expertise and share risks and benefits associated with network deployment.”⁷⁹ On the other hand, a disadvantage to a public-private partnership is workers may be entitled to a prevailing wage that “may not otherwise have been applied as part of a strictly private effort, which may increase overhead costs of a project.”⁸⁰

Lastly, “costs to deploy a municipal broadband network can vary widely, and costs to build out a network in one city may not be comparable to the costs to build out in another city.”⁸¹ Factors influencing the amount of deployment costs include “the type of model deployed (e.g., public-private partnership, municipally owned and managed), the size of the municipality, population density, or geography.”⁸²

Due to many influencing factors, the success of municipal broadband networks varies from community to community. Consequently, the decision of local civic leaders whether to invest in a municipal broadband network depends upon each community’s specific variables. Currently, two major arguments exist both for and against deploying a municipal broadband network.

⁷⁴ *Ibid.*, 5.

⁷⁵ *Ibid.*

⁷⁶ *Ibid.*

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*, 6.

⁸¹ *Ibid.*

⁸² *Ibid.*

The first argument supporting developing a municipal broadband network is municipal broadband networks may fill connectivity and affordability gaps left by the private sector.⁸³ “Private sector providers may not serve these areas due to factors such as geography or low population, where it is expensive to deploy and potential returns on investment may be low.”⁸⁴ In these situations, municipal broadband networks may offer service plans with higher speeds at more affordable rates than may otherwise be available. However, some research supports comparing service plan rates between private and municipal providers may be misleading if federal funding has contributed to the municipal network.⁸⁵

The second argument supporting municipal broadband development is municipal economic benefits may follow.⁸⁶ “The potential benefits of deploying broadband may extend beyond economic activity conducted online and include job creation, as well as encouraging existing businesses and current residents to remain in an area, attracting new businesses and residents, and providing connectivity for critical facilities such as hospitals.”⁸⁷

An argument against developing a municipal broadband network is municipal broadband networks may carry sustainability risks. If a local government does not have financial resources to operate and maintain its broadband network, sustainability of network service becomes a substantial risk. Moreover, lack of sustainability may lead to network privatization. “One potential counterpoint is that a public-private partnership between a municipal provider and private entity may make network deployment and sustainability ‘more cost-effective by creating a larger market for services as well as a greater pool for sharing resources (staff, equipment, etc.).”⁸⁸ Lastly, municipal broadband network sustainability risks may lead to “shortfalls for other municipal projects.”⁸⁹

Another argument against developing a municipal broadband network is this approach to broadband deployment may compete with private sector providers. Municipal networks may discourage private investment in areas because providers may be “less likely to compete against the government that also regulate them. A potential counterpoint is there would not be a need for municipal broadband if the private sector served an unserved area and municipalities ‘invest[ed] only when the public demands it, to fill gaps left by the private sector, or to provide better service or lower rates than the private sector is willing or able to provide.”⁹⁰

⁸³ *Ibid.*

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*, 8.

⁸⁶ *Ibid.*, 7-8.

⁸⁷ *Ibid.*, 8.

⁸⁸ *Ibid.*, 9-10.

⁸⁹ *Ibid.*, 10.

⁹⁰ *Ibid.*, 10-11.

Proponents of municipal broadband argue that municipal broadband creates competition with other providers and therefore will contribute to more competitive pricing. A Consumer Reports survey found that three quarters of respondents were in favor of allowing municipal broadband. A majority of Republicans, Democrats, and independents responded this way.⁹¹

The NACo Broadband Task Force recommended that a municipal solution only be utilized where community needs can be demonstrated with data and the existing infrastructure available to ISPs is well understood by community leaders. If the ISPs determine they cannot provide affordable broadband in an area, communities should be able to explore the possibility that municipal broadband can provide affordable broadband.⁹² Currently, while 27 states allow municipalities to deploy broadband, 23 states “either explicitly prohibit municipal broadband or have mechanisms in place that could make establishing municipal broadband networks challenging.”⁹³ The 27 states allowing municipalities to deploy broadband include Alaska, Arizona, California, Connecticut, Delaware, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Rhode Island, South Dakota, Vermont, and West Virginia.⁹⁴

In March 2015, the Federal Communications Commission (FCC), an independent regulatory agency overseen by Congress, “stated its perceived authority to preempt state laws in a March 2015 *Memorandum Opinion and Order*. However, a decision by the Sixth Circuit Court of Appeals held that the FCC could not preempt state regulation of municipal broadband without an express statutory grant of preemption authority from Congress.”⁹⁵

⁹¹ James K. Willcox, “Millions of Americans Lack Fast Internet Service, CR Survey Shows,” *Consumer Reports*, last modified August 3, 2021, <https://www.consumerreports.org/broadband/millions-of-americans-lack-fast-internet-service-cr-survey-a1099956385/>.

⁹² *Broadband Task Force: High-Speed Internet is Essential for All Counties* (NACo, July 2021), https://www.naco.org/sites/default/files/documents/NACo-Broadband-Task-Force_8-6.pdf, 18.

⁹³ *Ibid.*

⁹⁴ *Ibid.* 21-24.

⁹⁵ *Ibid.*, 6-7.

Summary of State Statutory Restrictions on Municipal Broadband

State	Right of First Refusal	Voter Approval Required	Service Area Restrictions	Funding Restrictions And Cost Requirements	Public Hearing Required	Cannot Compete with Private Provider	Limited Types of Telecom Services to be Provided	Must Partner with Experienced Provider	Cannot Lease Broadband Infrastructure to Other Providers	Local Authorities Must Alert Subscribers if a Private Company Decides to Enter the Market
Alabama		X	X	X						
Arkansas					X			X		
Colorado		X								
Florida				X	X					
Iowa		X		X						
Louisiana		X		X						
Michigan	X									
Minnesota	X	X				X				
Missouri							X		X	
Montana	X									X
Nebraska						X				
Nevada			X							
North Carolina			X	X						
Oregon			X							
Pennsylvania	X					X				
South Carolina				X						
Tennessee			X							
Texas							X			
Utah				X						
Virginia				X			X			
Washington				X						
Wisconsin				X	X					
Wyoming	X			X						

Source: “Expanding Broadband: Potential Role of Municipal Networks to Address the Digital Divide,” *Congressional Research Service*, last modified August 25, 2022, <https://crsreports.congress.gov/product/pdf/R/R47225/1>. Analysis performed by the Joint State Government Commission staff.

The following charts categorize the types of state statutory restrictions on deploying municipal broadband networks.

Table 1: State Statutory Regulation of Municipal Broadband <i>Right of First Refusal</i>		
State	Statues	Summary
Michigan	Mich. Comp. Laws Ann. §484.2252(1)(a) §484.2252(1)(b)	Public entities are allowed to provide broadband services, but only if the public entity has first sought bids in the form of a request for proposal on the project from private companies and has only received fewer than three “qualified” bids.
Minnesota	Minn. Stat. Ann. §429.021(19)(ii)	The city council must find that a proposed municipal broadband network and service may not compete with existing services provided by private telecom companies
Montana	Mon. Code Ann. §2-17-603(2)(a)(i)	Municipalities may offer broadband services if there are no other private companies offering broadband within the municipality’s jurisdiction
Pennsylvania	66 Pa.C.S. §3014(h)(2)	A political subdivision may offer advanced or broadband services if the political subdivision has submitted a written request for the deployment of such service to the local exchange telecommunications company serving the area and, within two months of receipt of the request, the local exchange telecommunications company or one of its affiliates has not agreed to provide the data speeds requested. If the local exchange telecommunications company or one of its affiliates agrees to provide the data speeds requested, then it must do so within 14 months of receipt of the request.
Wyoming	Wyoming Senate File NO. SF0100	The state broadband infrastructure fund is only available to private businesses or public-private partnerships, unless no private internet service provider responds to a request for proposal

Table 2: State Statutory Regulation of Municipal Broadband Voter Approval Required		
State	Statutes	Summary
Alabama	Alabama Code §11-50B-8	Municipal governments must conduct a referendum before providing services to resident
Colorado	Colo. Rev. Stat. Ann. §29-27-201	Cities must hold a referendum before providing broadband services to residents.
Iowa	Iowa Code §388.2	New public utilities must be approved by voter referendum of 51%
Louisiana	La. Rev. Stat. Ann. §45:844.50(A)	Municipalities are required to hold a referendum before providing broadband services to residents
Minnesota	Minn. Stat. Ann. §237.19	Municipal governments proposing to offer telecommunications exchange are required to obtain a referendum “supermajority” of 65% of voters to proceed

Table 3: State Statutory Regulation of Municipal Broadband Service Area Restrictions		
State	Statutes	Summary
Alabama	Alabama Code §11-50B-3	Municipalities cannot provide broadband service to residents beyond their jurisdiction
Nevada	Nevada Statute §268.086 §710.147	Municipalities and counties are prohibited from providing telecommunications services if the municipality has a population of 25,000 or more; or a county has a population of 50,000 or more
North Carolina	N.C. Statutes Chapter 16A §160A-340.1(3)	Local authorities are prohibited from offering broadband services beyond their jurisdictions
Oregon	O.R.S. §276A.406(2)(a) §276A.406(2)(b)	The state chief Information Officer may provide broadband services to public entities and underserved communities only
Tennessee	Tennessee Code Annotated §7-56-316(a)(1) §7-52-601(a) §7-56-316(3) §7-56-316(2)	Municipalities with a broadband network may not expand service beyond city limits Municipalities are allowed to operate their own electric utilities to provide broadband, but the service provision is limited to within their electric service areas For communities without a public utility, municipalities may only offer broadband service in areas that are deemed “historically underserved,” and only through joint ventures with private companies

Table 4: State Statutory Regulation of Municipal Broadband Funding Restrictions/Cost Requirements		
State	Statutes	Summary
Alabama	Alabama Code §11-50B-5	Municipal governments are barred from using local funds or local taxes to cover initial investments in building out broadband infrastructure
	§11-50B-11	Any municipal broadband system must be self-sustaining
Florida	Florida Statute §125.421(3); §166.047(3); §196.012; §199.183(1)(b); and §212.08	State law places “ad valorem” taxes on municipal broadband networks* * according to value proportional to value of underlying asset
Iowa	Iowa Code §388.10(1a)(1) §388.10(2)(d)	Municipalities are prevented from using general fund moneys to support a broadband network, and must complete a detailed annual audit
Louisiana	La. Rev. Stat. Ann. §45:844.53(4)(c)(ii)	Municipalities are required to include costs that they do not actually incur into their service rate
North Carolina	N.C. Statutes Chapter 16A §160A-340.1(8)	Public entities must include costs they do not actually incur into service rates
South Carolina	S.C. Code Ann. §58-9-2600 et., seq.	State law imposes proposal-stage requirements, requirements to include costs that are not actually incurred into their service rate, and additional taxes.
Utah	Utah Code Ann. §11-14-103(4) §10-18-201 et. seq.	Restrictions are placed on the use of municipal bonds to fund broadband projects
Virginia	VA Code §56-265.4:4	Municipalities may not subsidize services and many not charge rates that are lower than incumbents’ rates for similar service.
	§56-265.4:4(B)(5)	Municipalities must include costs that they do not actually incur into their service rate and comply with procedural, financing, and reporting requirements [that private sector providers do not need to comply with]
Washington	HB1336 The Public Broadband Act	Municipal networks are required to keep accounting of revenues and expenditures of telecom activities separate from the internal telecom operations Municipal networks must dedicate telecom revenues to pay off the costs incurred in building and maintaining telecom facilities Municipal networks must charge themselves true and full value of telecom services provided by the separate telecom functions in the district

Table 4: State Statutory Regulation of Municipal Broadband Funding Restrictions/Cost Requirements		
State	Statutes	Summary
Wisconsin	Wisconsin Statutes Annotated §66.0422(5)	Municipal networks can only be paid for by subscribers of the service, not the general population.
	§66.0422(2)(c)	Public entities must include costs that they do not actually incur into their service rate and are not able to charge rates that are lower than what incumbents charge for the same service.
	§66.0422(2)(c)	Municipalities are prohibited from subsidizing telecom services.
Wyoming	Wyoming Senate File NO. SF0100	The state broadband infrastructure fund is only available to private businesses or public-private partnerships, unless no private internet service provider responds to a request for proposal

Table 5: State Statutory Regulation of Municipal Broadband Public Hearing Required		
State	Statutes	Summary
Arkansas	Arkansas Code §23-17-409(b)(6)(B) (ii)(iii)(iv)	Municipalities must conduct due diligence, provide 10 days' advance notice, and provide a hearing on the matter
Florida	Florida Statute §350/81(2)(a) §350.81(2)(c)(4)	Municipalities are required to hold at least two public hearings in which local officials must offer a roadmap to profitability within four years
Wisconsin	Wisconsin Statutes Annotated §66.0422(2)(c) §66.0422(2)(a)	Municipalities are required to conduct feasibility studies and public hearings prior to offering service.

Table 6: State Statutory Regulation of Municipal Broadband Cannot Compete with Private Provider		
State	Statues	Summary
Minnesota	§429.021(19)(ii)	The city council must find that a proposed municipal broadband network and service may not compete with existing services provided by private telecom companies
Nebraska	Neb. Rev. Stat. Ann. §86-594(1)	Public entitles are barred from providing retail or wholesale broadband services
	§86-576 §86-57(4)(a)	Public entitles are barred from selling or leasing broadband networks at rates that are lower than current incumbents are charging
Pennsylvania	66 Pa.C.S. §3014(h)(2)	Municipalities are prohibited from providing broadband service to residents for a fee, unless no such services are provided.

Table 7: State Statutory Regulation of Municipal Broadband Limited Types of Telecom Services to be Provided		
State	Statues	Summary
Missouri	Missouri Revised Statutes §392.410(7)	Municipalities may offer broadband services to resident, but they cannot offer telephone or TV as well
Texas	Texas Utilities Code §54.201	Municipalities are barred from offering specific types of telecommunication services to the public directly or through a private telecom company
Virginia	§56-484.7:1 §15.2-2108.6 §15.2-2403	State law limits the type of services municipalities can offer

Table 8: State Statutory Regulation of Municipal Broadband Miscellaneous Restrictions			
State	Regulation	Statues	Summary
Arkansas	Must Partner with Experienced Provider	Arkansas Code §23-17-409(b)(6)(B)(i)	Municipalities must partner, contract, or affiliate with an entity that is experienced in the operation of facilities for the provision of voice services, data service, broadband services, video services, or wireless telecommunications services
Missouri	Cannot Lease Broadband	Missouri Revised Statutes §392.410(7)	Municipal governments are barred from leasing broadband infrastructure to other communication providers

Table 8: State Statutory Regulation of Municipal Broadband
Miscellaneous Restrictions

State	Regulation	Statues	Summary
	Infrastructure to Other Providers		
Montana	Local Authorities Must Alert Subscribers if a Private Company Decides to Enter the Market	Mon. Code Ann. §2-17-603(3)	Local authorities must alert subscribers if a private company decides to enter the market

The following table lists all restriction in each state by state with statutory citations.

State Statutory Regulation of Municipal Broadband		
State	Statues	Summary
Alabama	Alabama Code §11-50B-8	Municipal governments must conduct a referendum before providing services to resident
	§11-50B-5	Municipal governments are barred from using local funds or local taxes to cover initial investments in building out broadband infrastructure
	§11-50B-11	Any municipal broadband system must be self-sustaining
	§11-50B-3	Municipalities cannot provide broadband service to residents beyond their jurisdiction
Arkansas	Arkansas Code §23-17-409(b)(6)(B)(i)	Municipalities must partner, contract, or affiliate with an entity that is experienced in the operation of facilities for the provision of voice services, data service, broadband services, video services, or wireless telecommunications services
	§23-17-409(b)(6)(B) (ii)(iii)(iv)	Municipalities must conduct due diligence, provide 10 days' advance notice, and provide a hearing on the matter
Colorado	Colo. Rev. Stat. Ann. §29-27-201	Cities must hold a referendum before providing broadband services to residents.
Florida	Florida Statute §125.421(3); §166.047(3); §196.012; §199.183(1)(b); and §212.08	State law places “ad valorem” taxes on municipal broadband networks* *according to value proportional to value of underlying asset
	§350/81(2)(a) §350.81(2)(c)(4)	Municipalities are required to hold at least two public hearings in which local officials must offer a roadmap to profitability within four years
Iowa	Iowa Code §388.2	New public utilities must be approved by voter referendum of 51%
	§388.10(1a)(1)	Municipalities are prevented from using general fund moneys to support a broadband network, and must complete a detailed annual audit
	§388.10(2)(d)	
Louisiana	La. Rev. Stat. Ann. §45:844.50(A)	Municipalities are required to hold a referendum before providing broadband services to residents
	§45:844.53(4)(c)(ii)	Municipalities are required to include costs that they do not actually incur into their service rate
Michigan	Mich. Comp. Laws Ann. §484.2252(1)(a); §484.2252(1)(b)	Public entities are allowed to provide broadband services, but only if the public entity has first sought bids in the form of a request for proposal on the project from private companies and has only received fewer than three “qualified” bids.

State Statutory Regulation of Municipal Broadband

State	Statutes	Summary
Minnesota	Minn. Stat. Ann. §237.19	Municipal governments proposing to offer telecommunications exchange are required to obtain a referendum “supermajority” of 65% of voters to proceed
	§429.021(19)(ii)	The city council must find that a proposed municipal broadband network and service may not compete with existing services provided by private telecom companies
Missouri	Missouri Revised Statutes §392.410(7) §392.410(7)	Municipalities may offer broadband services to resident, but they cannot offer telephone or TV as well Municipal governments are barred from leasing broadband infrastructure to other communication providers
Montana	Mon. Code Ann. §2-17-603(2)(a)(i)	Municipalities may offer broadband services if there are no other private companies offering broadband within the municipality’s jurisdiction
	§2-17-603(3)	Local authorities must alert subscribers if a private company decides to enter the market
Nebraska	Neb. Rev. Stat. Ann. §86-594(1)	Public entitles are barred from providing retail or wholesale broadband services
	§86-576 §86-57(4)(a)	Public entitles are barred from selling or leasing broadband networks at rates that are lower than current incumbents are charging
Nevada	Nevada Statute §268.086 §710.147	Municipalities and counties are prohibited from providing telecommunications services if the municipality has a population of 25,000 or more; or a county has a population of 50,000 or more
North Carolina	N.C. Statutes Chapter 16A §160A-340.1(8)	Public entities must include costs they do not actually incur into service rates
	§160A-340.3	Public entities are required to make commercially-sensitive data available to private industry competitors
	§160A-340.1(3)	Local authorities are prohibited from offering broadband services beyond their jurisdictions
Oregon	O.R.S. §276A.406(2)(a); §276A.406(2)(b)	The state chief Information Officer may provide broadband services to public entities and underserved communities only

State Statutory Regulation of Municipal Broadband

State	Statues	Summary
Pennsylvania	66 Pa.C.S. §3014(h)(2)	A political subdivision may offer advanced or broadband services if the political subdivision has submitted a written request for the deployment of such service to the local exchange telecommunications company serving the area and, within two months of receipt of the request, the local exchange telecommunications company or one of its affiliates has not agreed to provide the data speeds requested. If the local exchange telecommunications company or one of its affiliates agrees to provide the data speeds requested, then it must do so within 14 months of receipt of the request.
	§3014(c)(2)(i)	Data speed should be the only consideration in determining whether private industry is serving residents (e.g. excludes pricing, coverage area, quality of service): (2) To be considered a bona fide retail request, the written request must include: (i) a request that a minimum of 50 retail access lines or 25% of retail access lines within a community, whichever is less, each be provided the same advanced service or comparable advanced services having a bandwidth within 100 kilobits per second (Kbps) of each other. Notwithstanding the foregoing comparable bandwidth limitation, where a request includes individual customer requests for advanced services having equal to or less than 1.544 megabits per second (Mbps) bandwidth in the downstream direction, all lines in the request shall be counted in meeting the minimum line requirement of this subparagraph;
South Carolina	S.C. Code Ann. §58-9-2600 et., seq.	State law imposes proposal-stage requirements, requirements to include costs that are not actually incurred into their service rate, and additional taxes.

State Statutory Regulation of Municipal Broadband		
State	Statues	Summary
Tennessee	Tennessee Code Annotated §7-52-601(a)	Municipalities are allowed to operate their own electric utilities to provide broadband, but the service provision is limited to within their electric service areas.
	§7-56-316(d)	Public entities must also comply with a number of requirements around public disclosures, hearings, and voting
	§7-56-316(a)(1)	Municipalities with a broadband network may not expand service beyond city limits
	§7-56-316(3); §7-56-316(2)	For communities without a public utility, municipalities may only offer broadband service in areas that are deemed “historically underserved,” and only through joint ventures with private companies
Texas	Texas Utilities Code §54.201	Municipalities are barred from offering specific types of telecommunication services to the public directly or through a private telecom company
Utah	Utah Code Ann. §11-14-103(4); §10-18-201 et. seq.	Restrictions are placed on the use of municipal bonds to fund broadband projects
Virginia	VA Code §56-265.4:4	Municipalities may not subsidize services and many not charge rates that are lower than incumbents’ rates for similar service.
	§56-265.4:4(B)(5);	Municipalities must include costs that they do not actually incur into their service rate and comply with procedural, financing, and reporting requirements [that private sector providers do not need to comply with]
	§56-484.7:1; §15.2-2108.6; and §15.2-2403	State law limits the type of services municipalities can offer

State Statutory Regulation of Municipal Broadband

State	Statutes	Summary
Washington	<p align="center">HB1336 The Public Broadband Act</p>	<p>Municipal networks are required to keep accounting of revenues and expenditures of telecom activities separate from the internal telecom operations</p> <p>Municipal networks must dedicate telecom revenues to pay off the costs incurred in building and maintaining telecom facilities</p> <p>Municipal networks must charge themselves true and full value of telecom services provided by the separate telecom functions in the district</p>
Wisconsin	<p align="center">Wisconsin Statutes Annotated §66.0422(5)</p>	<p>Municipal networks can only be paid for by subscribers of the service, not the general population.</p>
	<p align="center">§66.0422(2)(c) §66.0422(2)(a)</p>	<p>Municipalities are required to conduct feasibility studies and public hearings prior to offering service.</p>
	<p align="center">§66.0422(2)(c)</p>	<p>Public entities must include costs that they do not actually incur into their service rate and are not able to charge rates that are lower than what incumbents charge for the same service.</p>
	<p align="center">§66.0422(2)(c)</p>	<p>Municipalities are prohibited from subsidizing telecom services.</p>
Wyoming	<p align="center">Wyoming Senate File NO. SF0100</p>	<p>The state broadband infrastructure fund is only available to private businesses or public-private partnerships, unless no private internet service provider responds to a request for proposal</p>

UPDATE:

DEFINING, DELIVERING AND REGULATING BROADBAND

Defining Broadband

The term “broadband” refers to the high-speed transmission of data over a wide band (broadband) of frequencies. How wide the band must be to be deemed high speed is constantly evolving. Currently, the Federal Communications Commission (FCC) has defined broadband as having minimum download speeds of 25 Mbps (megabits per second) and minimum upload speeds of 3 Mbps.

Under Pennsylvania’s Chapter 30 law, 66 Pa.C.S. §§ 3011 et seq., “broadband” is defined as “a communication channel using any technology and having a bandwidth equal to or greater than 1.544 megabits per second (Mbps) in the downstream direction and equal to or greater than 128 kilobits per second (Kbps) in the upstream direction.” This speed was established in 2004. 66 Pa.C.S. § 3012. Chapter 30 requires Pennsylvania ILECs to provide broadband throughout their service territories in exchange for permitting ILECs to choose alternative regulation (briefly, fewer restrictions and less regulatory oversight than traditional regulation). Today, every Pennsylvania ILEC has opted for alternative regulation and is subject to Chapter 30’s broadband mandate.

Multiple federal funding programs impose minimum speeds that are vastly higher than Chapter 30. For example, BEAD funded broadband projects must reach a minimum of 100 Mbps download/20 Mbps upload.⁹⁶

Delivering Broadband

Broadband high-speed Internet access transmits data using a wide range of frequencies and enables many messages to be communicated simultaneously. Broadband is provided through wired and wireless (or as used interchangeably, fixed and mobile) technologies. Wired broadband connects to a building via digital subscriber line (DSL), coaxial cable, fiber optic cables, and power lines. Some wireless technologies use satellites. Regardless of the type of connection, all technologies providing broadband rely on some form of physical infrastructure.

⁹⁶ <https://www.digitalinclusion.org/blog/2022/05/13/ntia-releases-requirements-for-42-5b-of-bead-program-funding/#:~:text=As%20a%20general%20note%2C%20all%20BEAD%20funded%20broadband,of%20less%20than%20or%20equal%20to%20100%20milliseconds.>

The Commission's 2020⁹⁷ report defined the types of broadband delivery systems available in detail and will not be reiterated in this report. However, an update on the number of providers and the types of service available in Pennsylvania was included in the Commission's 2022⁹⁸ report, using Pennsylvania Department of Community and Economic Development databases, which were in turn based on 2020 FCC reports.

Regulating Broadband

Broadband is not heavily regulated by either the federal government or Pennsylvania. Most government intervention comes in the form of determining what speeds qualify as broadband to receive government incentives for development and deployment. Broadband, as a relatively new technological development, is usually found under the umbrella of telecommunications laws and regulations, although the fit is not exact.

The question arises frequently as to whether broadband services should be regulated as a public utility. A "public utility" is a legal concept describing a company that provides an essential public service under government regulation and oversight. In Pennsylvania, public utilities are certificated and regulated by the PUC pursuant to the Public Utility Code, 66 Pa.C.S. §§ 101 et seq. Public utilities can be defined as meeting specific criteria, to wit:

- provide an essential, unusually non-differentiated commodity – such as gas, electricity, or water;
- over a capital-intensive infrastructure network utilizing public rights-of-way; and
- usually on a 'full requirements' basis.

The justification for regulating a particular industry as a public utility is because the nature of service provided tends to lead to natural monopolies, which by their nature are anti-competitive. These services use an infrastructure that requires a massive investment, and provides lower prices at economies of scale, but usually result in only one provider being able to be profitable in each geographic area.

Pennsylvania, like most other states, does not regulate Internet service as a public utility. Pursuant to the Public Utility Code, inclusive of the Chapter 30 law, the PUC's jurisdiction over telecommunications centers on traditional local telephone service. See, 66 Pa.C.S. § 3012 (defining "telecommunications carriers" and "telecommunications services"). The PUC's role in regulating broadband is tied to overseeing ILECs' implementation of Chapter 30's broadband mandate to make broadband available within 10 days of a request at Chapter 30 speeds. The PUC does not regulate the prices for broadband, the delivery of services that exceed Chapter 30's minimum

⁹⁷ <http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2020-09-03%20Broadband%20Report%20web.pdf>

⁹⁸ [http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2022-07-06%20\(SR47\)%20Broadband%20Final%20Report%20%202022.pdf](http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2022-07-06%20(SR47)%20Broadband%20Final%20Report%20%202022.pdf)

speeds or broadband service provided by entities other than ILECs, such as cable companies and wireless ISPs. In addition, the PUC annually certifies to the FCC that ILECs/ETCs are eligible to receive federal High Cost support in their states and that these companies use all of this support only to provide, maintain, and upgrade the facilities for which the support was intended (i.e. voice and broadband).

For several years, efforts have been made to classify broadband internet access as a telecommunications service, which would allow the FCC to create new regulations and restrictions over broadband providers. Most recently, the Net Neutrality and Broadband Justice Act has been introduced to the United States Congress, as S. 4676 and H.R.8573, both introduced and referred to committee on July 28, 2022, where they have remained.

Home Internet Connection for Students

As COVID relief and most hybrid learning comes to an end, schools are providing less technology support to students. Though 94 percent of schools surveyed by the Institute of Education Sciences in August of 2022 provided devices to children that needed one, only 45 percent of schools offered home internet to students in need. Fifty-six percent of schools provided internet at locations other than home.⁹⁹

Seventy-eight percent of schools surveyed by the E-rate survey in 2022 agreed or strongly agreed that “insufficient internet access at home is a significant problem in their community.”¹⁰⁰ Though this number is still very high, this figure is an 8 percent decrease from the previous year’s survey, indicating that the homework gap may be beginning to close.¹⁰¹

One study of 15 rural Michigan school districts found that internet connectivity increased the chances of students engaging in educational activities outside of school. Students with internet access at home were more likely to reach out to peers and teachers for help with school, collaborate with peers on projects, and finish homework on time. Connectivity increased the digital literacy of students, and increased grade point averages by as much as half a letter grade. Students with less digital literacy also performed worse on SAT pencil-and-paper standardized tests. These students are subsequently less likely to plan to seek higher education. Students with greater digital literacy are more likely to pursue careers in STEAM professions, equipping them for the future American economy. Importantly, many of these outcomes are also affected by socioeconomic inequity, which has a noticeable effect on broadband connectivity. Connectivity could be one of a variety of factors that affect these overall outcomes.¹⁰²

Though many aspects of connectivity for students, both in the classroom and at home, have improved since the COVID-19 pandemic due to the existence of extra financial assistance and programs to ensure students didn’t experience learning loss, the U.S. Department of Education released a report on the future of advancing digital equity for learners. The recommendations

⁹⁹ “School Pulse Panel,” *Institute of Education Sciences*, accessed April 24, 2023, <https://ies.ed.gov/schoolsurvey/spp/>.

¹⁰⁰ Anna Merod, “E-rate Survey Points to Early Signs of the Homework Gap Closing,” *K-12 Dive*, last modified October 21, 2022, <https://www.k12dive.com/news/e-rate-survey-points-to-early-signs-of-the-homework-gap-closing/634686/>.

¹⁰¹ *Ibid.*

¹⁰² *Broadband and Student Performance Gaps* (Michigan State University, March 3, 2020), https://quello.msu.edu/wp-content/uploads/2020/03/Broadband_Gap_Quello_Report_MSU.pdf

center around three important aspects of broadband development: availability, affordability, and adoption. The plan also emphasizes the importance of using community groups to drive these efforts forward.¹⁰³

The Office of Educational Technology led roundtables through the Digital Equity Education Roundtables (DEER) initiative with leaders from community-based organizations and families and students. These conversations produced identified barriers and possible strategies to overcome them. Regarding availability, the first barrier was the lack of access to a reliable internet connection. Some individuals expressed that having an internet connection that is not reliable is barely better than having none. If students are learning through a video conferencing app and then also using other apps on their computer that require internet access to complete tasks for school, the bandwidth might not support both of these actions. Similarly, if more than one student is using the internet to work during the school day or while doing homework, both of their connections can become weaker and less effective. Parents felt that teachers were forgetting that not all students had a reliable connection at home, especially after schools no longer provided connectivity for students that had none when learning fully virtually. Many teachers continue using the same applications for learning, not realizing that some students now had less access than they did during COVID-19.¹⁰⁴

Another barrier for some students was the lack of an adequate device to connect to the internet from. As with the previous barrier, some students may have a device that is older and does not meet the specifications the learning applications require. Additionally, if a family has one adequate device and multiple students, this takes away from the effectiveness of that device. Another barrier is that for students who move from school to school within a year, like foster children or migratory children, devices that are loaned by one school might not be by another and those students may lack consistent access to the internet outside of school. Stakeholders also identified digital redlining as a barrier; areas that did not already have internet connection were not quickly targeted for broadband expansion by broadband companies. Rural and Tribal communities are especially affected by digital redlining. Some stakeholders also mentioned limitations of infrastructure in the places they lived; either rentals would need to approve Wi-Fi installation, or some who technically lived in the basement of a house could not be considered a separate household and install their own internet connection.¹⁰⁵

Strategies to increase availability required the engagement of public-private partnerships to allow community-based organizations to find ways to bring connectivity to their students, like one school district that partnered with the city, local college, and economic council to provide free connectivity to 250,000 families in Phoenix.¹⁰⁶

¹⁰³ *Advancing Digital Equity for All* (US Department of Education, September 2022), https://tech.ed.gov/files/2022/09/DEER-Resource-Guide_FINAL.pdf, 18.

¹⁰⁴ *Ibid.*, 20.

¹⁰⁵ *Ibid.*, 21-24.

¹⁰⁶ *Ibid.*, 25.

Barriers in affordability included the cost of internet connectivity and technology and equipment and a lack of sustained funding for affordable internet. Those participating in these roundtables felt that the current programs were only temporary stopgaps that would not support affordable internet after a certain period of time. Stakeholders named the Affordable Connectivity Program as a helpful resource and schools attempted to direct students and families toward the resources that would provide low-cost internet to them. They also noted that in the future, leaders in advancing digital equity should consider the sustainability of the programs they pioneer to provide access to students.¹⁰⁷

An adoption barrier was a lack of collaboration between government agencies, community-based organizations, Tribes, and private companies. Cooperation between all the interested parties would better serve families. Those communities that were most impacted by the digital divide did not feel that they were being heard by decision-makers in closing the digital divide. Also, marginalized communities experience distrust of the government and private companies at a higher rate and are less likely to produce the necessary information that would allow them to be eligible for affordability programming, causing them to also experience lower levels of adoption. Inaccurate data which doesn't truly represent which communities need more investment into connection was also noted as a barrier.¹⁰⁸

Schools also have limited ability to spend time and money helping families connect to the internet. Even though it has been made a priority, some schools simply have more resources than others. Among adopters, there were complaints that resources for how to install or use an internet connection were often not available in the user's native language, leading to frustration and confusion on how to use the technology. Stakeholders also noted a lack of digital literacy training available for students, educators, and families. Some stakeholders also indicated that assistance in filling out the applications for different support programs would increase adoption.¹⁰⁹

Community-based organizations were also seen as the main solution in increasing adoption, as they can provide digital literacy advancement specific to the needs of their population. One example of this is providing childcare during classes so parents can increase their digital literacy. Human-led tech support for those just beginning to be connected to the internet was also emphasized by stakeholders. Treating adoption as something that needs to be increased through a whole community's involvement was an approach that experienced success.¹¹⁰

Overall, the key takeaways from the roundtables were:

- develop and earn public trust through partnerships,
- learn from those impacted by inequitable access and provide opportunities for feedback,
- co-develop clear goals and strategies with communities to craft a comprehensive digital equity plan,

¹⁰⁷ Ibid., 30-31.

¹⁰⁸ Ibid., 31-35.

¹⁰⁹ Ibid., 35-40.

¹¹⁰ Ibid., 35-46.

- raise public awareness and provide ongoing support for low- or no-cost broadband programs,
- provide digital literacy training and professional learning opportunities.¹¹¹

Jessica Rosenworcel, Chairwoman of the FCC, encouraged other FCC commissioners to support changes to E-Rate funding that would allow the funds to be used to support Wi-Fi on school buses. She entitled the changes the “Learn Without Limits Initiative,” which would also allow E-Rate to support Wi-Fi hotspots that can be distributed at libraries, school libraries, and schools to students or patrons. Official language has not been released as it requires a vote of the full Commission. When this occurs the text will be publicly available.¹¹² Chairwoman Rosenworcel has pushed for similar E-Rate changes in 2022 that allowed E-Rate funding to be used for Wi-Fi on school buses.

Higher Education

The Consolidated Appropriations Act of 2021 established a Connecting Minority Communities Pilot Program which would target “Historically Black Colleges or Universities (HBCUs), Tribal Colleges or Universities (TCUs), minority-serving institutions (MSIs), and consortia led by an HBCU, TCU, or MSI that also include a minority business enterprise or tax-exempt 501(c)(3) organization.”¹¹³ To receive funds from this pilot program, the institution must be located within 15 miles of an anchor community that “has an estimated median annual household income of not more than 250 percent of the poverty line.”¹¹⁴ The Connecting Minority Communities Pilot Program Final Rule dedicated to serving minority populations that may already face low Internet accessibility and adoption rates. The Rule argues that broadband connectivity is “a conduit for economic development and social opportunities for U.S. households and a gateway to increased productivity, growth and market access for businesses of all sizes.”¹¹⁵ Funding distributed through this grant program can be used:

For the purchase of broadband internet access service or any eligible equipment, or to hire and train information technology personnel: (1) To facilitate educational instruction and learning, including through remote instruction; or (2) to operate a minority business enterprise; or (3) to operate a tax-exempt organization described in section 501(c)(3) of the Internal Revenue Code of 1986, as amended.¹¹⁶

¹¹¹ Ibid., 51-52.

¹¹² FCC, “Chairwoman Rosenworcel Announces ‘Learn Without Limits’ Initiative,” Press Release, June 26, 2023, <https://docs.fcc.gov/public/attachments/DOC-394625A1.pdf>.

¹¹³ NTIA Office of Public Affairs, “Department of Commerce’s NTIA to Begin Accepting Applications for \$268 Million Connecting Minority Communities Pilot Program,” Press Release, August 3, 2021, <https://www.ntia.doc.gov/press-release/2021/department-commerce-s-ntia-begin-accepting-applications-268-million-connecting>.

¹¹⁴ Ibid.

¹¹⁵ “Connecting Minority Communities Pilot Program,” *Federal Register*, last modified June 15, 2021, https://www.ntia.gov/files/ntia/publications/fr_connecting_minority_communities_pilot_program.pdf.

¹¹⁶ Ibid.

Telehealth

The onset of the COVID-19 pandemic highlighted the essential role access to dependable broadband service plays in many aspects of daily living. Telehealth is an example of a critical service reliant on available, adequate broadband service. The Centers for Disease Control and Prevention defines both the benefits and uses of telemedicine as follows:

Benefits

- Allows a patient to talk to a doctor live over the phone or video chat
- Allows a patient to send and receive messages from their doctor using chat messaging or email
- Allows for remote monitoring of patients
- Saves on travel time/transportation costs
- Reduces wait time for services
- Reduces number of visits to a clinic¹¹⁷

Uses

- General health care (i.e., wellness visits, blood pressure control, advice about certain non-emergency illnesses, like common rashes)
- Prescriptions for medication
- Screening for COVID-19, testing recommendations, and guidance on isolation or quarantine
- Nutrition counseling
- Mental health counseling¹¹⁸

¹¹⁷ “Telemedicine—What Does It Mean And Why Should We Care?”, *Centers for Disease Control and Prevention*, accessed April 14, 2023, <https://www.cdc.gov/coronavirus/2019-ncov/downloads/global-covid-19/Telemedicine-Factsheet-MIT.pdf>.

¹¹⁸ *Ibid.*

During the COVID-19 pandemic, the U.S. Department of Health and Human Services accelerated the adoption and awareness of telehealth through a range of administrative steps, expanding the use of and reliance upon patients receiving services through this medium. While the Department of Health and Human Services ended the federal Public Health Emergency for COVID-19, declared under Section 319 of the Public Health Service Act, on May 11, 2023,¹¹⁹ The Consolidated Appropriations Act of 2023 extended many telehealth flexibilities authorized during the COVID-19 public health emergency through December 31, 2024.¹²⁰

The Consolidated Appropriations Act of 2021 made access to telemental health services for Medicare beneficiaries permanent.¹²¹ Reliable, affordable broadband service is necessary to support some permanent Medicare telehealth services including the following:

- Federally Qualified Health Centers (FQHCs) and Rural Health Clinics (RHCs) can serve as a distant site provider for behavioral/mental telehealth services.
- Medicare patients can receive telehealth services for behavioral/mental health care in their home.
- There are no geographic restrictions for originating site for behavioral/mental telehealth services.
- Behavioral/mental telehealth services can be delivered using audio-only communication platforms.
- Rural hospital emergency departments are accepted as an originating site.¹²²

In addition, temporary telehealth Medicare changes effective through December 31, 2024, include the following:

- Federally Qualified Health Center (FQHC)/Rural Health Clinic (RHC) can serve as a distant site provider for non-behavioral/mental health telehealth services.
- Medicare patients can receive telehealth services authorized in the Calendar Year 2023 Medicare Physician Fee Schedule in their home.
- There are no geographic restrictions for originating site for non-behavioral/mental telehealth services.
- Some non-behavioral/mental telehealth services can be delivered using audio-only communication platforms.
- An in-person visit within six months of an initial behavioral/mental telehealth service, and annually thereafter, is not required.

¹¹⁹ “COVID-19 Public Health Emergency (PHE),” *U.S. Department of Health and Human Services*, accessed April 14, 2023, <https://www.hhs.gov/coronavirus/covid-19-public-health-emergency/index.html>.

¹²⁰ “Telehealth policy changes after the COVID-19 public health emergency,” *U.S. Department of Health and Human Services*, accessed April 14, 2023, <https://telehealth.hhs.gov/providers/policy-changes-during-the-covid-19-public-health-emergency/policy-changes-after-the-covid-19-public-health-emergency>.

¹²¹ *Ibid.*

¹²² *Ibid.*

- Telehealth services can be provided by a physical therapist, occupational therapist, speech language pathologist, or audiologist.¹²³

Historically, Pennsylvania Medical Assistance enrolled providers have been allowed to use telemedicine to provide physical health services (since 2007) and behavioral health services (since 2011). However, prior to the COVID-19 pandemic, this delivery mode was not widely employed. Currently in Pennsylvania, no statutory guidance exists explicitly authorizing the use or disallowance of telemedicine or outlining reimbursement rates for services delivered by telemedicine.¹²⁴ “DHS [Pennsylvania Department of Human Services] will continue allowing physical health and behavioral health services to be provided via telemedicine delivery and will continue to reimburse at the same rate as services delivered in-person in the fee for service program. The Managed Care Organizations (MCOs) may, but are not required to, allow for the use of telemedicine. MA [Medical Assistance] MCOs may negotiate payment for services rendered via telemedicine.”¹²⁵

Telehealth in Post-Pandemic Pennsylvania

Effective May 6, 2022, the Pennsylvania Department of Human Services Medical Assistance Bulletin issued Updates to Guidelines for the Delivery of Physical Health Services via Telemedicine.¹²⁶ For the purposes of Medicaid, telemedicine is defined as “the use of two-way, real time interactive telecommunications technology that includes at a minimum, audio and video equipment as a mode of delivery healthcare services.”¹²⁷ For purposes of Medicaid reimbursement, telemedicine does not include “telephone, asynchronous or store and forward technology or facsimile machines, electronic mail systems or remote patient monitoring devices. However, these technologies may be utilized as a part of the provision of a MA [Medical Assistance]-covered service.”¹²⁸

Responding to the Centers for Medicare & Medicaid Services’ policy changes during the COVID-19 Public Health Emergency, “the MA [Medical Assistance] Program has allowed for audio-only services in situations where the beneficiary does not possess or have access to video technology and when clinically appropriate.”¹²⁹ The Pennsylvania Department of Human Services will continue to allow providers to use audio-only telecommunication if the beneficiary does not have access to video capability or for an urgent medical situation. “Services rendered via telemedicine including those delivered using audio-only telecommunication technology, must use

¹²³ *Ibid.*

¹²⁴ “Frequently Asked Questions About Telemedicine in Pennsylvania,” *Pennsylvania Department of State*, accessed April 14, 2023, <https://www.dos.pa.gov/ProfessionalLicensing/Pages/Telemedicine-FAQs.aspx>.

¹²⁵ *Ibid.*

¹²⁶ “Updates to Guidelines for the Delivery of Physical Health Services via Telemedicine,” *Pennsylvania Department of Human Services Medical Assistance Bulletin*, May 6, 2022, <https://www.dhs.pa.gov/docs/Publications/Documents/FORMS%20AND%20PUBS%20OMAP/MAB2022050601.pdf>.

¹²⁷ *Ibid.*

¹²⁸ *Ibid.*

¹²⁹ *Ibid.*

technology that is two-way, real-time, and interactive between beneficiary and provider.”¹³⁰ The guidelines specifically require these technology capabilities: “Technology used for telemedicine, whether fixed or mobile, should be capable of presenting sound and image in real-time and without delay.”¹³¹

Effective July 1, 2022, the Pennsylvania Department of Human Services Office of Mental Health and Substance Abuse Services Bulletin issued Revised Guidelines for the Delivery of Behavioral Health Services Through Telehealth.¹³² “Technology used for telehealth, whether fixed or mobile, should be capable of presenting sound and image in real-time without delay.”¹³³ Telehealth equipment should clearly display the practitioners’ and participants’ faces to facilitate clinical interactions. The telehealth equipment must meet all state and federal requirements for the transmission or security of “health information and comply with the Health Insurance Portability and Accountability Act (HIPPA).... Providers may utilize audio-only when the individual served does not have access to video capability or for an urgent medical situation....”¹³⁴

In July 2022, the Outpatient Psychiatric Oversight Act was amended to provide for the use of telebehavioral health technology by psychiatrists, subject to DHS regulations.¹³⁵ In October 2022, Act 98 of 2022¹³⁶ repealed three sections of the Office of Mental Health and Substance Abuse Services (OMHSAS) regulations at 55 Pa. Code § 1153.14(1); § 1223.14(2); and § 5230.55(c), which were previously suspended by the Public Health Emergency (PHE), which affected delivery of services via telephone. Behavioral health providers may now deliver and bill for behavioral health services through audio-only telehealth for both outpatient psychiatric services and outpatient drug and alcohol services. Additionally, behavioral health providers delivering psychiatric rehabilitation services now have the ability to provide supervision through a video or audio platform.¹³⁷

¹³⁰ *Ibid.*

¹³¹ *Ibid.*

¹³² “Revised Guidelines for the Delivery of Behavioral Health Services Through Telehealth,” *Pennsylvania Department of Human Services Office of Mental Health and Substance Abuse Services Bulletin*, July 1, 2022, <https://www.dhs.pa.gov/Services/Mental-Health-In-PA/Documents/OMHSAS%20Telehealth/Bulletin%20OMHSAS-22-02%20-%20Revised%20Guidelines%20for%20Delivery%20of%20BH%20Services%20Through%20Telehealth%207.1.22.pdf>.

¹³³ *Ibid.*

¹³⁴ *Ibid.*

¹³⁵ Act of July 11, 2022 (P.L. 773, No. 76) amending the act of May 31, 2018 (P.L. 123, No.25), known as the Outpatient Psychiatric Oversight Act.

¹³⁶ Act of October 28, 2022 (P.L. 1632, No. 98) amending the act of July 13, 1967 (P.L. 31, No. 21), known as the Human Services Code.

¹³⁷ “Revised Guidelines for the Delivery of Behavioral Health Services Through Telehealth,” *Pennsylvania Department of Human Services Office of Mental Health and Substance Abuse Services Bulletin*, July 1, 2022, <https://www.dhs.pa.gov/Services/Mental-Health-In-PA/Documents/OMHSAS%20Telehealth/Bulletin%20OMHSAS-22-02%20-%20Revised%20Guidelines%20for%20Delivery%20of%20BH%20Services%20Through%20Telehealth%207.1.22.pdf>.

To assist providers, the Office of Mental Health and Substance Abuse Services is offering funding opportunities. The Commonwealth of Pennsylvania Department of Human Services has received enhanced federal Medicaid funding made available to states through the American Rescue Plan Act. Throughout the Commonwealth, this funding will support Medicaid’s home- and community-based services system, which helps seniors, people with disabilities, children with complex medical needs, and other groups to safely live in their community with their family and peers. The Office of Mental Health and Substance Abuse Services has designated \$4 million dollars of the enhanced federal Medicaid funding to this opportunity. The Department will provide funding of up to \$50,000 per approved request for funding to qualified providers on a one-time basis to invest in technology and training for behavioral health telehealth providers. Funding requests will be accepted from February 1 through December 31, 2023, or the date on which all funding made available through this program has been exhausted.¹³⁸

Effective May 2, 2022, the Pennsylvania Department of Human Services Medical Assistance Bulletin issued Teledentistry Guidelines and Dental Fee Schedule Updates.¹³⁹ Teledentistry, a two-way, real time interactive communication between the patient and dentist, may be used by dentists, Federally Qualified Health Centers, and Rural Health Clinics to provide dental services to medical assistance beneficiaries. Teledentistry may be used to provide these three procedures: limited oral evaluation-problem focused; topical application of fluoride varnish; and tobacco counseling for the control and prevention of oral disease.¹⁴⁰

On January 12, 2023, the Pennsylvania Department of Health issued Telemedicine Interpretive Guidance for Hospitals.¹⁴¹ “Given the importance and prevalence of telemedicine in hospital settings, the Department is putting forth this updated Interpretive Guidance to offer greater clarity about how telemedicine can be integrated in the hospital setting under the Department’s current regulations.... Some key changes include

- Citations to regulations that are being interpreted in the context of telemedicine services.
- Updated definitions, including “asynchronous interaction, distant site, Health Insurance Portability and Accountability Act of 1996, originating-site, remote patient monitoring, synchronous interaction, and telemedicine.”
- Clarification on notification requirements and incorporation of attestation process for new services and equipment.
- Guidance on utilizing the Centers for Medicaid & Medicare Services (CMS) credentialing and privileging by proxy processes.

¹³⁸ “Office of Mental Health and Substance Abuse Services (OMHSAS) Telehealth Funding Opportunity for Behavioral Health Providers,” *Pennsylvania Department of Human Services Office of Mental Health and Substance Abuse Services*, January 2023, https://pasafetynet.org/wp-content/uploads/2023/02/Telehealth_Funding_Opportunity_FINAL.pdf#:~:text=The%20Office%20of%20Mental%20Health%20and%20Substance%20Abuse,forth%20in%20Section%20II.B%2C%20Eligible%20Telehealth%20Improvement%20Strategies.

¹³⁹ “Teledentistry Guidelines and Dental Fee Schedule Updates,” *Pennsylvania Department of Human Services Medical Assistance Bulletin*, June 13, 2022, MAB2022061301.pdf (pa.gov).

¹⁴⁰ *Ibid.*

¹⁴¹ “Telemedicine Interpretive Guidance for Hospitals,” *Pennsylvania Department of Health*, January 12, 2023, *Telemedicine Survey Guideline Final.pdf* (pa.gov).

- Removal of certain administrative burdens that have been communicated in prior guidance, including maintenance of lists of telemedicine providers.
- Guidance for offering outpatient telemedicine services.¹⁴²

Pursuant to Act 30 of 2022,¹⁴³ the Pennsylvania Department of State’s COVID-19 waivers and suspensions related to professional and occupational licensing expired on October 31, 2022. “In general, from a professional licensing standpoint, the expiration of telemedicine-related waivers will not affect the use of telemedicine. It will continue to be allowable in the same way it was allowable prior to the pandemic.”¹⁴⁴

Telehealth Access in the Post-Pandemic Era

As outlined above, telehealth will continue to play an expanded role in post-pandemic health services. For telehealth to be a successful and sustainable method of providing vital physical and behavioral health services throughout Pennsylvania, several tools and resources are essential: reliable, affordable internet access and necessary equipment coupled with the skills to use the telehealth-related technology. Plus, medical providers require a technology infrastructure to support telehealth services to patients, in particular rural residents. In addition to video visits, rural telehealth technology solutions include the following:

- Phone calls in between appointments
- Secure messages through patient portals
- Text messaging
- Asynchronous communication, such as sharing files, images, documents, test results, or symptom diaries
- Connecting from a local health clinic¹⁴⁵

“Access to high-speed broadband internet continues to be a barrier for many rural telehealth programs. Lack of connectivity can hinder the implementation and expansion of telehealth programs that require live-video connections between patients and providers. Dropped calls and delays in video feeds can interrupt care delivery and lead to patient dissatisfaction with telehealth.”¹⁴⁶ Health information technology is “an important tool to improve the quality, safety, effectiveness, and delivery of healthcare services in rural communities.”¹⁴⁷ For example, health

¹⁴² *Ibid.*

¹⁴³ Act of Jun. 30, 2022 (P.L. 391, No. 30).

¹⁴⁴ “Waived and Suspended Licensing Regulations,” *Pennsylvania Department of State*, accessed April 14, 2023, COVID-19 Suspensions (pa.gov).

¹⁴⁵ “Access to internet and other telehealth resources,” *U.S. Department of Health and Human Services*, accessed April 14, 2023, Access to internet and other telehealth resources | Telehealth.HHS.gov.

¹⁴⁶ “Connectivity Considerations for Telehealth Programs, *Rural Health Information Hub*, accessed April 14, 2023, Connectivity Considerations for Telehealth Programs - RHInfo Toolkit (ruralhealthinfo.org).

¹⁴⁷ “Health Information Technology in Rural Healthcare,” *Rural Health Information Hub*, accessed April 14, 2023, Health Information Technology in Rural Healthcare Overview - Rural Health Information Hub.

information technology can connect rural patients and providers in remote locations to specialists who practice in urban areas. However, implementing, maintaining, updating, and optimizing health information technology often is an ongoing challenge for rural facilities and providers with limited resources and expertise.

To assist with limited broadband service, the federal government offers opportunities for both healthcare facilities and their local telecommunication providers to expand broadband access in rural areas, including the FCC's Rural Health Care Program, administered by the Universal Service Administrative Company (USAC), provides funding to healthcare providers for telecommunications and broadband services for the provision of healthcare services. The purpose of this program is to improve the quality of healthcare for patients in rural communities. Two separate funding opportunities make up the Rural Health Care Program:

- Healthcare Connect Fund (HCF) Program provides a 65% discount on eligible expenses related to broadband connectivity to individual and consortium rural healthcare providers.
- Telecommunications Program offers healthcare providers a discount on telecommunication expenses based on the urban and rural price differences in your area.

The USDA also provides information and resources on investments in rural broadband and e-connectivity, and offers many funding opportunities to expand telecommunication and broadband services, including:

- Rural eConnectivity Broadband Loan and Grant Program (ReConnect) offers loans, grants, and loan/grant combinations to support broadband expansion in areas without sufficient access to broadband.
- Rural Broadband Access Loan and Loan Guarantee Program furnishes loans and loan guarantees for the costs of construction, improvement, or acquisition of facilities and equipment needed to provide broadband services.
- Community Connect Broadband Grant Program provides funding to support the development of broadband services in rural communities.
- Telecommunications Infrastructure Loans and Loan Guarantees provides financing for the construction, maintenance, improvement, and expansion of telephone and broadband services in rural areas.
- Distance Learning and Telemedicine Program Grants provide funding to promote and improve telemedicine and distance learning services in rural areas using telecommunications, computer networks, and related advanced technologies. Grant

funds can be used to purchase equipment and capital assets, including broadband transmission facilities.¹⁴⁸

Some rural telehealth programs are adapting to limited connectivity by focusing on services that use cellular networks or text messaging services to reach patients. For example, to address limited access to broadband in rural Oregon, the Direct to Patient Tele-Behavioral Health Services program offers a text-based option for behavioral therapies. Patients without internet access may find it easier to connect with providers through text messages.¹⁴⁹

In August 2021, the Bipartisan Policy Center sponsored a survey *Telehealth Visit Use Among U.S. Adults*.¹⁵⁰ While about one in three adults surveyed reported a satisfactory telehealth visit in the past year, patients also reported considerable obstacles in accessing telehealth. Technology-related barriers were the most common, specifically more than one-third of rural residents reported both high-speed internet access and computer-equipment access were obstacles to using telehealth effectively. In comparison, approximately one in four non-rural residents experienced these barriers.¹⁵¹ Among the survey respondents, 45 percent said access to technology (including broadband and computers) served as a barrier to using telehealth. Specifically, these issues impacted rural residents and adults over the age of sixty-five.¹⁵²

In October 2022, the Bipartisan Policy Center released *The Future of Telehealth After COVID-19: New Opportunities and Challenges*.¹⁵³ “Dramatic policy changes during the pandemic paved the way for a huge increase in the utilization of telehealth services—from less than 1 % of Medicare services before the pandemic to a peak of more than 32% of Medicare claims in April 2020 (leveling off to between 13% and 17% by July 2021). In the first year of the pandemic, 44% of continuously enrolled Medicare fee-for-service beneficiaries had a telehealth visit, accounting for more than 45 million visits.”¹⁵⁴

The Bipartisan Policy Center reported early research suggests the quality of care of services delivered through telehealth “can be equivalent to in-person care for managing chronic diseases and treating behavioral health issues. Overall, patients and providers, including those in rural areas as well as Medicare beneficiaries, generally feel satisfied with the telehealth services they receive. Nevertheless, virtual care’s effectiveness varies depending on the medical condition.”¹⁵⁵ Considering the increased widespread use of and satisfaction with telehealth services, reliable, affordable broadband connectivity to support telehealth services is becoming a necessity to Commonwealth residents.

¹⁴⁸ *Ibid.*

¹⁴⁹ “Connectivity Considerations for Telehealth Programs, *Rural Health Information Hub*, accessed April 14, 2023, Connectivity Considerations for Telehealth Programs - RHHub Toolkit (ruralhealthinfo.org).

¹⁵⁰ “Telehealth Visit Use Among U.S. Adults,” *Bipartisan Policy Center*, August 2021, https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2021/08/SSRS-Telehealth-Report_confidential_FINAL_08.02.21-1.pdf

¹⁵¹ *Ibid.*

¹⁵² *Ibid.*

¹⁵³ Julia Harris, Sabah Bhatnager, Brady Newell, Marilyn Werber Serafini, G. William Hoagland, Jennifer Ruff, “The Future of Telehealth After COVID-19: New Opportunities and Challenges,” October 11, 2022, *The Future of Telehealth After COVID-19 | Bipartisan Policy Center*.

¹⁵⁴ *Ibid.*

¹⁵⁵ *Ibid.*

The critical flexibilities of telehealth support the following positive outcomes: increased access to specialists, avoided hospitalizations (and associated costs), and improved outcomes from the safety of patients' homes. A significant advantage of telehealth is this mode of delivering health care increases the value and affordability of this vital service. "Virtual care technology saves patients time and money, reduces patient transfers, emergency department and urgent care center visits, and delivers savings to payers. In addition, telehealth helps address physician burnout by reducing clinicians' drive times and allowing more time for patients."¹⁵⁶

"Telecommunications technology connects patients to vital health care services through videoconferencing remote monitoring, electronic consults and wireless communications. It increases patients' access to physicians, therapists and other practitioners. This is especially important in areas of the country where recruiting and retaining providers is challenging, such as in rural areas, and in areas where vulnerable populations often lack an entrance point to the health care system."¹⁵⁷ A consequence of the pandemic is telehealth services have become an expectation of patients. "For those with mobility problems or a lack of transportation, telehealth allows those patients to still be able to access their doctors. Telehealth can also help doctors reach more patients at different times of the day, without much disruption to patients' normal routines."¹⁵⁸

A consequence of the COVID-19 pandemic has been emphasizing the essential role access to available, affordable broadband service plays in many aspects of daily living, including telehealth services. "While telehealth has great potential to increase access to care, any expansion of telehealth should be implemented with the explicit goal of addressing health equity and reducing health disparities, as challenges remain for the nation's minority communities. As such, telehealth should be employed with supporting policies, such as access to broadband and end-user devices, to reach underserved populations"¹⁵⁹

In 2014, the FCC created the Connect2Health Task Force to identify regulatory barriers and incentives to encourage the use of wireless health technologies. The Task Force released a new mapping platform in 2023. Data is presented in state and counties forms, and maps are currently available covering broadband and maternal health, and broadband, opioids and chronic disease.¹⁶⁰

¹⁵⁶"Fact Sheet: Telehealth," American Hospital Association, February 2019, fact-sheet-telehealth-2-4-19.pdf (aha.org).

¹⁵⁷ Statement of the American Hospital Association, Subcommittee on Health of U.S. House of Representatives Committee on Energy and Commerce, March 2, 2021, AHA Statement on The Future of Telehealth: COVID-19 is Changing the Delivery of Virtual Care | AHA.

¹⁵⁸Samantha Wildow, Telehealth here to stay after pandemic growth," March 13, 2023, Telehealth here to stay after pandemic growth (yahoo.com).

¹⁵⁹ Statement of the American Hospital Association, Subcommittee on Health of U.S. House of Representatives Committee on Energy and Commerce, March 2, 2021, AHA Statement on The Future of Telehealth: COVID-19 is Changing the Delivery of Virtual Care | AHA.

¹⁶⁰ FCC, Mapping Broadband Health in America, [- 59 -](https://www.fcc.gov/health/maps#:~:text=1%20Sample%20Maps%20View%20the%20sample%20maps%20for,4%20For%20Developers%20...%205%20Provide%20Feedback%20, website visited July 3, 2023.</p></div><div data-bbox=)

*Increased Wellness and Economic Return of Universal Broadband Infrastructure*¹⁶¹

“New broadband infrastructure enabling increased use of telehealth not only benefits the entire economy, but affords the array of other benefits that make broadband a social determinant of health. It unlocks workforce opportunities, makes independent businesses more competitive, and opens the door to microbusiness, all of which lead[s] to higher area wages. It lets citizens connect with existing community resources and educational opportunities, improving community resiliency and leading to long-term benefits. And it offers the chance to reshape healthcare delivery to meet people where they are, facilitating cheaper preventative care while also reducing the cost of chronic and acute conditions systemwide.”¹⁶²

In April 2023, the Institute for Local Self Reliance¹⁶³ in collaboration with the Southern Rural Black Women’s Initiative¹⁶⁴ released a comprehensive study *Increased Wellness and Economic Return of Universal Broadband Infrastructure: A Telehealth Case Study of Ten Southern Rural Counties*.¹⁶⁵ The project examined 10 counties in rural Alabama, Georgia, and Mississippi to study “how the costs of achieving true digital equity—by extending robust broadband infrastructure into areas missing it—can be offset by utilizing the potential of telehealth to improve healthcare delivery.”¹⁶⁶

This case study supports access to reliable, accessible broadband “is a strong social determinant of health.”¹⁶⁷ Reliable, affordable broadband access “contributes to the strength of community and family connections, access to education, access to community services, and access to telehealth services.”¹⁶⁸ The study focuses on “the economic benefits of providing remote

¹⁶¹ Ry Marcattilio and Christopher Mitchell, “Increased Wellness and Economic Return of Universal Broadband Infrastructure: A Telehealth Case Study of Ten Southern Rural Counties,” *Institute for Local Self-Reliance*, April 2023, ILSR_Telehealth_Report_Final_Draft.pdf.

¹⁶² *Ibid.*, 3.

¹⁶³ The Institute for Local Self-Reliance (ILSR) is a national nonprofit research and educational organization founded in 1974. ILSR has a vision of thriving, diverse, equitable communities. To reach this vision, we build local power to fight corporate control. We believe that democracy can only thrive when economic and political power is widely dispersed. Whether it’s fighting back against the outsize power of monopolies like Amazon or advocating to keep local renewable energy in the community that produced it, ILSR advocates for solutions that harness the power of citizens and communities. Read more about us at www.ilsr.org.

¹⁶⁴ The Southern Rural Black Women’s Initiative for Economic and Social Justice (SRBWI) was founded in 2001 to promote the first human rights agenda in the United States aimed at eradicating historical race, class, cultural, religious, and gender barriers experienced by southern rural Black women. Over the past 20 years, SRBWI has engaged over 3,000 women in 77 counties across the Blackbelt of Alabama and Georgia, and the Mississippi Delta in countering the generational impact of unrelenting systemic, institutionalized discrimination and abuse faced by rural Black women in the US South. SRBWI’s programs range from policy and advocacy reform to intergenerational leadership, asset building, and economic empowerment. SRBWI believes that the battle against poverty and inequity cannot be fought or won without the voice and participation of southern rural Black women, who are trying desperately to provide for their families in under-resourced, economically distressed, and persistently poor counties. For more information, please visit our website: srbwi.org.

¹⁶⁵ Marcattilio and Mitchell, *supra*.

¹⁶⁶ *Ibid.*, 1.

¹⁶⁷ *Ibid.*, 4.

¹⁶⁸ “Social Determinants of Health - Healthy People 2030 | Health.Gov,” accessed October 18, 2021, <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>.

delivery of clinical services, distance consultations, and in-home monitoring devices and education efforts with tablets.”¹⁶⁹ The consistent minimum household internet connection required to support a two-way video call (as well as plan for the demands of a quickly evolving telehealth landscape) is 100/20 Megabits per second.¹⁷⁰

While rural communities have a higher rate of uninsured residents with limited health care access, rural residents are more likely “to have a sedentary lifestyle, have higher rates of hypertension, cigarette smoking and obesity, which all are risk factors for chronic illnesses such as cancer and heart disease.”¹⁷¹ The following health conditions present potential telehealth treatment savings: congenital heart disease and cardiovascular disease; diabetes; chronic respiratory disease; cancer; mental health, tuberculosis, and obesity. Some common benefits telehealth services may offer in treating these conditions include converting inpatient treatment to outpatient treatment; decreasing the number of treatment readmissions; offering vital education opportunities; overcoming geographic barriers to treatment; reducing the number of missed appointments (which can lead to complicating factors requiring expensive hospitalizations); and reducing the risk of exposure to other illnesses such as the flu and COVID-19.¹⁷² For example, telehealth may offer faster access to mental health services through an outpatient treatment alternative, reducing the costs associated with emergency department visits and in-patient admissions.¹⁷³

While financial savings accompany many of these benefits, patients often gain convenience and time. Also, telehealth may save money and improve access to care by decreasing no-show rates for appointments. “These approaches have also been found to reduce usage of emergency services, improve control of symptoms for people in palliative care, and has come to be highly valued by family members for enhancing care and improving their confidence in the care provided.”¹⁷⁴

In addition to providing access to essential healthcare, telehealth services support a variety of financial savings for both providers and patients. For example, hospitals may avoid Medicare penalties resulting from high readmission rates. Plus, patients save by preventing not only missed, unpaid leave from work but also travel costs for an emergency visit and/or a trip to a distant clinic for specialty care. Communities themselves may benefit “in the form of increased economic productivity for the region at large.”¹⁷⁵

¹⁶⁹Marcattilio and Mitchell, *supra.*, 6.

¹⁷⁰ *Ibid.*, 5.

¹⁷¹ CDC, “Leading Causes of Death in Rural America,” Government, Centers for Disease Control and Prevention, October 30, 2017, <https://www.cdc.gov/ruralhealth/cause-of-death.html>.

¹⁷² Dominique Harrison, “Expanding Broadband in the Black Rural South” (Joint Center for Political and Economic Studies, July 2021); Dominique Harrison, “Affordability & Availability: Expanding Broadband in the Black Rural South” (Washington DC: Joint Center for Political and Economic Studies, October 2021). <https://jointcenter.org/wp-content/uploads/2021/10/Affordability-Availability-Expanding-Broadband-in-the-Black-Rural-South.pdf>.

¹⁷³Marcattilio and Mitchell, *supra.*, 11.

¹⁷⁴ Lilian Hennemann-Krause et al., “The Assessment of Telemedicine to Support Outpatient Palliative Care in Advanced Cancer,” *Palliative & Supportive Care* 13, no. 4 (August 2015): 1025–30, <https://doi.org/10.1017/s147895151400100x>. 1027.

¹⁷⁵Marcattilio and Mitchell, *supra.*, 2.

To model the health cost savings, the *Increased Wellness and Economic Return of Universal Broadband Infrastructure* study focused on six variables: lost productivity, admissions, readmission, emergency department visits, transportation costs, and carbon emissions.¹⁷⁶ Eliminating transportation costs is embedded in telehealth services, and avoiding the travel associated with in-person medical care would directly translate to circumvented vehicle carbon emissions.

While readmission rates may vary significantly by condition, institution, and population served, the University of Pennsylvania sponsored a five-year study supporting the benefits of telehealth.¹⁷⁷ The study of 800 heart failure patients found using a tablet-based system which transmitted vital statistics in real time, included educational videos, and allowed for synchronous video conversation reduced the 30-day readmission rate for the pilot group from 19.3 percent prior to the pilot program to 5.2 percent after its fourth full year of operation (equating to a 73 percent reduction in readmissions). After discharge the participants used the tablets and connected devices for an average of two months and were supported by two registered nurses and two telehealth liaisons. “While it may seem odd for a hospital to spend \$500 on a tablet to send home with a patient, or pay the cost of patient’s home internet subscription for two months (roughly \$130), each readmission costs in excess of \$14,000.”¹⁷⁸ Moreover, the telehealth programs target the highest-risk and highest-utilization patients, leading to an even greater impact on reducing avoidable readmissions for a fraction of the cost.¹⁷⁹

Preventable emergency department visits constitute another telehealth advantage. A study examined the results of a telehealth initiative sponsored by the Sidney Kimmel Medical College of Thomas Jefferson University in Philadelphia. JeffConnect offered a synchronous video visit with a medical doctor for a flat rate of \$49 at any time of the day.¹⁸⁰ “The study found that of participants, only 16 percent would have done nothing as an alternative, with the remainder visiting the emergency department (12 percent), the doctor’s office (34 percent), the urgent care clinic (33 percent), or a retail health clinic (5 percent). Further, follow-up surveys showed that 74 percent of JeffConnect users sought no further care, indicating that the initiative solved the participant’s issues either by avoiding interventions altogether or completing them remotely.”¹⁸¹

¹⁷⁶ *Ibid.*, 15.

¹⁷⁷ Readmission rates were 5.7 percent for Texas hospitals in 2016, 17.8 percent nationally following major surgery with comorbidities in a 2021 study, and 26.9 percent in a general study of patients across 12 academic medical centers in the United States. For more, see Department of Health Services, “Potentially Preventable Readmissions in Texas,” Calendar Year 2016 Report (Texas Department of State Health Services, March 2018), <https://dshs.texas.gov/thcic/hospitals/THCIC-2016-PPR-Report-Release-20181025.pdf> ; Craig S. Brown et al., “Assessment of Potentially Preventable Hospital Readmissions After Major Surgery and Association With Public vs Private Health Insurance and Comorbidities,” *JAMA Network Open* 4, no. 4 (April 13, 2021): e215503, <https://doi.org/10.1001/jamanetworkopen.2021.5503> ; Andrew D. Auerbach et al., “Preventability and Causes of Readmissions in a National Cohort of General Medicine Patients,” *JAMA Internal Medicine* 176, no. 4 (March 7, 2016): 484–93, <https://doi.org/10.1001/jamainternmed.2015.7863>.

¹⁷⁸ O’Connor et al., “Using Telehealth to Reduce All-Cause 30-Day Hospital Readmissions among Heart Failure Patients Receiving Skilled Home Health Services.” *Using Telehealth to Reduce All-Cause 30-Day Hospital Readmissions among Heart Failure Patients Receiving Skilled Home Health Services - PMC* (nih.gov).

¹⁷⁹ Marcattilio and Mitchell, *supra.*, 17.

¹⁸⁰ Garrison Nord et al., “On-Demand Synchronous Audio Video Telemedicine Visits Are Cost Effective,” *American Journal of Emergency Medicine* 37, no. 5 (2019): 890–94, <https://doi.org/10.1016/j.ajem.2018.08.017>.

¹⁸¹ Marcattilio and Mitchell, *supra.*, 25.

While not a cure-all solution, telehealth services support strong potential for long-term benefits, including promoting health and serving as an option to expand access to care and in certain circumstances “reduce the cost of delivering services and prevent the longer-term costs associated with poorly managed health conditions.”¹⁸² The availability and use of telehealth services adds up to social and economic benefits for patients, providers and the healthcare system as a whole. “First and foremost, though, telehealth requires digital inclusion. It requires that everyone has fast, affordable and reliable Internet service, a device to connect to the Internet, skills or assistance to navigate the digital world, and a sense of safety and comfort in doing so.”¹⁸³

¹⁸² *Ibid.*

¹⁸³ *Ibid.*

The 2022 Broadband report noted that many interest groups were becoming more aware of the ways broadband development can lead to new agricultural developments. One report that highlights this progress is *The Future of American Farming* by Benton in 2021, which issued a series of recommendations that included significant overlap with this Commission’s own reports:

- Clarify rules around easements and rights-of-way
- Address gaps in mapping
- Emphasize the importance of fiber
- States should adopt comprehensive broadband plans
- Support digital equity
- Encourage local planning efforts and capacity build out
- Encourage intergovernmental coordination efforts.¹⁸⁴

The recommendations highlight how issues that are considered statewide goals can be specifically beneficial to even the most remote farms in the Commonwealth. The Benton report also includes numerous other recommendations for improving America’s farmlands such as:

- Advocated for a future goal of 100/100 mbps download and upload speeds for farmers
- Adoption of high-performance standards in the form of higher upload speeds and low latency
- Support open-access middle mile networks
- Incentivize fiber build out to farming locations
- Machine interoperability and higher data privacy standards.

¹⁸⁴Arnold, Jordan. “The Future of American Farming: Broadband Solutions for the Farm Office, Field, and Community.” *Benton.Org*, September 2021. Accessed April 7, 2023. <https://www.benton.org/sites/default/files/FutureAmericanFarming.pdf>.

While all these goals may not be taken up by the advisory committee, they show that interest groups are becoming more aware of the need for policy changes to revolutionize the agricultural industry.

In the initial 2020 broadband report, the Commission spoke about technology adoption rates among Pennsylvania farmers compared with the rest of the country. Since then, the USDA has provided updated statistics with data from 2021. The USDA statistics showed that the country experienced an increase in the number of farms with internet access over a four-year period, rising from 75 to 82 percent.¹⁸⁵ Pennsylvania’s farms with internet access did not change from 2019 remaining at 64 percent. It is notable that this is the lowest internet access rate in the northeast region. Other states in the area saw either no or only minor improvements in internet access suggesting that documented progress occurred in other regions of the county.

The USDA also reported on the type of technology use to give PA farmers internet access. Unchanged from the past reports, farmers still rely heavily on cellular providers to achieve internet access. Of those farmers who had internet in 2021, Pennsylvania led the region in dial up use and had the lowest cellular and satellite adoption rates in the northeast.¹⁸⁶

Internet access methods for Farms in 2021 of those who have access to the internet

Internet Type	PA	US
Dialup	3%	2%
Broadband (DSL, cable, fiber optics)	61	50
Cellular	49	70
Satellite	5	19
Other	3	2

Data presented show that adoption of technological devices remains a serious obstacle as Pennsylvania was under the average US device usage rates in every category. In 2021, 52 percent of PA farmers owned a desktop or laptop computer, which is 10 percent fewer than in 2019. In 2021, just over half of Pennsylvania farmers owned a smart phone and one in five used tablets. Of the Northeast region, Pennsylvania had the lowest smart phone and desktop adoption rates and second lowest in tablet-use.¹⁸⁷

The USDA also collected data on the types of agriculture related activities. In all categories measured Pennsylvania was below national averages. While gradual progress was made in most categories since 2019, there was a notable exception was a drop in conducting business with non-agricultural websites. No type of activity was used by more than one third of farmers suggesting

¹⁸⁵ US Dept of Ag. “2021-2022 Agricultural Statistics Annual Bulletin: Pennsylvania.” *USDA.Gov*, 2022. p 41. https://www.nass.usda.gov/Statistics_by_State/Pennsylvania/Publications/Annual_Statistical_Bulletin/2021-2022/2022_PA_Annual_Bulletin.pdf.

¹⁸⁶ Ibid p 43.

¹⁸⁷ Ibid.

that there is a substantial gap between farms with internet and those who are using it to better their agricultural business.

Agriculture-related internet activity in PA compared with US average, 2019-2021				
Type of internet use	2019		2021	
	PA	US	PA	US
Buying agricultural inputs	24%	24%	28%	29%
Conduct agricultural market activities	14	19	18	21
Access USDA/NASS reports	10	12	12	13
Access other USDA Reports	15	20	18	22
Access other Federal gov. websites	14	21	17	21
Conduct business with USDA websites	10	11	12	16
Conduct business with other Federal gov. websites	7	9	9	12
Conduct business with non-agricultural websites	41	53	33	47

Precision Agriculture

The 2020 report noted that precision agriculture had great potential to increase farming and other agricultural yields while lowering expenses on agricultural inputs. By using sensors to collect data about their plants and land farmers can vary the amount of inputs like fertilizer, insecticide, or water to specific locations ensuring that each plant receives what it needs to thrive and that inputs are not wasted. Since that time, the USDA has reported that one in five PA farmers use precision agriculture practices to manage crops or livestock. This is the lowest adoption rate in the northeast region. The country-wide adoption of precision agriculture practices is estimated to be a quarter of all farmers.¹⁸⁸

Because the body of literature studying precision agriculture is still growing, due to the general newness of the technology, there is still much that is not understood about how much adopting this technology may help the agricultural industry. One difficulty in examining the impact of Precision Agriculture technology since these technologies and practices are often not adopted in isolation. Instead farmers who take to these method employ a host of related technologies that work together. There is evidence that on average farmers who adopt bundles of precision agriculture technology experience greater efficiency than those that use a single type. It is also important to remember that precision does not increase the maximum amount of that can be produced but helps farms reach their higher levels of output more consistently.¹⁸⁹

¹⁸⁸ Ibid 43

¹⁸⁹ DeLay, Nathan D., Nathanael M. Thompson, and James R. Mintert. "Precision Agriculture Technology Adoption and Technical Efficiency." *Journal of Agricultural Economics* 73, no. 1 (May 27, 2021): 195–219. <https://doi.org/10.1111/1477-9552.12440>.

As precision agriculture grows more common, there are privacy concerns over how the data collected at agricultural sites will be used by large companies and a lack of protections at the federal and state level in place to regulate what can be done with this type of information. While collected data can be extremely beneficial to companies for improving machines, there is also potential for misuse. General FTC regulations on data privacy and voluntary industry standards are likely insufficient to protect farmers and other agricultural businesses from the chances data being mishandled, leaked, used by competitors.¹⁹⁰

Right to Repair Farm Equipment

Data privacy concerns are not the only obstacle to adoption of technologically advanced farming equipment. The commission's 2020 report presented information on the issue of right-to-repair farm equipment. Frequently, dealers prevent farmers from attempting repairs on their machines outside of authorized mechanics. The issue is that costs of services and fees are likely higher than what it would cost to repair these machines themselves or through a third party. Farming is an extremely time sensitive business, when an essential tool malfunctions and it can sometimes take days to be serviced by an official technician it can lead to large setbacks. This debate has led to the right to repair movement among farmers who advocated that farm equipment dealers release of the tools they need to be able to repair their own equipment. From the manufacturer's perspective, they wish to protect their trade secrets from being revealed and prevent farmers from illegally tampering with emission controls or changing horsepower.¹⁹¹

There have been some recent developments concerning the right to repair movement in agriculture. In January of 2023, John Deere, a leading farming supply company, signed a right to repair memorandum of understanding with the American Farm Bureau Federation.¹⁹² John Deere agreed to meet twice a year with the Federation and to release manuals and diagnostic tools that would be needed to repair their machinery.¹⁹³ The development was received with some skepticism by members of the right to repair movement who noted the agreement was unenforceable and alleged the step was done to try and slow legislative momentum. In March 2023, 16 state were considering right to repair bills.¹⁹⁴ By May, Colorado had signed one right to repair bill into law and Vermont, Colorado, Washington, West Virginia, had seen right-to-repair bills pass one chamber. Minnesota's Digital Fair Repair Act becomes effective July 1, 2024.¹⁹⁵ In

¹⁹⁰ Ferris, Jody L. "Data Privacy and Protection in the Agriculture Industry: Is Federal Regulation Necessary?" *Minn Journal of Law, Science & Technology* 18, no. 1 (January 2017): 339–42.

<https://scholarship.law.umn.edu/cgi/viewcontent.cgi?article=1422&context=mjlst>.

¹⁹¹ The Associated Press. "11 States Consider 'right to Repair' for Farming Equipment." *CBS News*, February 18, 2023. <https://www.cbsnews.com/colorado/news/11-states-consider-right-to-repair-for-farming-equipment/>

¹⁹² American Farm Bureau Federation. "AFBF Signs Right to Repair Memorandum of Understanding with John Deere," January 2023. <https://www.fb.org/news-release/afbf-signs-right-to-repair-memorandum-of-understanding-with-john-deere>.

¹⁹³ *Ibid*.

¹⁹⁴ PIRG. "Tractor Right to Repair Bills Considered by 15 States in 2023." *PIRG*, March 2, 2023. <https://pirg.org/articles/tractor-right-repair-states-2023/>.

¹⁹⁵ Minnesota Office of Attorney General, The Right to Repair in Minnesota (state.mn.us)

Pennsylvania.¹⁹⁶ Senators Vogel and Schwank introduced right to repair bill that was sent to the consumer protection and professional licensure committee. Efforts in previous legislative sessions have not been passed by committees.

Agricultural Innovations

While adoption of precision agriculture technology may be lagging behind the country as a whole, significant developments in high-tech farming still occur within the Commonwealth. One example is the developments in field of urban agriculture and the vertical farm. Vertical farms are a type of controlled environment agriculture which use automated systems to grow food in enclosed spaces.¹⁹⁷ While the concept of a traditional greenhouse uses indoor space that extends horizontally, vertical farms make use of a building's height to grow crops. Broadband Internet access is integral to this type of operation which relies on complex software and robotics.

In 2023, a vertical farm was opened in Bethlehem Pennsylvania at a former brownfield site by the Bowery Farming company.¹⁹⁸ While this type of food production has much potential for supply cities with fresh produce it is unknown how viable the business model is in the long term. The Upward Farms company was set to open the world's largest vertical farm in Luzerne County before exiting the vertical farm production and ceasing development of this site.¹⁹⁹

In previous years, this report has included information on ReConnect awardees who were provided funding by the USDA. In 2022 there was a fourth round of reconnect funding, however no Pennsylvania locations were awarded funding. While indications seem like that the upcoming 2023 farm bill will contain more funding for the Reconnect program it is unknown whether any Pennsylvania locations will be eligible.²⁰⁰

¹⁹⁶ PIRG. "Vermont House Passes Right to Repair Measure 137-2," May 5, 2023. <https://pirg.org/updates/vermont-house-passes-right-to-repair-measure-137-2/>.

¹⁹⁷<https://intellias.com/vertical-farming-technology-to-maximize-yields/>

¹⁹⁸ Goldschmidt, Bridget. "Bowery Farming Opens New Smart Farm." *Progressive Grocer*, May 27, 2022. <https://progressivegrocer.com/bowery-farming-opens-new-smart-farm>.

¹⁹⁹ McGlynn, Rayna. "Upward Farms Ceases All Operations, Stops Development of Hanover Twp. Facility." *WOLF*, April 5, 2023. <https://fox56.com/news/local/upward-farms-ceases-all-operations-stops-development-of-hanover-twp-facility>.

²⁰⁰ Fierce Telecom. "Could the 2023 Farm Bill Deliver Even More Broadband Funding?," January 18, 2023. <https://www.fiercetelecom.com/broadband/could-2023-farm-bill-deliver-even-more-broadband-funding>.

UPDATE:

COMMUNITY AND ECONOMIC DEVELOPMENT

A study on broadband and economic development between 2010 and 2020 found that 10.9 percent of GDP growth from 2010 to 2020 could be attributed to broadband adoption. Since the average broadband speed increased from 10 Mbps to 174.2 Mbps over those ten years, broadband became one of the main contributors to GDP growth, joining human capital and labor growth. When the growth of broadband adoption was combined with the growth of broadband speed, it made up 22.4 percent of GDP growth. Because of these findings, the study stated that the 2020 GDP would have been \$1.3 trillion lower with 2010 broadband adoption and speeds.²⁰¹

In August of 2022, the U.S. Chamber of Commerce released a study which found that 93 percent of small business owners use at least one technology platform to run their business. The average small business owner uses three. For businesses that use technology, 85 percent stated that they used the technology to get their business up and running, 94 percent said technology increase their business' efficiency, and 86 percent believed technology platforms helped their business survive the COVID-19 pandemic. Small businesses that are considered power adopters—those that used six or more technology platforms—saw more growth in their business than lower adopters, those using only 1 or less technology platforms.²⁰²

Ward County, Texas released a report detailing the impact of broadband expansion in the region. Though the community was originally heavily reliant on oil and gas to support their economy, new industries like Bitcoin mining and green energy. In order to facilitate even more diversification of the economy, Ward County made broadband development a priority. Other important developing economies like agriculture, including greenhouses and cattle ranching, utilize internet connectivity to increase efficiency in operations. Businesses like coffee shops, RV parks, and laundromats need internet connectivity to administer their business as well as to attract customers. One strategy for increasing digital literacy in the workforce in Ward County is for companies to maintain relationships with local community colleges, like Atlas Sand does with Odessa College.²⁰³ The profile on Ward County sums up the community's relationship to broadband:

²⁰¹ Joan Engebretson, "Study Finds Broadband Has a Major Impact on U.S. Economic Growth," *Telecompetitor*, last modified June 29, 2022, <https://www.telecompetitor.com/study-finds-broadband-has-a-major-impact-on-u-s-economic-growth/>.

²⁰² "New Study Shows Technology Platforms Critical to Small Business Growth," *US Chamber of Commerce*, last modified August 2, 2022, <https://www.uschamber.com/technology/new-study-shows-technology-platforms-critical-to-small-business-growth>.

²⁰³ Regina Seo, Makada Henry-Nickie, *Broadband is the Economic Development Tool of the 21st Century* (Governance Studies) https://www.brookings.edu/wp-content/uploads/2022/08/GS_IOP_ward-county.pdf, 1-28.

Broadband is the key economic development tool that enables counties like Ward to attract businesses, retain talent, and become a more appealing place for families to live in. Business owners, employees, local officials, and job seekers alike are eager to embrace a new digital economy in Ward.²⁰⁴

Broadband development can also bring jobs to a region, as long as skilled workers are available. Pennsylvania’s Department of Labor & Industry created a Supporting Broadband Infrastructure through Registered Apprenticeships and Pre-Apprenticeships Grant Program, which works to increase the skills of the Pennsylvania workforce for occupations including: “telecommunications technician, line erector (power-line distribution erector), line installer-repairer, telecommunicator, line maintainer, telecom installer technician, and network engineer.”²⁰⁵ \$800,000 has been made available for these grants, which will be awarded to existing Registered Apprenticeship/Pre-Apprenticeship Programs.²⁰⁶ The deadline for applying for this grant was June 12, 2023.²⁰⁷

²⁰⁴ Ibid., 28.

²⁰⁵ *Supporting Broadband Infrastructure through Registered Apprenticeships and Pre-Apprenticeships Grant Program* (Pennsylvania Department of Labor & Industry, April 2023), <https://www.dli.pa.gov/Businesses/Workforce-Development/grants/Documents/PAsmart%20Apprenticeship/Broadband-Infrastructure-NGA.pdf>, 5.

²⁰⁶ Ibid., 5.

²⁰⁷ Ibid., 10.

Adoption by Consumers

In the 2021 American Community Survey (ACS) 1-Year Estimate Subject Tables, 89.1 percent of Pennsylvania respondents had an internet subscription. 88.8 percent of respondents had broadband of some type, with 75.9 percent having cable, fiber optic, or DSL connection. Some respondents, 10.2 percent, had a cellular data plan but no other source of connectivity. Of those Pennsylvanians surveyed with a household income of less than \$20,000 per year, over 70 percent had a broadband subscription and almost 30 percent

Digital Literacy

The 2021-22 Workforce Innovation Network Pennsylvania team created a State Plan in 2022 to advance digital skills in Pennsylvania. This plan noted that Pennsylvania had eleven counties with high concentrations of communities without internet connection, nine of which were rural. As the future economy becomes increasingly dependent on technology, digital skills are becoming increasingly necessary for workers entering or continuing to be a part of the workforce.²⁰⁸

The Pennsylvania team participated in the National Governors Association Workforce Innovation Network (NGA WIN) to develop the vision and goals for future advancement of digital literacy in Pennsylvania. The vision the team chose was:

Within the next five years, Pennsylvanians will have the abilities needed to fully, safely, and responsibly participate in a society reliant on digital technology and the Internet. Each Pennsylvanian will have the ability to use—and the ability to continue to learn to use frequently changing devices and software platforms, and to find, and access, organize, evaluate, create, and communicate information competently and confidently enough to accomplish that individual’s needs of living, learning, and working.²⁰⁹

²⁰⁸ Tara Williams, *et al*, *Advancing Digital Skills in Pennsylvania: 2022 State Plan and Recommendations*, (Digital Literacy State Team, August 2022), <https://data.pa.gov/Training-and-Wages/Advancing-Digital-Skills-PA-State-Plan-and-Recomme/mg5r-gsjn>, 3.

²⁰⁹ *Ibid.*, 4.

In order to achieve the vision, the team chose five goals:

1. Define digital literacy and related terms to establish a common vocabulary.
2. Engage partners for input on digital skills needs and recommendations.
3. Complete an asset/resource map to understand where digital skills training currently exists.
4. Review and analyze data to identify focus areas and inform other digital access efforts.
5. Develop a set of recommendations and initial plan to address digital skills needs.²¹⁰

Pennsylvania Department of Education's Division of Adult Education created the state's skill competencies framework, which names standards that demonstrate digital literacy. The Draft Digital Literacy Standards for Adult Learners helps to identify existing digital literacy programs in the state and encourage a somewhat standardized implementation of new programs. The four areas which are evaluated are basic computer and mobile, internet, communication, and information literacy.²¹¹

The data sources that the team utilized to come to their recommendations were the Future of Workers Report, Accenture Research on PA CareerLink virtual service delivery, Career Advisor Assessment, Adult Education Focus Groups, Digital Literacy Grants, Digital Literacy Asset Mapping Project, and Data Analysis from Employer Digital Literacy Needs Survey.²¹²

The recommendations produced by the team were as follows:

- Increase foundational digital literacy as an urgent and immediate goal.
- Embed foundational digital skills as a core component of all technology access planning and implementation, including plans under the newly established PA Broadband Authority.
- Continue to focus on the working age population as the immediate need and expand to additional populations as a longer-term goal.
- Ensure that foundational digital literacy is framed as a priority and essential component of Pennsylvania's workforce success, and is included in state, regional, and local workforce plans.
- Identify and support communities that have the least access to digital skills training, based on both geography and demographics.
- Increase individualized technical assistance and coaching, including accessibility needs.

²¹⁰ Ibid., 5.

²¹¹ Ibid., 7.

²¹² Ibid., 7-9.

- Identify and engage anchor institutions that serve as trusted entities within communities to provide foundational digital literacy skills training or connect people to training opportunities.
- Develop a system of digital navigators, in collaboration with other efforts to connect communities with broadband, devices, and technical support, to help people connect with digital skills as a core component of the digital divide.
- Develop performance measures and methods for consistent data collection and reporting to better understand digital skills gaps and progress.
- Build a feedback system to continuously engage partners represented under the WIOA state plan, including employers, local workforce boards, and education institutions, to understand the evolving roles and uses of technology in the workplace.²¹³

Opendata PA worked with the PA NGA WIN team to create a map to connect Pennsylvanians to literacy classes that are either free or low-cost. The map is also a visual representation of the regions that need more investment into digital literacy programs. It labels digital literacy programs as: public library, education, nonprofit or community-based organization, career/workforce organization, library, health/social services organization, and workforce. Organizations that offer digital skills classes can complete a form to have their organization added to the map.²¹⁴

POWER Library, Pennsylvania’s electronic library, has a PA Online Learning section on its website which hosts online tutorials on basic computer proficiency and how to use Zoom, Google, and Microsoft applications. It also has tutorials on computer safety. These tutorials are available with either a local public library card or an e-card for POWER Library.²¹⁵

The Pennsylvania Department of Labor & Industry awarded an additional \$600,000 in Digital Literacy and Workforce Development Grants (DLWDG) in October of 2022, bringing the total awarded in that grant program to \$2.8 million. The most recent round of awards went to workforce development in Berks and Cumberland counties, Literacy Councils in Lebanon, Crawford, and Forest counties, Private Industry Councils in Westmoreland and Fayette, colleges in Lancaster, Bucks, Montgomery, Philadelphia and Luzerne counties, and other digital literacy programs in Lackawanna, Union, Mifflin, and Chester counties.²¹⁶

²¹³ Ibid., 12-13.

²¹⁴ “Digital Skills in Pennsylvania,” *opendataPA*, accessed April 24, 2023, <https://data.pa.gov/stories/s/bry2-xj2e>

²¹⁵ <https://my.nicheacademy.com/paocl?category=6258>.

²¹⁶ “Wolf Admin to Help Pennsylvania’s Digital-Literacy Skills,” *The Daily Herald*, October 12, 2022, https://www.huntingdondailynews.com/daily_herald/news/wolf-admin-to-help-pennsylvania-s-digital-literacy-skills/article_9eb3cced-8f9a-514a-84f6-87730943c330.html.

In December 2022, the U.S. Department of Labor issued a Digital Literacy and Resilience Request for Information (RFI):

The U.S. Department of Labor (DOL) is requesting information on successful approaches related to digital skills attainment and competency development in education and training efforts, the strategies our education and workforce development systems are employing to assess and ensure individuals are digitally resilient, and any challenges the education and public workforce systems are facing. DOL is also requesting information on strategies to advance digital equity and inclusion in the workforce.²¹⁷

The requested information will inform competitive grant opportunities, development of technical assistance, public policy on expansion of digital skill-building training programs that facilitate upskilling the workforce, and address demands related to digital literacy and access. Pennsylvania participated in the RFI via comments submitted February 6, 2023, that were the product of the input of the Pennsylvania Departments of Education, Community and Economic Affairs, and Labor and Industry, as well as offices and agencies affiliated with those departments, the Broadband Office, the Workforce Development Board, and Team Pennsylvania (a public-private nonprofit organized to promote economic and policy development).²¹⁸

Access and Affordability

In the 2022 report, a segment was devoted to access and affordability issues in accessing broadband in public housing. In January 2023, the U.S. Department of Housing and Urban Development issued a guide to the availability and potential use of BEAD and Digital Equity funding for public housing communities.²¹⁹

Part of the Bipartisan Infrastructure Law, the Affordable Connectivity Program continues its outreach to lower-income consumers and currently has reached 17 million households. Program activities are more thoroughly discussed in this report at page 12.

²¹⁷ Department of Labor, Employment and Training Administration, Digital Literacy and Resilience, Request for Information (RFI), *Federal Register*, Vol. 87, No. 235, 75290-75924, December 8, 2022. <https://www.govinfo.gov/content/pkg/FR-2022-12-08/pdf/2022-26461.pdf>

²¹⁸

²¹⁹ U.S. Department of Housing and Urban Development, “Guide to New Broadband Funding for HUD-Assisted Communities,” January 2023, <https://files.hudexchange.info/resources/documents/ConnectHomeUSA-Guide-to-Broadband-Funding-for-HUD-Assisted-Communities.pdf>

UPDATE: ADDITIONAL FUNDING SOURCES

Current Federal Grant and Loan Programs

Appalachian Regional Commission

Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Awards are federally funded through a congressional initiative that supports innovations in communities impacted by the economic decline in the coal industry in the Appalachian region. In 2022, Erie County and Bedford County received grants of \$50,000 to conduct feasibility studies for broadband implementation.²²⁰

Department of Agriculture

The ReConnect Program provides funding for broadband infrastructure and is available for:

- Corporations
- Limited Liability Companies and Limited Liability Partnerships
- Cooperatives or mutual organizations
- States or local governments, including any agency, subdivision, instrumentality of political subdivision thereof
- A territory or possession of the United States
- An Indian Tribe, as defined in Section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. §450b)²²¹

²²⁰ *POWER Award Summaries by State* (Appalachian Regional Commission, December 2022), <https://www.arc.gov/wp-content/uploads/2023/02/POWER-Award-Summaries-by-State-as-of-December-2022.pdf>, 62.

²²¹ <https://www.usda.gov/reconnect/program-overview>.

The funding can be used for “the construction or improvement of facilities required to provide fixed terrestrial broadband service..., reasonable pre-application expenses..., [or] to fund the acquisition of an existing system that does not currently provide sufficient access to broadband....”²²² For 100 percent grants, \$150 million is available with maximum grants of \$25 million. Areas that are classified by the USDA Economic Research Service as a Frontier and Remote Area Level 4 qualify for maximum grants of \$35 million. For 100 percent grants for specific populations including Alaska Native Corporations, Tribal Governments, Colonias, Persistent Poverty Areas and Socially Vulnerable Communities, there is \$350 million available in funding. The maximum grant is \$25 million, except for the previously mentioned exception which allows for grants of \$35 million. For 50 percent grant/50 percent loans, \$150 million is available for loans and the same amount is available for grants. \$25 million is the maximum for each portion and they must always be equal. For 100 percent loans, \$150 million is available with a maximum of \$50 million. In places where 90 percent of households lack sufficient access to broadband, \$200 million is available for grants with a maximum of \$25 million.²²³

For a project to be eligible, the proposed funded service area (PFSA) must have at least 50 percent of households lacking sufficient broadband service. Sufficient broadband service is defined as 100/20 Mbps. The PFSA must be a rural area, and the project must provide broadband service to all premises within the PFSA.²²⁴

The USDA also administers several other loan and grant opportunities. These include the Business and Industry Guaranteed Loan Program, which has a FY 2022 budget of \$1.25 billion, the Community Facilities Direct Loan and Grant Program with \$2.8 billion in direct loans and around \$36 million in grants, the Community Facilities Guaranteed Loan Program with \$650 million available, around \$62 million for the Distance Learning and Telemedicine Grant Program, and over \$76 million in the Rural Broadband Loan and Loan Guarantee Program. The Community Connect Grant Program made \$35 million available.²²⁵

The Rural Business Development program has around \$37 million available in FY 2022. The Rural Community Development Initiative (RCDI) made \$6 million available for economic development in low-income rural communities. The Rural Economic Development Loan and Grant Programs received \$60 million to local utility organizations undertaking rural projects. The Telecommunications Infrastructure Program has \$690 million available for broadband deployment.²²⁶

²²² “Program Overview,” *USDA*, accessed April 25, 2023, <https://www.usda.gov/reconnect/program-overview>.

²²³ *Ibid.*

²²⁴ “Service Area Eligibility Requirements,” *USDA*, accessed April 25, 2023, <https://www.usda.gov/reconnect/service-area-eligibility-requirements>.

²²⁵ *BroadbandUSA Federal Funding Guide* (BroadbandUSA, October 18, 2022), https://broadbandusa.ntia.doc.gov/sites/default/files/2022-10/FY22_Federal_Funding_Guide_10-18-22.pdf, 22-45.

²²⁶ *Ibid.*, 46-54.

Department of Commerce

The FY 2020 EDA Public Works and Economic Adjustment Assistance Programs including CARES Act Funding provides cooperative grant agreements for entities looking to invest in the economic development and growth in a region. In FY 2022, this program had \$233 million available.²²⁷

Department of Education

The Student Support and Academic Enrichment Program, Title IV, Part A makes available \$1.28 billion in funding for increasing the use of technology and digital literacy of students.²²⁸

Department of Housing and Urban Development

A program called Choice Neighborhoods provides funding to revitalize distressed HUD housing. The program strongly encourages the use of funding for broadband connectivity. \$350 million is available in this program in FY 2022. The Community Development Block Grant CARES Act makes \$5 billion available for economic development of low- and moderate-income areas in addition to the \$3.3 billion in the original Community Development Block Grant. The Community Development Block Grant (CDBG) I Section 108 Loan Guarantee Program makes \$3 million available in FY 2022.²²⁹

Department of Labor

The Department of Labor administers multiple programs to prepare the workforce with technical skills, including the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Program and The Workforce Innovation and Opportunity Act.²³⁰

Federal Communications Commission

On March 3, 2023, the FCC increased the funding cap for the Healthcare Connect Fund to \$682,361,586 to represent a 7 percent inflation adjustment to the 2022 funding cap. The E-Rate program also received a 7 percent inflation adjustment, making the 2023 funding cap \$4,768,413,261.²³¹

²²⁷ Ibid., 72.

²²⁸ Ibid., 186.

²²⁹ Ibid., 201-205.

²³⁰ Ibid., 237-246.

²³¹ Federal Communications Commission, “WIRELINE COMPETITION BUREAU ANNOUNCES E-RATE AND RHC PROGRAMS’ INFLATION-BASED CAPS FOR FUNDING YEAR 2023,” News Release, March 3, 2023, <https://docs.fcc.gov/public/attachments/DA-23-178A1.pdf>.

Institute of Museum and Library Services

The Grants to States program administered by The Institute of Museum and Library Services (IMLS) distributed over \$160 million to all 50 states, the District of Columbia, the Territories, and the Freely Associated States. Each state or territory’s State Library Administrative Agency (SLAA) must submit a five-year plan outlining the use of funds. Pennsylvania’s five-year plan includes improving technology, technology support and training, and access to broadband. Pennsylvania was allotted \$5,668,793 in 2021, \$5,703,751 in 2022, and \$5,953,942 in 2023.²³²

National Science Foundation

The Civic Innovation Challenge makes \$22.5 million available for projects that could focus on “bridging the gap between essential resources and services & community needs.”²³³ The Internet Measurement Research (IMR) program provides \$4.7 million in FY 2022 for research on measuring internet access. The Smart and Connected Communities program provides \$26 million to support research focusing on improving smart and connected communities. The National Science Foundation is also funding the Spectrum and Wireless Innovation enabled by Future Technologies (SWIFT) program, which supports developing techniques to improve spectrum utilization, with \$10 to \$13 million.²³⁴

Coronavirus State and Local Fiscal Recovery Funds

In Pennsylvania, the funding from the ARPA Local Fiscal Recovery Funding program has already been distributed. \$6.15 billion was allocated by the ARPA and both tranches of funding were distributed by September 12, 2022. This funding can be used for broadband infrastructure, but has other uses like supporting public health expenditures, addressing negative economic impacts caused by the health emergency, replacing lost public sector revenue, providing premium pay for essential workers, and investing in water and sewer infrastructure.²³⁵

²³² “Pennsylvania,” *Institute of Museum and Library Services*, accessed April 25, 2023, <https://www.ims.gov/grants/grants-state/state-profiles/pennsylvania>.

²³³ *Ibid.*, 307.

²³⁴ *Ibid.*, 316.

²³⁵ “COVID-19 APRA Local Fiscal Recovery Funding,” *Pennsylvania DCED*, accessed April 25, 2023, <https://dced.pa.gov/programs/covid-19-arpa-local-fiscal-recovery-funding/>.

Current Pennsylvania Grant and Loan Programs

Some Pennsylvania programs are funded through federal money and therefore have been mentioned previously in the appropriate sections on the federal funding piece.

Local Share Account funds are available in Fayette, Luzerne, Monroe, Northampton and Lehigh, Philadelphia and Washington Counties to be used for economic development, community improvement and public interests.²³⁶ The Business in our Sites Grants/Loans (BOS) program is meant to “empower communities to attract growing and expanding businesses by helping them build an inventory of ready sites.” Municipalities, municipal authorities, redevelopment authorities, industrial development agencies and private developers are eligible to apply for this program to be used on site development and business, infrastructure, and land and building. The combined grant and loan award does not have a maximum or a minimum for the loan portion, but the grant portion must be capped at \$4 million or 40 percent of the total award. Because of the inclusion of “facilities for the transmission of information,” broadband infrastructure is an eligible expense for these funds.

The Keystone Community Program (KCP) does not specifically mention broadband funding in its eligible uses, but funds can be used for development grants, which include improvements to public infrastructure. Units of local government, redevelopment or housing authorities, nonprofit organizations, community development corporations, and business improvement districts, neighborhood improvement districts, downtown improvement districts, and similar organizations are eligible to apply for funding. The KCP also awards designations to some applicants to supply a more targeted investment. The designations are based on the location of the improvement project.²³⁷

The Pennsylvania First Program (PA First) provides grants, loans and loan guarantees to businesses, municipalities, municipal authorities, redevelopment authorities, industrial development authorities or corporations, and local development districts. To be considered, a project “must offer substantial economic impact, either for the Commonwealth as a whole or for the locality or region in which a business will locate or expand.” These projects must also have a private match and a plan for job creation and preservation. Broadband projects would be an eligible expense because they would be counted as infrastructure, which is one of the uses for the program funding.²³⁸

²³⁶ “Programs and Funding,” *Pennsylvania DCED*, accessed April 25, 2023, <https://dced.pa.gov/program>.

²³⁷ “Keystone Communities Program (KCP),” *Pennsylvania DCED*, accessed April 25, 2023, <https://dced.pa.gov/programs/keystone-communities-program-kcp/>.

²³⁸ Pennsylvania First Program (PA First),” *Pennsylvania DCED*, accessed April 25, 2023, <https://dced.pa.gov/programs/pennsylvania-first-program-pa-first/>.

UPDATE: RECENT PENNSYLVANIA STATE AND LOCAL INITIATIVES

Regional Efforts

In 2021, The Appalachian Regional Commission (ARC) used emergency federal funding to create the Appalachian Regional Initiative for Strong Economies (ARISE) Initiative.²³⁹ Early in 2022, ARC announced that ARISE will aid community partners in the Appalachian region of the country to distribute \$6.3 million in grant awards for broadband related projects. Pennsylvania communities that could benefit from this program include areas in the following counties: Columbia, Juniata, Mifflin, Northumberland, Perry, Schuylkill, Snyder and Union.

In other instances, ARC grants are just one source of funding which counties use in Broadband projects in tandem with other resources. Indiana County has received grant funding for ARC but is also using monies gained from Community Development Block Grant-Coronavirus, and the Keystone Communities Program. The Indiana County Office of Planning and Development will award seven million dollars in contracts. One of these contracts is a \$2.3 million dollar agreement with Salsgiver Inc. to construct, operate, and maintain a fiber network in SmicksburgBorough and West Mahoning and South Mahoning Townships.

As noted in previous reports the Susquehanna Economic Development Association Council of Governments (SEDA-COG) is a regional partner who has funded broadband projects in its service area. Clinton County is seeking Redevelopment Assistance Capitol Program funds from SEDA-COG to bring broadband to seven square mile area containing over 350 households and several businesses by the end of 2024.²⁴⁰ Nearby Lycoming County is also working with SEDA-COG to develop area of “Moreland Township comprising a 6.5-square-mile area containing five businesses and 180-190 households”. SEDA-COG projects in Northumberland County would “include southeast Northumberland County between Leck Kill and Route 125 comprising a 6.1-square-mile area containing four businesses and 80 to 100 households”. Finally, Union County is applying for SEDA-COG grant programs for development of “area in and around Mazeppa and Kelly Township comprising a 7.76-square-mile area containing five businesses and 140 to 150 households.”

²³⁹ Associated Press. “Appalachian Regional Commission Grants Will Assist Rural Broadband in Pennsylvania and 11 Other States.” Witf.Org, January 12, 2023. Accessed June 7, 2023. <https://www.witf.org/2023/01/12/appalachian-regional-commission-to-fund-assists-rural-broadband-in-pennsylvania-and-11-other-states/>.

²⁴⁰“Pennsylvania Counties Seek \$1M for Broadband Expansion.” *GovTech*, April 7, 2023. <https://www.govtech.com/network/pennsylvania-counties-seek-1m-for-broadband-expansion>.

DRIVE (Driving Real Innovation for a Vibrant Economy) is working in Montour, Northumberland, Snyder, Union and Columbia Counties is using \$3.2 million of CARES Act funding to create 16 fixed-wireless towers. Partnered with SkyPacket networks and Centre WISP are two internet providers involved with this initiative.²⁴¹

County Mapping Initiatives

From Summer of 2022 through spring of 2023 counties redoubled their surveying their mapping efforts in an effort to strategically position themselves to receive state broadband funding. Some efforts were already underway such as the Lehigh Valley Planning Commission who released its broadband analysis in August of 2022 and found the county to be mostly underserved with only six percent of the county have high speed internet.²⁴² Another example is Elk County completed its broadband survey and plan on applying for BEAD money in the future.²⁴³ Research in Westmoreland County found that 3,500 addresses including 700 businesses were in need of improved internet. It will require \$3 million bring internet to Derry, Ligonier, and Fairfield Townships.²⁴⁴ Both counties noted they plan on using ARPA funds to apply for BEAD grants.

In fall of 2022, the Erie Area Council of Government was awarded \$50,000 by ARC to conduct another feasibility study looking into internet gaps in 16 communities in the county.²⁴⁵ In winter of 2022, Franklin and Adams Counties conducted a joint survey paid for with ARPA funding trying to gather information on both residents and businesses in the region.²⁴⁶ Michael Baker International was hired by Fayette, Westmoreland and Somerset Counties to assist in broadband surveys.²⁴⁷ Clearfield County contracted with Mission Critical Partners to conduct its broadband survey.²⁴⁸ Lawrence County conducted an online survey (with paper copies available)

²⁴¹ Strawser, Justin. "DRIVE Launches \$3.2 Million Expansion of Internet Network for Rural Areas." *The Daily Item*, January 14, 2023. Accessed June 7, 2023. https://www.dailyitem.com/news/drive-launches-3-2-million-expansion-of-internet-network-for-rural-areas/article_537eb296-757c-11ec-bc70-f32e23ff1672.html.

²⁴² Lehigh Valley Planning Commission. "Infrastructure Law Pledges Internet for All, the Lehigh Valley Really Needs It." Press release, August 2022. [https://lvpc.org/pdf/2022/NewsLV/Newsletter%20August%20--%20Internet%20for%20all%20\(updated\).pdf](https://lvpc.org/pdf/2022/NewsLV/Newsletter%20August%20--%20Internet%20for%20all%20(updated).pdf).

²⁴³ Stockman, Brian D. "Elk County Commissioners Address Broadband Challenges throughout Elk Count." *The Ridgway Record*, April 11, 2023. Accessed June 7, 2023. https://www.ridgwayrecord.com/news/elk-county-commissioners-address-broadband-challenges-throughout-elk-county/article_7181bc08-d8a3-11ed-8994-0f5544e61af1.html

²⁴⁴ Mamula, Kris B. "Three Westmoreland County Townships Targeted First for Broadband Upgrade." *Pittsburgh Post-Gazette*, May 11, 2023. <https://www.post-gazette.com/business/tech-news/2023/01/19/broadband-internet-expansion-westmoreland-county-fairfield-derry-ligonier/stories/202301190114>.

²⁴⁵ WITF, witf.org. "Coal Communities in Pennsylvania and Other Appalachian States Receiving Nearly \$47 Million for Revitalization," October 21, 2022. Accessed June 7, 2023. <https://www.witf.org/2022/10/21/coal-communities-in-pennsylvania-and-other-appalachian-states-receiving-nearly-47-million-for-revitalization/>.

²⁴⁶ Franklin County Commissioners, franklincountypa.gov. "Franklin County Hosting Public Forum On Broadband Services," December 6, 2022. Accessed June 7, 2023. https://franklincountypa.gov/index.php?section=public_news&prid=918.

²⁴⁷ Hurst, David. "Somerset County Picks Consultant to Steer Broadband Effort." *The Tribune Democrat*, May 9, 2023. Accessed June 7, 2023. https://www.tribdem.com/news/somerset-county-picks-consultant-to-steer-broadband-effort/article_9f97eb00-ee81-11ed-8545-6b26de2f70c7.html.

²⁴⁸ Clearfield County Commissioners, Clearfield County Broadband Study.

as part of its Link Up Lawrence broadband initiative.²⁴⁹ Northampton County hired Design Nine, Inc. to identify rural dead zones and underserved areas using ARPA funds with the hope to build off of the county's own study conducted in 2022.²⁵⁰ Chester County is conducting its own survey through May 2023.²⁵¹

The motivation for many of the counties to conduct surveys in the past year was to submit that information to the FCC to access more federal funding for the state. However, some counties are still conducting broadband analysis in spring of 2023 despite being passed the January deadline to submit map challenges to the FTC.

Pennsylvania's major cities are also taking larger strides at improving broadband access to their citizens. In Pittsburgh, the city created a goal to address access to broadband service by 2027 among senior citizens and low-income households.²⁵² Meanwhile in Philadelphia, Comcast has partnered with 30 local nonprofits to award \$4.3 million in grants focusing on education and skill training to boost technology adoption rates. Funds will be used to train digital mentors to help train their communities and connect families with other programs that may assist them.²⁵³ The city also extended PHLConnectED program through the summer of 2023 which supports over 22,000 internet connections.²⁵⁴

County and Local Government Partnerships

In 2023, numerous counties expanded their broadband capabilities through public-private partnerships. In Huntingdon County, a private fixed wireless tower located on state owned lands was donated by a natural gas company to a broadband co-op serving the area.²⁵⁵ The transfer of ownership took over a year to complete and was only possible through the cooperation of both the public and private sector. Another example is the partnership between Wayne County and Lewis Strategic, a broadband consulting firm. In spring of 2023 they proposed a \$12 million project to build an expandable middle mile fiber network and construct 20 5G cell towers that would bring

²⁴⁹ Lawrence County Commissioners, <https://www.linkuplawrence.com/>

²⁵⁰ Sharit Lashinsky, "Northampton County Proceeds with Study, Surveys to Analyze Broadband Access | WDIY Local News", February 24, 2023, <https://www.wdiy.org/wdiy-headlines/2023-02-24/northampton-county-proceeds-with-study-surveys-to-analyze-broadband-access-wdiy-local-news>

Hurst, David. "Somerset County Picks Consultant to Steer Broadband Effort." *The Tribune Democrat*, May 9, 2023. Accessed June 7, 2023. https://www.tribdem.com/news/somerset-county-picks-consultant-to-steer-broadband-effort/article_9f97eb00-ee81-11ed-8545-6b26de2f70c7.html.

²⁵¹ "Chester County Unveils Survey to Expand Broadband Services." *MyChesCo*, May 2, 2023.

<https://www.mychesco.com/a/news/government/chester-county-unveils-survey-to-expand-broadband-services/>.

²⁵² "Pittsburgh, Allegheny County Officials Push to Close Digital Divide." *GovTech*, September 28, 2022.

<https://www.govtech.com/network/pittsburgh-allegheny-county-officials-vow-to-close-digital-divide>.

²⁵³ "Comcast Awards More Than \$4.3 Million in 2022 to Advance Digital Adoption, Skills Training in Philadelphia," December 19, 2022. <https://corporate.comcast.com/press/releases/comcast-awards-4-million-2022-digital-adoption-skills-training-philadelphia>.

²⁵⁴ Sharber, Cory. "Philadelphia City Initiative Connects Thousands to Free Internet." *WHYY*, August 24, 2022. <https://why.org/articles/philadelphia-city-initiative-free-internet-access-students-households/>.

²⁵⁵ Hawn, Kylie. "Officials Mark Transfer of Tower For Broadband." *Huntingdon Daily News*, accessed June 17, 2022. https://www.huntingdondailynews.com/news/local/officials-mark-transfer-of-tower-for-broadband/article_5a997dbc-a7ca-5352-a6f2-73e5b1607bal.html

internet to 500 homes and improve 911 services.²⁵⁶ The projects will be paid for with a mix of private and public investments. Bedford County has made a partnership with Crowsnest to install 30 fixed wireless towers that could serve over three thousand locations using ARPA funding.²⁵⁷

Working with more than one provider may be necessary to help serve all regions of a county, for example Crawford County has partnered with several providers over the last two years. In 2022, Crawford County was the site of Kinetic by Windstream's first broadband expansion project after the provider was awarded over \$6.1 Million of FCC funding from RDOF Phase 1.²⁵⁸ "When complete, this project will bring fiber internet to 100 homes and businesses. More Crawford County projects are planned, eventually delivering fiber to more than 2,900 homes and businesses. Over the next six years, under the federal RDOF program, Kinetic will deliver fiber to 53,800 locations across the Commonwealth."²⁵⁹ In 2023, All Points Broadband, a Virginia based company, was contracted by the county to build out 350 miles of fiber which will serve 2,370 locations using \$3 Million of ARPA funding. Crawford County has also entered into a partnership with the satellite internet company Starlink to serve in areas outside of the planned fiber expansion. The county bought 100 installation kits needed to connect to the satellite network which will be provided for free to residents who sign a two-year contract with Starlink. As part of the deal, the county will also subsidize the first year of internet service.²⁶⁰

Many of the projects currently being conducted by counties are paid for by ARPA funding:

- York County finalized an agreement to use \$25 Million of ARPA funds to begin work on a fiber expansion creating a two-contract partnership with the Alabama based LIT. Communities with whom they have already completed one fiber installation project. York County will make use of its existing middle mile fiber network and rely on LIT Communities to design and build out to the home. "The last-mile project will comprise 3,125 miles of aerial and underground fiber optic cable, feeding off a 333-mile middle-mile network. Initial construction will be completed in two years. The network is

²⁵⁶ David Mazzenga. *tri-county independent* "Wayne County Broadband, 5G project looks to bring internet to underserved areas" Nov 5 2022 <https://www.tricountyindependent.com/story/news/technology/2022/11/05/wayne-county-broadband-5g-development-plans-for-20-new-towers/69607123007/>

²⁵⁷ Jarrell, McKenzie. "Bedford Co. Gets Access to High Speed Internet." WJAC, September 13, 2022. <https://wjactv.com/news/local/bedford-co-gets-access-to-high-speed-internet>.

²⁵⁸ Meadville Tribune. "Major Broadband Expansion Project Kicks off in Rural Crawford County." April 8, 2022. Accessed June 7, 2023. https://www.meadvilletribune.com/news/major-broadband-expansion-project-kicks-off-in-rural-crawford-county/article_cd9cd5ea-b6b7-11ec-83f9-2f2b2fd82d15.html

²⁵⁹ Telecompetitor. "Windstream Kinetic Kicks Off Fiber Broadband Project in Crawford County, Penn." Press release, April 11, 2022. <https://www.telecompetitor.com/windstream-kinetic-kicks-off-fiber-broadband-project-in-crawford-county-penn/>.

²⁶⁰ Gushard, Keith. "Pennsylvania County to Vote on Expansion of Broadband Project." *GovTech*, April 21, 2023. Accessed June 7, 2023. <https://www.govtech.com/network/pennsylvania-county-to-vote-on-expansion-of-broadband-project>.

expected to ultimately reach 328,000 locations.”²⁶¹ This project covers the areas of New Freedom, Railroad, Glen Rock and Seven Valleys Boroughs.²⁶²

- Crawford County voted on a contract with All Points Broadband to expand broadband services to 2,000 homes in next three years using \$3 million of ARPA funds. The project has a goal of 350 miles of fiber by 2026.²⁶³
- Washington County invested \$19 Million in a mix of ARPA and provider investments to bring service to 2,300 locations through working with multiple ISP such as “Hickory Telephone, DQE Communications, Kinetic by Windstream, and most recently Comcast”.²⁶⁴ These efforts are expected to target 5,000 households and build 700 miles of fiber in ten communities.²⁶⁵

Internet providers are often expanding their service territory to bring coverage to more customers and grow their business. Some examples of high-speed broadband expansion noted over the year was Fastbridge’s fiber expansion to 13,000 in Berks County and Empire Access Columbia County development in areas around Bloomsburg, Hazleton, and Nanticoke. In the next two years Comcast is bringing service to hundreds of locations in the following counties: Berks, Blair, Lancaster, Lehigh, Luzerne, Schuylkill, and Sullivan Counties.

Centre County issued an RFP for proposals from internet providers to develop a plan for expansion of high-speed broadband to include un- and underserved prioritized communities within the county in April 2023.²⁶⁶ Perry County issued a request for Statements of Qualifications (SOQs) from interested firms for the provision of high-speed broadband Internet services, defined as symmetrical speed of at least 100 Mbps.

²⁶¹Lit Communities. “York County Commissioners Finalize Agreement for New Fiber Broadband Network, Internet Service Provider.” *Cision PR Newswire*, February 14, 2023. Accessed June 7, 2023.

<https://www.prnewswire.com/news-releases/york-county-council-finalizes-agreement-for-new-fiber-broadband-network-internet-service-provider-301745528.html>.

²⁶² Dispatch, Matt Enright York. “York County Set to Invest Further in Broadband Services.” *York Dispatch*, June 14, 2022. <https://www.yorkdispatch.com/story/news/local/2022/06/14/york-county-set-invest-further-broadband-services/7623310001/>.

²⁶³ Supra Gushard

²⁶⁴ Accesswire. “Washington County, Pennsylvania, Broadband Program Enters Phase III.” *Digital Journal*, April 20, 2023. <https://www.digitaljournal.com/pr/news/washington-county-pennsylvania-broadband-program-enters-phase-iii>.

²⁶⁵ Jones, Mike. “Officials Unveil Ambitious Broadband Expansion Plan for Washington County.” *Observer-Reporter*, October 21, 2022. Accessed June 7, 2023. https://observer-reporter.com/news/localnews/officials-unveil-ambitious-broadband-expansion-plan-for-washington-county/article_f3fbd034-509e-11ed-a1a5-bbf7460aa19a.html

²⁶⁶ Halie Kines, “Broadband project moves forward as thousands in Centre County are in need of internet,” *Centre Daily Times*, April 25, 2023. https://news.yahoo.com/broadband-project-moves-forward-thousands-194954652.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAADtS7p0vHkwcEMix7loSO7yBaoVIUp7YKOy1zuQYzfFleoIUE7Q0urtMlcTIraehAbT-OqtZW5ia39mrt1PEFV8bg06uTULXw2wkr_YZCW2NV_N11Sf1jgz9KeBfETFpklm7f_KGuVur8Zun0AYNmFYVhyAKQkoCYXN4QCyr0TAH

The County is requesting SOQs from capable wireline Internet Service Providers (“ISPs”), Wireless Internet Service Providers (“WISPs”) and other firms capable of providing high-speed broadband Internet service at the service levels and to the geographic areas detailed herein. The purpose of this RFQ is to identify firms with whom the County may collaborate to expand high-speed broadband Internet service availability to all County residents. This document is not a formal Request for Proposals, nor should it be treated as such by applicants.²⁶⁷

In cases where providers do not believe it would be economically cost effective to expand, communities enter into cost sharing agreements to build out their infrastructure. Windstream is expanding in Beaver County to Darlington, South Beaver, and Big Beaver Boroughs with a 50 percent cost sharing deal.²⁶⁸ Dauphin County entered into a \$4.1 Million agreement with Comcast to expand 460 locations in the northern part of the county. Dauphin County paid for 75 percent of the expansion.²⁶⁹

However, projects can hit unexpected walls when counties and providers cannot come to an agreement. In Clarion County recent efforts resulted in a middle mile network of dark fiber with the expectation of using partners to conclude the project by expanding outward from fiber hubs to homes. While the county put out a request for proposal, no bids were received by any of the 12 last-mile providers contacted by the county. Reportedly there were not enough customers in the areas to make the project profitable. Despite this setback Clarion intends to revise its proposal and trying again.²⁷⁰

²⁶⁷ Perry County Request for Qualifications: Broadband Expansion and Deployment, April 19, 2023, https://perryco.org/wp-content/uploads/2023/04/Perry-County-Broadband-Expansion-RFQ_FINAL-2023.pdf

²⁶⁸ Connect Beaver County. “Via Connect Beaver County: Connect Beaver County Reports Progress to Provide Broadband Access to More Than 200 Locations in Four Beaver County Communities,” August 25, 2022. <https://connectbeavercounty.com/connect-beaver-county-reports-progress-to-provide-broadband-access-to-more-than-200-locations-in-four-beaver-county-communities/>.

²⁶⁹ Comcast Central Pennsylvania. “Comcast and Dauphin County Commissioners Partner to Expand Internet Access for Northern Dauphin County Communities.” Press release, December 13, 2022. <https://centralpa.comcast.com/2022/12/13/comcast-and-dauphin-county-commissioners-partner-to-expand-internet-access-for-northern-dauphin-county-communities/#:~:text=The%20broadband%20expansion%20project%20will,Upper%20Dauphin%20Area%20school%20districts.>

²⁷⁰ Wilshire, Ron. “Commissioners Disappointed with No Bids on Last-Mile Internet Connection Project.” *exploreClarion.com*, May 11, 2023. <https://www.exploreclarion.com/2023/05/10/update-commissioners-disappointed-with-no-bids-on-last-mile-internet-connection-project/>.

Proposed Legislation

Bill #	Topic	Status
SB 85, PN 34	Streamline regulations of local telecommunication exchange carriers (LTEC) regarding broadband deployment; requiring periodic review of all regulations; establishing procedures for issues, disputes and appointments	S. Communications & Technology January 12, 2023
SB 377, PN 321	Creates the Rural Coworking and Innovation Grant Program – permissible use of funds includes extension or improvement of broadband service connections	S. Community, Economic & Recreational Development Cmte. February 21, 2023
SB 397, PN 341	Amends the sales tax exemption for wireless network equipment to clarify that it applies to equipment that provides wireless voice and data services	S. Finance Cmte February 21, 2023
HB 129, PN 112	Authorizes the PBDA and Dept of General Services to collaborate to authorize contracts to advance broadband buildout and facilities broadband services using Commonwealth real estate, telecommunications or infrastructure assets	H. Consumer Protection Cmte. March 7, 2023
HB 333, PN 296	Increases the state definition of broadband for ILECs to offer 100/20 Mbps service or minimum FCC speeds, whichever is greater, by January 1, 2026	H. Consumer Protection Cmte. March 13, 2023
SB 566	State-owned Assets and Broadband Services Act – inventory of state-owned assets and county owned assets with info on possible use of assets for fixed or mobile broadband services for unserved and underserved areas; state agencies may lease assets for deployment; used of income generated	S. Communications & Technology March 28, 2023
HB 872, PN 848	Allows PennDOT and LETC, cable television, or telecommunications services owned and operated by a public utility to coshare relocation costs of service lines	H. Transportation Cmte. April 10, 2023
HB 1023, PN 1012	Exemption from personal income tax income from the installation of equipment to expand access of high-speed broadband service on real property for calendar years 2023-2025	S. Finance Cmte April 24, 2023

Proposed Legislation

Bill #	Topic	Status
SB 710, PN 765	Health care provider may not use telemedicine to prescribe medication that USFDA has issued a risk evaluation and mitigation strategy – medications with serious safety concerns	S. Health & Human Services Cmte May 15, 2023
HB 1151, PN 1219	Establishes an application process for fiber option cables to be laid across railroad rights-of-way	H. Consumer Protection, Technology & Utilities May 18, 2023
SB 462, PN 837	Adult education and workforce recovery grant program – Digital literacy training a permissible use of funds	S. Appropriations Cmte June 7, 2023
SB 739, PN 981	Authorizes licensing boards to regulate telemedicine; providing for insurance coverage of telemedicine	S. 1 st consideration June 27, 2023
HB 1408, PN 1692	Amends the Public School Code to create the Public School Facility Grant Program – permissible uses include internet connectivity (not including purchases of hardware or software)	Passed H. June 26, 2023 (142-61); to S. Education Cmte. June 30, 2023
HB 1512, PN 1728	Authorizes telemedicine; provides for insurance coverage	H. Insurance Cmte. June 26, 2023
HB 1585, PN 1860	Authorizes the use of tele-dentistry	H. Health Cmte July 18, 2023

UPDATE: DEVELOPMENT AND EXPANSION ACTIVITIES IN OTHER STATES

Most states have spent the past year updating broadband service maps to prepare challenges to the FCC’s maps, and developing their five-year action plans and digital equity plans for use of their federal BEAD funding. A few developments in the beginning of 2023 are of note for purposes of this study.

Telehealth

Nevada had enacted a temporary law permitting the use of telehealth during the Covid-19 pandemic. This law was made permanent in May 2023. Nevada SB 119 was signed by the Governor on May 29, 2023. The statute requires third-party insurers to cover telehealth at the same rate as in-person care delivered in rural areas, specific health care facilities, and counseling and treatment related to a mental health condition or substance use disorder, effective July 1, 2023.²⁷¹

Workforce Development

Multiple universities and community colleges across New Mexico are offering training for persons to learn to become fiber optic technicians, and opportunities are also available for career and technology school students as well.²⁷² Maine is seeing an influx of women into the fiber optic installation field, historically male-dominated.²⁷³

²⁷¹ Camalot Todd, “Legislature approves permanent expansion of telehealth services,” *Nevada Current*, May 26, 2023, <https://www.nevadacurrent.com/blog/legislature-approves-permanent-expansion-of-telehealth-services/>

²⁷² Megan Gleason, “New Mexico trying to build and train new workforce for broadband expansion,” *Source New Mexico*, <https://sourcennm.com/2023/05/30/new-mexico-trying-to-build-and-train-new-workforce-for-broadband-expansion/>, May 30, 2023.

²⁷³ Carolyn Campbell, “Hiding in Plain Site: Women Are Part of ‘Invisible’ Labor Market Building Maine’s Fiber Networks,” *The Maine Monitor*, June 24, 2023, <https://themainemonitor.org/hiding-in-plain-site-women-are-part-of-invisible-labor-market-building-maines-fiber-networks/>

Municipal Networks

Colorado's SB23-183 was signed by the Governor on May 1, 2023, amending a state law that required local governments to secure voters' approval prior to entering the broadband market or spending funds.²⁷⁴

Public-Private Partnerships

The City of Odessa, Texas entered into a 30-year contract with a privately owned telecom company to install infrastructure for a citywide fiber optic network under the city's streets. The company will have access to all public rights-of-way to install, maintain, and operate the infrastructure for an open access network. The expected build time is three to five years, at which point the company will sell access to the network to retail internet providers. The company will pay the city a license fee, and has agreed to prioritize delivery to low-income and under connected areas.²⁷⁵

²⁷⁴ Lindsey McKenzie, "Colorado lifts municipal broadband restrictions," *Statescoop*, May 3, 2023, <https://statescoop.com/colorado-lifts-municipal-broadband-restrictions/#:~:text=Colorado%20Gov.,funds%20from%20the%20federal%20government>.

²⁷⁵ Chris Teale, "How One City Delivers Broadband to Homes and Businesses at No Cost to Municipality," *Benton Institute for Broadband and Society*, August 31, 2022, <https://www.benton.org/headlines/how-odessa-delivers-broadband-homes-and-businesses-no-cost-city>

PRIOR PRINTER'S NO. 656

PRINTER'S NO. 951

THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE RESOLUTION

No. 47 Session of
2019

INTRODUCED BY PHILLIPS-HILL, YAW, GORDNER, HUTCHINSON, COSTA,
BAKER, AUMENT, STEFANO, WHITE, BROWNE, HAYWOOD AND
BARTOLOTTA, APRIL 29, 2019

SENATOR PHILLIPS-HILL, COMMUNICATIONS AND TECHNOLOGY, AS
AMENDED, JUNE 12, 2019

A RESOLUTION

1 Establishing a legislative task force on the delivery of high-
2 speed broadband services and directing the Joint State
3 Government Commission to establish an advisory committee to
4 conduct a study on the delivery of high-speed broadband
5 services in unserved areas and underserved areas of this
6 Commonwealth and to report its findings and recommendations
7 to the Senate.

8 WHEREAS, Effective economic development today requires
9 unprecedented levels of collaboration and communication among
10 State and local government, business, education, health care,
11 tourism and community leaders; and

12 WHEREAS, High-speed Internet access has become an essential
13 element of economic vitality; and

14 WHEREAS, High-speed broadband availability increases
15 individual worker productivity, breaks down the traditional
16 geographic barriers to jobs and careers in high-paying fields
17 and connects Pennsylvania businesses to international markets
18 around the world; and

19 WHEREAS, Small towns and rural communities across this

1 Commonwealth are the cradle of the best of American ingenuity,
2 potential and values; and

3 WHEREAS, Without sufficient access to broadband and a high
4 level of use of available technology, these small towns and
5 rural communities and their residents will remain
6 technologically and economically isolated and competitively
7 disadvantaged; and

8 WHEREAS, The availability of high-speed broadband in
9 Pennsylvania is continuing to increase across multiple
10 technological platforms, but certain locations and communities
11 are either underserved, having insufficient broadband speeds to
12 fully leverage the benefits of the technology, or are unserved
13 altogether; and

14 WHEREAS, TECHNOLOGICAL DEVELOPMENTS HAVE ENABLED NUMEROUS <--
15 COMPETITIVE PROVIDERS TO ENTER THE VOICE AND BROADBAND
16 MARKETPLACE USING MULTIPLE TECHNOLOGIES, AND MOST CONSUMERS HAVE
17 THE ABILITY TO CHOOSE AND PURCHASE SERVICES FROM REGULATED AND
18 UNREGULATED PROVIDERS; AND

19 WHEREAS, TODAY, TRADITIONAL LANDLINE VOICE PROVIDERS HAVE
20 LESS THAN 12% OF THE TOTAL VOICE SUBSCRIPTIONS IN THIS
21 COMMONWEALTH BUT ARE STILL REQUIRED TO MAINTAIN A NETWORK THAT
22 CAN PROVIDE VOICE SERVICE TO EVERY CUSTOMER IN THE PROVIDER'S
23 SERVICE TERRITORY; AND

24 WHEREAS, WHILE REGULATION OF TRADITIONAL LANDLINE VOICE
25 SERVICES HAS REMAINED RELATIVELY UNCHANGED IN THIS COMMONWEALTH
26 DESPITE THESE DRAMATIC CHANGES IN THE INDUSTRY, THE TECHNOLOGIES
27 THAT CONSUMERS USE TO COMMUNICATE HAVE FUNDAMENTALLY ALTERED THE
28 MARKETPLACE AND CONTINUE TO DO SO; AND

29 WHEREAS, MODERNIZATION OF REGULATIONS AND STATUTES HAS
30 ALREADY BEEN UNDERTAKEN IN MANY STATES AS CONSUMERS HAVE

20190SR0047PN0951

- 2 -

1 TRANSITIONED FROM LANDLINE VOICE SERVICES TO PRODUCTS OFFERED BY
2 UNREGULATED OR LIGHTLY REGULATED ENTITIES; AND

3 WHEREAS, THE PROVISION OF BROADBAND SERVICE ACROSS THIS
4 COMMONWEALTH MUST RECOGNIZE THAT BECAUSE OF TECHNOLOGICAL AND
5 COMPETITIVE DEVELOPMENTS, THE APPROPRIATE METHOD TO SUPPORT AND
6 INCENTIVIZE FURTHER EXPANSION OF BROADBAND SHOULD BE TECHNOLOGY
7 AND POLICY NEUTRAL; AND

8 WHEREAS, Eliminating unserved areas and underserved areas in
9 this Commonwealth will provide educational, economic, health,
10 governance and public safety benefits to all residents; and

11 WHEREAS, The basic requirements for successfully expanding
12 the benefits of high-speed broadband to all residents of this
13 Commonwealth are:

14 (1) access to computers, whether privately owned or
15 leased or provided at public locations as a public benefit;

16 (2) access to reliable broadband services at affordable
17 prices and at speeds required for current and future
18 applications; and

19 (3) knowledge to effectively use those computers and the
20 Internet;

21 and

22 WHEREAS, High-speed broadband infrastructure:

23 (1) allows communities to engage the world with their
24 goods and services;

25 (2) allows industries which are reliant upon traditional
26 manufacturing to use the Internet to expand their markets and
27 make their operations even more efficient;

28 (3) promotes the use of agricultural technology to help
29 farmers:

30 (i) maintain online field, mapping, water

1 management, livestock and accounting records; and
2 (ii) develop machinery that can operate virtually on
3 its own; and
4 (4) allows professionals in rural communities to work or
5 run businesses from their homes;
6 and

7 WHEREAS, High-speed broadband brings educational
8 opportunities, improved health care, more effective government
9 services and a better quality of life to all residents of this
10 Commonwealth; and

11 WHEREAS, Companies selling technology-intensive products and
12 services, or companies with technologically advanced operations,
13 generally provide faster growth in employment and income than
14 companies without such capabilities; and

15 WHEREAS, Studies show that as much as 85% of the growth in
16 per capita income over the past 150 years has resulted from
17 technological change; and

18 WHEREAS, Technology-intensive private sector jobs on average
19 pay wages which are 85% to 95% higher than wages paid for
20 private sector jobs that are not technology-intensive; and

21 WHEREAS, The President and Congress, in the effort to make
22 broadband or high-speed access to the Internet available to all
23 Americans, based on the belief that every American needs to have
24 access to broadband to have the doors of economic and social
25 opportunity open to them, required the Federal Communications
26 Commission to:

27 (1) develop a forward-looking national broadband plan to
28 ensure that all Americans have access to broadband
29 capability;

30 (2) contribute to efforts of the United States

20190SR0047PN0951

- 4 -

1 Department of Commerce and the United States Department of
2 Agriculture to award \$7.2 billion in grants, loans and loan
3 guarantees to hasten the introduction of the facilities
4 needed to provide broadband and educate consumers to use this
5 infrastructure; and

6 (3) collect and report far more detailed and
7 comprehensive information on the status of broadband
8 deployment, adoption and use, including how broadband service
9 in the United States compares to broadband service in other
10 countries;

11 and

12 WHEREAS, The Commonwealth's efforts to secure the
13 availability of high-speed broadband throughout urban, suburban
14 and rural areas of this Commonwealth has been fragmented,
15 resulting in a lack of coordination among multiple State
16 agencies and commissions overseeing various broadband-related
17 programs, projects and Federal and State funding; therefore be
18 it

19 RESOLVED, That the Senate establish a legislative task force
20 on the delivery of high-speed broadband services; and be it
21 further

22 RESOLVED, That the task force be comprised of the chairperson
23 and minority chairperson of the Communications and Technology
24 Committee of the Senate or a designee of the chairperson or
25 minority chairperson; and be it further

26 RESOLVED, That the Senate direct the Joint State Government
27 Commission to assist the task force and conduct a study on the
28 delivery of high-speed broadband services in unserved areas and
29 underserved areas of this Commonwealth; and be it further

30 RESOLVED, That the Joint State Government Commission, as part

20190SR0047PN0951

- 5 -

1 of its study, establish an advisory committee consisting of
2 approximately 25 members from across this Commonwealth,
3 including:

- 4 (1) the Secretary of Agriculture or a designee;
- 5 (2) the Secretary of Community and Economic Development
6 or a designee;
- 7 (3) the Deputy Secretary for Technology and Innovation
8 in the Department of Community and Economic Development or a
9 designee;
- 10 (4) the Secretary of Education or a designee;
- 11 (5) the Secretary of Health or a designee;
- 12 (6) the Secretary of Labor and Industry or a designee;
- 13 (7) the Secretary of Policy and Planning or a designee;
- 14 (8) the executive director of the Pennsylvania Office of
15 Broadband Initiatives or a designee;
- 16 (9) the executive director of the Governor's Center for
17 Local Government Services of the Pennsylvania Municipal
18 League or a designee;
- 19 (10) the chairperson of the Pennsylvania Public Utility
20 Commission or a designee;
- 21 (11) the vice chairperson of the Pennsylvania Public
22 Utility Commission or a designee;
- 23 (12) the Small Business Advocate or a designee;
- 24 (13) the Consumer Advocate or a designee;
- 25 (14) the director of the Center for Rural Pennsylvania
26 or a designee;
- 27 (15) representatives of broadband service providers and
28 any related cable, wireless or other technology industries or
29 associations within this Commonwealth; and
- 30 (16) representatives of other departments, agencies,

1 boards, commissions or entities that the Joint State
2 Government Commission deems appropriate in conducting the
3 study under this resolution;
4 and be it further

5 RESOLVED, That the Joint State Government Commission develop
6 reports in collaboration with the advisory committee which, at a
7 minimum, include the following:

8 (1) background information which addresses the matters
9 set forth in this resolution;

10 (2) recommendations ~~to~~: <--

11 (i) TO improve the delivery of high-speed broadband <--
12 services to unserved areas and underserved areas of this
13 Commonwealth; ~~and~~ <--

14 (ii) TO extend the benefits of advanced high-speed <--
15 broadband technology to every community in this
16 Commonwealth through collaborative partnerships with <--
17 governmental and private sector stakeholders; ~~and~~
18 COMMONWEALTH THROUGH: <--

19 (A) COLLABORATIVE PARTNERSHIPS WITH
20 GOVERNMENTAL AND PRIVATE SECTOR STAKEHOLDERS; AND

21 (B) OTHER MEANS OF EXTENDING THE BENEFITS OF
22 ADVANCED HIGH-SPEED BROADBAND TECHNOLOGY IN THIS
23 COMMONWEALTH; AND

24 (III) FOR MECHANISMS AND POSSIBLE PROGRAMS FOR
25 FUNDING THE EXPANSION OF BROADBAND AVAILABILITY,
26 INCLUDING HARMONIZATION OF FUNDING OPTIONS WITH ANY
27 EXISTING FEDERAL OR OTHER STATE PROGRAMS; AND

28 (3) proposed legislation which relates to the proposed
29 recommendations and specifically addresses the delivery of
30 high-speed broadband services to rural high-cost areas of

