

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

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

June 2022



*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*

Third 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 420 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.

**LEGISLATIVE TASK FORCE
ON HIGH-SPEED BROADBAND SERVICES**

Honorable Kristin Phillips-Hill
Senate Communications & Technology, Chair

Honorable John I. Kane
Senate Communications & Technology, Minority Chair

ADVISORY COMMITTEE ON HIGH-SPEED BROADBAND SERVICES

Brian F. Barno

Vice President, Government Affairs
Broadband Cable Association
of Pennsylvania

Honorable Jennifer Berrier

Secretary, Pennsylvania Department
of Labor & Industry

**Designee:* Julia Grubbs (through 6/2022)

C. Kim Bracey (emeritus 6/2022)

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

Barbara A. Burba

CEO/Owner
Amerisite Wireless Development
President, Pennsylvania
Wireless Association

Patrick M. Cicero, Esquire

Consumer Advocate, Pennsylvania
Office of Consumer Advocate

**Designee:* Barrett C. Sheridan
Assistant Consumer Advocate

John F. Coleman, Jr.

Vice Chairman, Pennsylvania
Public Utility Commission

**Designee:* Matthew A. Totino, Counsel

Sheri Collins (emeritus 4/2022)

Sr. Director, Office of Corporate Relations
State Alternate, Appalachian
Regional Commission
Pennsylvania Department of Community
& Economic Development

Stephen M. D'Ettorre

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

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 Denise A. Johnson, M.D.

Acting Secretary, Pennsylvania
Department of Health

**Designee:* Muneeza Iqbal, Deputy
Secretary, Health Resources
and Services

Kyle C. Kopko, Ph.D.

Executive Director
Center for Rural Pennsylvania

Honorable Noe Ortega (emeritus 4/2022)
Secretary, Pennsylvania Department
of Education

**Designee:* Carrie Cleary, MLIS
Executive Assistant, Office
of Commonwealth Libraries

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 Neil Weaver
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/>

July 2022

EXECUTIVE COMMITTEE

Senate Members:

JACOB D. CORMAN, III
President Pro Tempore
KIM L. WARD
Majority Leader
JAY COSTA, JR.
Minority Leader
JOHN R. GORDNER
Majority Whip
ANTHONY H. WILLIAMS
Minority Whip
ROBERT B. MENSCH
Chair, Majority Caucus
WAYNE D. FONTANA
Chair, Minority Caucus

House Members:

BRYAN D. CUTLER
Speaker
KERRY A. BENNINGHOFF
Majority Leader
JOANNA E. MCCLINTON
Minority Leader
DONNA OBERLANDER
Majority Whip
JORDAN A. HARRIS
Minority Whip
GEORGE DUNBAR
Chair, Majority Caucus
DAN L. MILLER
Chair, Minority Caucus

Administrative Staff:

GLENN J. PASEWICZ
Executive Director
YVONNE M. HURSH
Counsel

To the Members of the General Assembly:

We are pleased to release *Delivery of High-Speed Broadband Services in Unserved Areas and Underserved Areas of the Commonwealth*, pursuant to Senate Resolution 47 of 2019. SR47 directed the Commission to conduct a study of the delivery of high-speed broadband services in unserved and underserved areas of Pennsylvania and to establish an advisory committee of stakeholders including industry representatives, consumer advocates, and policymakers with expertise in education, technology, economic development, rural affairs, and public health.

This is the third of five reports. This report includes updated information on the topics covered in the 2020 and 2021 reports. It also discusses funding, barriers to broadband development, efforts to identify unserved and underserved communities, state and local initiatives in Pennsylvania, and recent activities and legislative enactments in other states. Among the recommendations is one to allow members of the SR47 Advisory Committee to serve as a subcommittee of the Broadband Development Authority established by Act 96 of 2021.

The full report is available for download at <http://jsg.legis.state.pa.us>.

Respectfully submitted,

Glenn J. Pasewicz
Executive Director

TABLE OF CONTENTS

Introduction	1
Review of Act 96 (2021) Pennsylvania Broadband Development Authority	3
Recommendations and Proposed Legislation	5
<i>New Recommendations</i>	5
Advisory Role to the Broadband Development Authority	5
Potential Sources of Permanent Funding for BBDA	5
E-Rate Program	5
<i>Review of Recommendations Proposed in Prior BBAC Reports</i>	6
UPDATE: Defining, Delivering and Regulating Broadband	9
<i>Defining Broadband</i>	9
<i>Delivering Broadband</i>	9
Fixed Broadband Service	10
Mobile Broadband Service	10
Satellite Service	13
<i>Regulating Broadband</i>	15
Regulatory Reform in Pennsylvania	15
UPDATE: Education	17
<i>The Homework Gap</i>	17
Texas	19
New Hampshire	19
California	20
Illinois	21
Virginia	22
<i>Funding for Remote Learning in Pennsylvania</i>	22
<i>E-Rate Changes</i>	23
<i>Higher Education</i>	24
UPDATE: Healthcare	27
<i>Encouraging the Use of Telepsychiatry</i>	30
<i>Growing Demand for Telepsychiatry</i>	31
<i>COVID-19 Telehealth Program</i>	31
<i>COVID-19 Public Health Emergency Extended</i>	36
<i>Pennsylvania Terminates Pandemic-Related Licensing Waivers</i>	
<i>Related to Telemedicine</i>	38
<i>Telehealth and Broadband in Rural Areas</i>	39
UPDATE: Agriculture	43
UPDATE: Community and Economic Development	47
UPDATE: Deployment Barriers	49
<i>Importance of Speed</i>	49
<i>Affordability</i>	50
<i>Adoption</i>	51

<i>Digital Inclusion Efforts</i>	52
<i>Mapping</i>	55
<i>Fraud</i>	56
<i>Distributing Funding</i>	57
UPDATE: Alternative Methods	59
<i>Dig Once Policies</i>	59
<i>Municipal Broadband</i>	60
<i>Co-Op Broadband</i>	61
<i>Rural Electrification</i>	61
UPDATE: New Funding Sources	63
<i>Current Federal Grant and Loan Programs</i>	63
Appalachian Regional Commission	63
U.S. Department of Agriculture	63
Department of Commerce	65
Department of Education	66
Department of Housing and Urban Development	66
FCC Funding Adjusted for Inflation (Healthcare Connect Fund and E-Rate)	66
Institute of Museum and Library Services (IMLS)	66
The American Rescue Plan Act of 2021	67
Lifeline	67
National Science Foundation	68
Rural Digital Opportunity Fund	68
<i>The Infrastructure Investment and Jobs Act</i>	69
Deployment	69
Broadband Consumer Labels	73
GAO Report	73
Digital Discrimination	74
<i>Current Pennsylvania Grant and Loan Programs</i>	74
UPDATE: Recent Pennsylvania State and Local Initiatives	77
<i>Local Efforts</i>	77
York County	77
Bedford County	77
Fayette County	78
Indiana County	78
Columbia, Montour, and Northumberland Counties	78
Pennsylvania Turnpike Commission Fiber Optic Network	78
UPDATE: Methods Employed in Other States	83
UPDATE: Data and Mapping	91
UPDATE: Unserved and Underserved Areas	93
<i>County-by-County Analysis</i>	97
Appendix A:	
2019 Senate Resolution 47	155
Appendix B:	
Providers Offering Broadband to Consumers in Pennsylvania – 2022	163

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 third of five reports the Commission. This report will provide an update on 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 three times since the release of the 2021 report, via Internet conferencing, on September 17, 2021, February 3, 2022, and May 12, 2022. 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.

REVIEW OF ACT 96 (2021) 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. This enactment was modeled after the Broadband Advisory Committee’s Recommendation #1 found in the 2020 report. It also addresses the concerns of Recommendation #4. 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 the 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.

Like the federal law, an underserved community is defined as one that has no internet service at speeds of 100/20 Mbps or higher. This is a departure from current Pennsylvania law, and the minimums set by the Federal Communications Commission (FCC). The FCC defines “broadband” as high-speed Internet meeting the following minimum speeds: download speeds of 25 Mbps (megabits per second) and minimum upload speeds of 3 Mbps. This is not the legal minimum for incumbent local exchange telecommunications companies (ILECs) in Pennsylvania. ILECs are, in essence, the telephone companies in existence at the time the Pennsylvania statute was adopted in 1993. The 1993 enactment defined broadband at a download speed of 1.544 Mbps, with an unspecified upload speed. When the law was reenacted in 2004, the speed was established set at 1.544 Mbps download and 128 Kbps upload, where it remains. Additionally, the definition of high-speed broadband includes wireless, wireline, and fixed wireless ISPs and calls for 100/20 Mbps, the FCC minimums of 25/3 Mbps or the minimums required for other federal funding opportunities, whichever is higher. Several bills have been introduced in the 2021-2022 legislative session that would increase the ILEC minimums in Pennsylvania to 25/3 Mbps, but none of them have received any consideration.

An overbuild challenge procedure was created in Act 96, and “overbuild” was defined as broadband development in an area that is not unserved or underserved. Proposed projects in which less than 80% of the locations to be served are unserved, underserved, or are to be managed or operated by a Federal or State entity are ineligible for grants. Conversely, only projects in areas in which 80% or more of the locations to be served are unserved, etc. are eligible for grants.

The board of directors of the BBDA is comprised of legislators and government agency heads only – there is no consumer, industry, or municipal representation. However, subcommittees composed of board and non-board members can be appointed under the act.

Act 96 establishes two sets of grant criteria:

(1) grants for high-speed broadband service infrastructure

- Applicant must have technical, managerial, and financial expertise to design, build, and operate the infrastructure
- Minimum capital investment required
- Any other criteria established by federal law or guidance
- Grants based on a scoring system:
 - Size and scope of area to be deployed
 - Experience, technical ability and financial stability of the applicant to successfully deploy
 - Extent funding is necessary to deploy in an economically feasible manner
 - Proportion of capital pledged to the project
 - Proposed speed thresholds and scalability
 - No overbuilding will result
 - Contractor has all necessary licenses, workers' compensation, and unemployment compensation; has not defaulted on a project, declared bankruptcy, or been debarred or suspected on a government project in the last three years; has had no misdemeanor or felony convictions related to the business in the last 10 years; has received OSHA training

(2) grants for other high-speed broadband service projects

- Any criteria established by federal law or guidance
- Grants based on a scoring system based on federal law and guidance and other factors considered reasonable and appropriate by the authority

All projects must on-line (ready to use) and service provided to customers no later than four years after receipt of the grant. If a project is not completed, grant funds are subject to refund or clawback.

RECOMMENDATIONS AND PROPOSED LEGISLATION

New Recommendations

Advisory Role to the Broadband Development Authority

As currently established in Act 96, the BBDA is composed solely of state government leaders. BBAC believes that 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.

Potential Sources of Permanent Funding for BBDA

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. Other potential methods of permanent funding for the BBDA and its programs were discussed in the BBAC September 2020 report. These options are not consensus items of the BBAC, but are potential methods used in other states that could be explored further and include tax incentives, service charges, a state universal service fund, right of way fees, civil penalties, toll road revenue, and legal settlements.

E-Rate Program

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. The Department of Education would need to establish a program for the use of these funds that provides for accountability and oversight.

Review of Recommendations Proposed in Prior BBAC Reports

The Infrastructure Investment and Jobs Act, signed into law on November 15, 2021, 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." Pennsylvania law does not prohibit municipalities from establishing broadband networks but grants local incumbent carriers a right of first refusal to provide broadband to the area. How Pennsylvania's procedures mesh with the IJA remains to be seen. This issue is not unique to Pennsylvania, as at least 17 states ban or limit municipal broadband network ownership.⁴

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 period of time. 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;

⁴ Kery Muragami, "Biden's Municipal Broadband Push Clashes with State Restrictions," *Route Fifty Today*, February 27, 2022.

- (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.

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.

Pennsylvania’s minimum speed requirements have been set at 1.544 Mbps download and 128 Kbps upload, since 2004. Pennsylvania’s minimum speeds only apply to regulated entities. In Pennsylvania, the only regulated internet provider is an entity defined as an “incumbent local exchange carrier” (ILEC), which is the established local telephone company.

Multiple federal funding programs impose higher minimum speeds, including the programs under the Infrastructure Investment and Jobs Act, discussed further at pages 68-73.

Delivering Broadband

Broadband high-speed Internet access transmits data using a wide range of frequencies and enables a large number of 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.

The Commission’s 2020 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 follows.

Fixed Broadband Service

The Pennsylvania Department of Community and Economic Development (DCED) identifies 103 separately named companies as fixed internet service providers for consumers. Among those providers, cable, DSL, fiber, fixed wireless and other copper wireline are available in Pennsylvania, with most people being served by cable or DSL providers.

There are 11 providers who offer cable service only. Cable providers use the Hybrid Fiber Coaxial Network (HFC Network) that delivers service via cable modems that are ranked by their speed. Seven cable providers offer DOCSIS (Data Over Cable Service Interface Specification) Level 3.0, which can deliver speeds of 100 Mbps upload and 1 Gbps download. Two providers offer both DOCSIS 3.0 and Levels 1.0, 1.1, or 2.0, which provide 10 or 30 Mbps upload and 40 Mbps download. Two providers offer DOCSIS at Levels 1.0, 1.1 or 2.0 only. Seven providers offer DOCSIS 3.0 only.

Digital Subscriber Line (DSL) is available in three iterations. SDSL, or symmetrical DSL, provides, as the name implies, the same download and upload speeds, and is primarily marketed to businesses. ADSL, or asymmetrical DSL, provides greater downstream speed than upstream, and is generally geared toward consumer households. VDSL, or very-high bit-rate DSL is also asymmetrical and provides the fastest DSL service. A total of seven internet service providers offer some form of DSL as their sole internet service available.

Fixed wireless is available from 29 stand-alone companies who generally provide fixed wireless service only to specified region composed of several counties.

Finally, there are 19 stand-alone fiber-to-end user providers, one “all other fiber” provider, and one stand-alone “other copper wireline” provider. The remaining providers offer a mix of several types of service.

These figures for 2021-2022 reflect an increase in the overall number of internet service providers in Pennsylvania and a significant growth in the number of companies offering terrestrial fixed wireless and fiber to end users. These further reflect a shift away from DSL or cable as the only offering by ISP. Instead, many companies (49) are offering a mix of services.⁵

Mobile Broadband Service

Mobile broadband is either delivered over a cellphone network or via Wi-Fi from what is, essentially, a landline or cable broadband link to the Internet. Cellphone networks rely on fixed towers and more recently, small cell transmitters to relay signals. Availability and service depend on reliability of cellular service in general. Wi-Fi uses radio waves to

⁵ Compiled by Joint State Government Commission staff from the Pennsylvania Department of Community and Economic Development database on their website at <https://dced.pa.gov/broadband-resources/>. Visited April 24, 2022.

connect to wired technology so that access to the Internet extends beyond the home wherever there is wireless technology installed.

Factors that affect speed and performance include the types of programs running on the device, proximity to a cell site, the capacity of the cell site, weather, the surrounding terrain, use inside a building or moving vehicle, radio frequency interference, and how many other customers are attempting to use the same resources.

5G is the fifth generation of technology used by mobile service providers to allow users to access data. The service boasts speeds much higher than that of 4G, the current most popular generation of mobile service technology. 5G technology would allow networks that are currently connected through fiber to be wireless. However, 5G, like other forms of mobile broadband, ultimately must access fiber optic cables to complete their connections.

5G networks are accessible through cellular service, known as mobile 5G and fixed wireless (aka 5G home internet). Mobile 5G is available on mobile devices that are capable of receiving 5G radio waves. This allows the customer to access the internet via cellular service when they are not on Wi-Fi. 5G home internet requires an antenna at the top of the customer's home that allows access to the 5G network, usually through Wi-Fi. The antenna must be in line of sight to a base station with another antenna. Currently, only T-Mobile and Starry are selling 5G home internet in Pennsylvania.⁶ Starry is only available in apartment and condominium buildings and is only offered in Harrisburg. T-Mobile is available in 33 communities in Pennsylvania.⁷

The FCC has been taking action to make additional spectrum available for 5G services. Under the FCC's 5G FAST Plan, announced in 2018, three specific areas are addressed to improve the 5G rollout. These include increasing spectrum, updating infrastructure policy, and modernizing outdated regulations. With respect to infrastructure policy and regulations, efforts have been made to streamline municipal approval of small cell deployment (addressed below) and update pole attachment procedures.⁸

⁶ Allconnect.com. Web-based broadband marketplace. Information provided by providers. "Top FG Home Internet Providers," *Allconnect*, accessed June 30, 2022, <https://www.allconnect.com/internet/5g#:~:text=Available%205G%20home%20internet%20providers,internet%20in%20select%20rural%20areas>.

⁷ Allentown-Bethlehem-Easton, Altoona, Bloomsburg-Berwick, Bradford, Chambersburg-Waynesboro, Dubois, East Stroudsburg, Erie, Gettysburg, Harrisburg-Carlisle, Huntingdon, Indiana, Johnstown, Lancaster, Lebanon, Lewisburg, Lewistown, Lock Haven, Meadville, New Castle, Philadelphia-Camden-Wilmington, Pittsburgh, Pottsville, Reading, Scranton-Wilkes-Barre, Selinsgrove, Somerset, St. Marys, State College, Sunbury, Warren, Williamsport, and York-Hanover.

⁸ "America's 5G Future," *Federal Communications Commission*, accessed April 26, 2022, <https://www.fcc.gov/5G>.

With respect spectrum expansion, the FCC is making four areas of bandwidth available.

- High-band: The FCC concluded its first 5G spectrum auctions in the 28 GHz band in January 2019; the 24 GHz band in May 2019; and the upper 37 GHz, 39 GHz, and 47 GHz bands in March 2020. With these auctions, the FCC is releasing almost 5 gigahertz of 5G spectrum into the market—more than all other flexible use bands combined. The FCC is also working to free up 2.75 gigahertz of 5G spectrum in the 26 and 42 GHz bands and it has initiated a proceeding to make more efficient use of additional millimeter-band spectrum in the 70/80/90 GHz bands.⁹
- Mid-band: Mid-band spectrum has become a target for 5G buildout given its balanced coverage and capacity characteristics. The 3.5 GHz auction was completed August 2020; the 3.45-3.55 GHz auction conclude in November 2021, and the 2.5 GHz auction is scheduled to begin in July 2022. While the 3.75-3.98 GHz, “C-Band” auction was completed in January 2021, it was not without controversy.¹⁰ Verizon and AT&T won the bulk of the auction and planned to rollout their 5G network on the C-Band, but major airlines and airports raised concerns regarding the potential for interference with radio altimeters in airplanes that operate very close to C-Band levels. The Federal Aviation Administration (FAA) and the providers engaged in talks, the United States House Transportation and Infrastructure Committee held a hearing on February 3, 2022 on whether 5G operations in C-band spectrum pose a threat to aircraft. On February 23, 2022, the FAA released and Airworthiness Directive that revised the landing requirements for certain Boeing 737 series airplanes at airports where 5G interference was possible. This directive was estimated to affect 2,442 airplanes in the United States and 8,342 worldwide.¹¹
- Low-band: The FCC is acting to improve use of low-band spectrum (useful for wider coverage) for 5G services, with targeted changes to the 600 MHz, 800 MHz, and 900 MHz bands.¹²
- Unlicensed: Recognizing that unlicensed spectrum will be important for 5G, the agency is creating new opportunities for the next generation of Wi-Fi in the 5.9 GHz, 6 GHz and above 95 GHz high-band spectrum is the most optimal medium for 5G connectivity.¹³

⁹ “FCC Reviews Accomplishments of Wireless, International, Engineering and Technology, and Economics and Analytics Teams,” *FCC*, last modified January 13, 2021, DOC-369204A1%20(1).pdf.

¹⁰ *Ibid.*

¹¹ “5G and Aviation Safety,” *Federal Aviation Administration*, accessed April 26, 2022, <https://www.faa.gov/5g>.

¹² *America’s 5G Future*, *Federal Communications Commission*.

¹³ *Ibid.*

By utilizing high-band spectrum, 5G technology can support channels up to 100 MHz with up to 800 MHz by using multiple channels. These broader channels allow for significantly higher speeds, but the technology also has significant weaknesses. The coverage, though it can provide speeds up to 10 Gbps, extends only to a small area around the size of a city block and does not penetrate buildings due to the amount of data being transmitted and the size of the radio waves. Therefore, a network of 5G coverage requires many small cells placed close together in a grid in an urban setting to provide a reliable signal.¹⁴

The deployment of small cells requires streamlined federal, state and local permitting, rights of way, application timelines and other siting and application fees, and application review timelines and appeals processes to make it economically feasible for wireless companies to deploy the technology across communities. Essentially, these laws streamline applications to access public rights of way, impose caps on costs and fees, and streamline timelines for consideration and processing of cell siting applications. More than 30 state legislatures have enacted small cell legislation that streamlines regulations to facilitate the deployment of 5G small cells, including Pennsylvania, which enacted its own Small Wireless Facilities Deployment Act in the summer of 2021. HB 1621 passed the House by a vote of 198-3 on June 22, 2021, and passed the Senate on June 25, 2021 by a vote of 50-0. The bill was signed into law as Act 50 of June 30, 2021.¹⁵

5G is not seen as a solution for rural areas. The use of small cells is convenient in cities that are looking to bring wireless networking technology to the next level, but as it is reliant on an expansive web of small cells, it would not be cost-effective in a region where homes and businesses are spread out. This is confirmed by the most recent FCC broadband deployment report, which states:

Finally, we are optimistic that increased deployment of 5G may allow mobile services to serve as an alternative to fixed service. But we agree with those commenters that indicate that any such assessment is premature, as providers are still rolling out 5G as a commercial service, and we do not know for certain whether consumers will treat mobile 5G as a substitute for fixed services.¹⁶

Satellite Service

The other form of mobile service currently available, satellite, uses a satellite dish to provide two-way access to broadband services. Satellite is mostly used in rural areas and is often unreliable in snow, rain, and other poor weather conditions. Downstream and upstream speeds for satellite broadband depend on several factors, including the provider

¹⁴ Ibid.

¹⁵ “Mobile 5G and Small Cell Legislation,” *National Conference of State Legislatures*, last modified August 26, 2021, <https://www.ncsl.org/research/telecommunications-and-information-technology/mobile-5g-and-small-cell-2021-legislation.aspx>.

¹⁶ FCC, *Fourteenth Broadband Deployment Report* (January 19, 2021), <https://www.fcc.gov/document/fcc-annual-broadband-report-shows-digital-divide-rapidly-closing>, 6.

and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. One of the biggest issues with satellite is its latency issues. This high latency is caused because of broadband traveling over a long distance. High latency causes delays in phone calls, lags in online gaming, and slows down video conferencing.¹⁷

Satellite Internet prices vary based on data caps. The average data cap for satellite Internet plans is 60 GB. The highest data cap available is 300 GB. Once a customer reaches the monthly data cap the service can still be used, but the speed will drop to 1–3 Mbps until the next month's data allowance becomes available. However, there are no overage fees. If the customer only uses the Internet for web browsing and email, a 35 GB plan will probably suffice. If the customer is a heavier user, gaming, streaming music and video, data will be consumed quickly. An hour of HD video streaming can use up to 3 GB.

As of the date of this report, three satellite companies provide satellite broadband Internet service across the country. Currently, only two of them, Hughesnet and Viasat, are available in Pennsylvania. Viasat offers packages from 12 s to 100 Mbps download speeds, while Hughesnet universally offers up to 25 Mbps download speed. Starlink offers download speeds of 100-200 Mbps. Starlink has unlimited data, but Viasat and Hughesnet come with a data cap. Once the customer's data allotment for the month is exceeded, speeds drop to 1 to 3 Mbps.¹⁸

In March 2020, the FCC approved the application of SpaceX to deploy up to one million small antennas to link to its Starlink network of 12,000 low-earth orbiting (LEO) satellites, designed to help bring broadband to rural communities. The LEO satellites are expected to provide lower latency and be more competitive with wired broadband networks. As of early January 2022, Starlink had launched nearly 1,900 LEO satellites.¹⁹

At \$499 for the satellite dish and \$99 a month for service, Starlink's prices are roughly competitive with those of Viasat and Hughesnet, which have equipment costs of \$299 and \$449, respectively, and monthly service plans that average out at \$100 per month.²⁰

Amazon, through its Kuiper System, also plans to launch an LEO satellite network of over 3,200 broadband satellites with similar goals. Half of these satellites must be in orbit by the end of July 2026, per the FCC authorization. In April 2022, Amazon announced that it had made 83 launch reservations on three different rockets to place satellites in orbit for its program. It scheduled these launches with three different rocket systems. The rocket companies announced that they had capacity to launch 141-146

¹⁷ Ibid.

¹⁸ Dave Schafer, "How Much Does Satellite Internet Cost?" *SatelliteInternet*, last modified February 1, 2022, <https://www.satelliteinternet.com/resources/how-much-does-satellite-internet-cost/>.

¹⁹ Adam Mann, Tereza Pultarova, Elizabeth Howell, "SpaceX Starlink Internet: Costs, Collision Risks and How It Works," last modified April 14, 2022, <https://www.space.com/spacex-starlink-satellites.html>.

²⁰ Schafer, "Satellite Internet."

satellites. No launches had occurred as of April 26, 2022, nor have specific launch dates been announced, as none of the rockets have had their first flight.²¹

Telesat, a Canadian telecommunications company based in Ottawa, is developing its “Lightspeed” program, with an expected launch of 298 LEO satellites in early 2023, with service expected to be available in 2024. However, broadband service from these satellites is expected to serve business, government, maritime, and aeronautical customers and not residential customers.²² OneWeb an international communications company that like Telesat, is aiming for the business, government, maritime and aeronautical broadband market, has launched 428 of its planned 648 LEO satellites and expects to have service available in 2022.²³

Regulating Broadband

Pennsylvania, like most other states, does not regulate Internet service as a public utility. The Pennsylvania Public Utility Commission does not regulate all types of broadband providers, and only traditional wireline telephone service is regulated as a public utility for purposes of making broadband available at the speeds and under the conditions prescribed in Chapter 30 of the Public Utility Code.

Regulatory Reform in Pennsylvania

In 2015, Verizon petitioned the PUC requesting that its retail services offered to residential and small business customers be declared competitive in 504 wire centers under Pa.C.S. § 3016(b) and also requested a temporary waiver of certain regulations for competitive services. Reclassification to competitive status eliminates pricing and tariff restraints. It is not equivalent to deregulation of a service.

On March 4, 2015, the PUC issued a reclassification order that partially granted Verizon’s petition by reclassifying its basic stand-alone telephone service offered to residential and small business customers as competitive for 153 of Verizon’s total 504 wire centers. A wire center is a carrier’s network facility in a local area that connects subscriber lines in a local loop. A five-year waiver of specific sections of Chapters 63 and Chapter 64 was granted pending the PUC’s review these regulations initiation of the rulemaking process to determine if these regulations should be revised for both noncompetitive and competitive services.

²¹ Alan Boyle, “Amazon reserves up to 83 rocket launches for Project Kuiper broadband satellite constellation,” last modified April 6, 2022, <https://www.geekwire.com/2022/amazon-reserves-up-to-83-rocket-launches-for-project-kuiper-broadband-satellite-constellation/>.

²² Bevin Fletcher, “LEO Satellite Ventures OneWeb, Lightspeed Score New Investments,” *Fierce Wireless*, last modified August 12, 2021, <https://www.fiercewireless.com/financial/leo-satellite-ventures-oneweb-lightspeed-score-new-investments>.

²³ *Ibid.*, see also “OneWeb to Resume Satellite Launches through Agreement with SpaceX,” *OneWeb*, last modified March 21, 2022, <https://oneweb.net/resources/oneweb-resume-satellite-launches-through-agreement-spacex>.

The temporary waivers under the 2015 order were set to expire on March 4, 2020. As the PUC's rulemaking process had not yet been complete as of February 2020, an extension was granted to December 31, 2022. A Notice of Proposed Rulemaking continuing the process was adopted by the PUC on August 27, 2020. On April 10, 2021, a notice of proposed rulemaking order was published in the Pennsylvania Bulletin. Initial comments were due May 25, 2021, and replies were due June 24, 2021. The Independent Regulatory Review Commission also filed comments on July 23, 2021. Final regulations amending Chapters 63 and 64 were released on March 28, 2022. The regulations are designed to "level the playing field" for regulated jurisdictional telecommunications carriers in competition with unregulated alternative providers. Some reporting obligations were eliminated and/or modified to make regulations consistent among types of providers and across competitive and non-competitive markets.

In a similar vein, Senate Bill 341, Printer's No. 375, proposes to streamline many of the same regulations included in the most recent notice of proposed rulemaking requiring a permanent waiver of most of these regulations. SB 341 passed the Senate on May 25, 2021 (28-19) and was introduced in the House and referred to the House Consumer Affairs Committee on May 26, 2021.

The Homework Gap

The digital divide’s impact on education has been studied and demonstrated powerfully through the use of remote learning during the COVID-19 pandemic. Along with identifying students affected by the lack of internet, a 2020 analysis by Common Sense Media found that 300,000 to 400,000 teachers also reside in homes without adequate connectivity. Nine million students lack any access to high-speed Internet or proper learning devices, which can include laptops, tablets, or desktops and do not include mobile phones. Five to six million students have a learning device but an insufficient internet connection. One million students have access to broadband but do not have a device sufficient for online learning.²⁴

Senate Bill 440 was signed into law in July of 2019 to allow schools to use up to five flexible instructional days in a year during which students could utilize virtual learning instead of taking a snow day or a day off due to other unplanned closures. Schools would need to apply to use this program and if they were approved, they would be able to use the flexible instructional days for three years, after which they would need to reapply.²⁵ As of January of 2020, less than 80 districts had applied for the program, with most districts deciding that the challenges of implementation and enforcing digital learning were too great at the time. Some districts also mentioned the lack of available devices as a barrier to implementing virtual learning.²⁶ However, in the 2020-2021 school year, 278 programs were approved, and 137 programs were approved in the 2021-2022 school year. Presumably, the rapid change from in-person to virtual learning during COVID-19 made school districts more confident in their ability to transition to virtual learning for a few days if necessary.²⁷

²⁴ *Closing the K-12 Digital Divide in the Age of Distance Learning* (Common Sense and Boston Consulting Group, 2020), https://www.common Sense Media.org/sites/default/files/uploads/pdfs/common_sense_media_report_final_7_1_3pm_web.pdf, 11.

²⁵ Kara Seymour, “No More Snow Days in PA: Governor Signs Flexible Instruction Law,” *Patch*, last modified July 3, 2019, <https://patch.com/pennsylvania/newtown-pa/no-more-snow-days-pa-governor-signs-flexible-instruction-law>.

²⁶ Teresa Boeckel, “‘Cyber Snow Days:’ Why Few School Districts Statewide Opted in for the Program,” *York Daily Record*, last modified January 6, 2020, <https://www.ydr.com/story/news/2020/01/06/cyber-snow-days-why-few-school-districts-statewide-using-them/4301919002/>.

²⁷ “FID Accepted Programs,” *Department of Education*, accessed May 25, 2022, <https://www.education.pa.gov/Teachers%20-%20Administrators/School%20Services/Pages/FIDAcceptedPrograms.aspx>.

Pennsylvania had 484,000 students without an adequate Internet connection, the eighth most unconnected state by population of K-12 students.²⁸ Eight percent of teachers nationwide lack the proper connection speed to conduct distance learning but only two to four percent lack access to necessary devices.²⁹ In Pennsylvania, 8,611 teachers lacked adequate Internet speeds and 2,321 teachers lacked necessary devices.³⁰ Common Sense concludes that the FCC's minimum broadband speed requirement of 25/3 Mbps is sufficient for online learning. However, the speeds students experience will vary depending on whether other members of their households utilize similar functions of connectivity at the same time.³¹

Not all advocacy groups agree that the FCC's minimum standard is sufficient for online learning. The Consortium for School Networking (CoSN) released a Student Home Connectivity Study that recommended new home connectivity standards to support virtual learning. CoSN studied student use of home connectivity at thirteen districts across the country. Approximately 89 percent of the network traffic was used for video and upload and download speed are both important for virtual learning. CoSN recommends raising the FCC minimum standard to 25/12 Mbps, an increase of 9 Mbps for upload speeds.³²

Another challenge for schools striving for equity in connectivity is technology support. In order to provide equitable connectivity, school districts should have adequate technology staff that can be responsive to the needs of students and teachers, at least during the remote school day. Schools can also provide online training modules for parents with lower digital literacy so that they can resolve small technical issues on their own.³³ East Penn School District in Emmaus, Pennsylvania created a web page for parents with instructions for accessing and troubleshooting various online applications students will use. This website also provides parents with information on publicly available WiFi and low-cost programs.³⁴

The American Rescue Plan established an Emergency Connectivity Fund of \$7.17 billion that will cover the cost of WiFi hotspots, modems, routers, devices that combine a modem and router and connected devices that will be used to close the Homework Gap while children are learning remotely. Schools can also fund the use of commercial broadband by students off campus, and in rare cases request funding for the construction of a new broadband network to be used for remote learning.³⁵ As of January 2022, the

²⁸ Ibid., 12.

²⁹ Ibid., 14.

³⁰ Ibid., 32.

³¹ Ibid., 16-17.

³² Keith Krueger, *Student Home Connectivity Study* (NSBA Advocacy Institute Online, June 8-10, 2021), <https://nsba.org/-/media/NSBA/File/nsba-student-home-connectivity-study-june-2021.pdf?la=en&hash=FD7E9BF034DAB9DA6327A369093DEC715D33213D>.

³³ "Robust Infrastructure," *All4Ed*, accessed January 12, 2021, <https://futureready.org/remote/#>.

³⁴ "eLearning Resources for Families," *East Penn School District*, accessed January 12, 2022, <https://sites.google.com/eastpennsd.org/epsdfamilytech/home>.

³⁵ "Emergency Connectivity Fund," *FCC*, accessed January 12, 2022, <https://www.fcc.gov/emergency-connectivity-fund>.

program had committed around \$4.2 billion of the available funds to recipients in “all 50 states and Guam, Puerto Rico, U.S. Virgin Islands, and the District of Columbia.”³⁶

Texas

Texas established Operation Connectivity to enable LEAs to bring connectivity to all public school students. First, LEAs will ask parents to describe their home connectivity in the registration process and distribute a survey to families to more fully examine the reasons for the lack of access. LEAs will then choose between four possible solutions to the connectivity gap: hotspots, ISP payments, low-cost ISP programs, or supplemental options. Each option has benefits and considerations which are explained in Operation Connectivity resources. Operation Connectivity also provides resources on operational and technical requirements for learning devices.³⁷

Operation Connectivity was able to negotiate a 40-50 percent savings for devices for schools by creating a new procurement process for digital devices and connectivity. The state focused on collecting information about schools’ technology needs and collecting information about providers and devices, and then negotiated competitive pricing for districts.³⁸ Through this process, Operation Connectivity brought Texas public schools to a 1:1 ratio of students to devices with 4.5 million new devices.³⁹ As of an August 2021 update, Operation Connectivity is continuing to identify areas of low access and adoption and attempting to increase adoption. It will also now move into a third phase that will focus on new broadband infrastructure and deployment.⁴⁰

New Hampshire

The New Hampshire School Connectivity Initiative (NHSCI) was established to coordinate collaboration between several agencies in bringing connectivity to public schools and students in New Hampshire. The official goals of the initiative are:

- Collaborate to bring fiber to New Hampshire Schools that need broadband connectivity.

³⁶ FCC, “FCC Commits Over \$361 Million in Additional Emergency Connectivity Fund Support to Connect Schools and Libraries,” News Release, January 10, 2022, <https://docs.fcc.gov/public/attachments/DOC-379057A1.pdf>.

³⁷ Operation Connectivity: Initial Connectivity Guidance for LEAs (SY 2020-2021), PowerPoint, accessed January 10, 2022, https://tea.texas.gov/sites/default/files/covid/operation_connectivity_playbook.pdf.

³⁸ *State Success IN K-12 Procurement of Connectivity and Devices: The Case of Texas* (Excelin Ed, April 2021), https://excelined.org/wp-content/uploads/2021/04/c3_Brief_DigitalEquity_TXStatewideProcurement_April2021.pdf.

³⁹ Divya Sridhar, “State Spotlight: Texas Sees Success in K-12 Procurement of Connectivity and Devices,” *ExcelinEd*, last modified April 7, 2021, <https://excelined.org/2021/04/07/state-spotlight-texas-sees-success-in-k-12-procurement-of-connectivity-and-devices/>.

⁴⁰ “UTEP Hosts Operation Connectivity in Efforts of Bringing More E-Learning Devices, Internet Access to Students,” *KTSM*, last modified August 21, 2021, <https://www.ksm.com/news/utep-hosts-operation-connectivity-in-efforts-of-bringing-more-e-learning-devices-internet-access-to-students/>.

- Help New Hampshire Schools close the homework gap through discount broadband access from local providers and refurbished devices for low-income students.
- Create strategies that enhance the utilization of E-Rate funds that are available to provide discounted communication services to schools and libraries across the state.⁴¹

NHSCI includes representatives from the New Hampshire Department of Education, UNH Broadband Mapping and Planning, the New Hampshire Department of Information Technology and the National Collaborative for Digital Equity.⁴² The initiative made an agreement with Education Superhighway to provide their services to New Hampshire public schools free of charge. The initiative collected data on the schools and identified those with the highest need, then created discussion and communication between schools and providers to find the best possible way to bring connectivity to each school.⁴³ A 2018 update on the program reported that the initiative was able to match federal E-Rate funding of four million dollars for K-12 fiber construction. In 2018, the number of schools without fiber was lowered to twenty-four percent from thirty-two percent the previous year.⁴⁴

California

After the pandemic closed schools in spring of 2020 and suddenly drove six million Californian students to remote learning, the Governor, First Partner, State Board President, State Superintendent and the Californians Dedicated to Education Foundation created the Bridging the Digital Divide Fund. This partnership was able to raise \$18.4 million from 138 donors from spring of 2020 to spring of 2021.⁴⁵ The funds were used to buy technology for schools, primarily those in low-income areas and rural areas. The program was able to distribute “5,884 Chromebooks, 1,103 Google management licenses, 70 wireless mice, 15 printers and four \$500 drawing tablets,” which went to 214 districts and 47 charter schools.⁴⁶

⁴¹ “New Hampshire School Connectivity Initiative,” *New Hampshire Educators Online*, accessed January 10, 2022, <http://nheon.org/nhsci/>.

⁴² Ibid.

⁴³ “New Hampshire School Connectivity Initiative,” *University of New Hampshire*, accessed January 10, 2022, <https://www.unh.edu/it/it-annual-report/new-hampshire-school-connectivity-initiative>.

⁴⁴ “NH School Connectivity Initiative 2018 Update,” *University of New Hampshire*, accessed January 10, 2022, <https://www.unh.edu/it/nh-school-connectivity-initiative-2018-update>.

⁴⁵ “CA Digital Divide Fund,” *California Department of Education*, accessed January 14, 2022, <https://cdefoundation.org/digitaldividesupport/>.

⁴⁶ A California Program Spent Millions on Devices for Distance Learning. Here’s Where it Went,” *The Mercury News*, last modified May 17, 2021, https://www.cetfund.org/wp-content/uploads/2021/05/210516_mercurynews_edsource_California-program-spent-millions-on-devices-for-distance-learning.pdf.

Separately, the Partnership for Los Angeles Schools provided free home internet for more than 400 families with nineteen partnership schools with a pilot program called Students Connected. Families are provided internet with speeds of 50/5 Mbps for free through the Partnership's negotiation with ISPs. This program utilizes the school network to reach out to the community to make families aware of the program. Ninety-six percent of the families in the program activated their modem within one week of receiving it and 92 percent were satisfied with the connection it provided.⁴⁷

A statewide survey of California families found that 17 percent of responding families received Internet access through their school district. For low-income families alone, the share was 22 percent. When families were asked if they would subscribe to the Internet service on their own, 70 percent of families said they "definitely" or "most likely" would.⁴⁸ When asked if they were aware of low-cost Internet programs available, only 34 percent of families with children in school said yes. Households without children had a higher threshold of knowledge of these programs with 43 percent being aware of them. These survey results indicate that a partnership between schools and providers to educate families on what services are available could increase subscriptions in these communities.⁴⁹

Illinois

Chicago launched Chicago Connected on June 25, 2020. Chicago Connected is a \$50 million four-year public-private partnership that will provide free internet to families with the highest need. The first two years of the program will be funded by a combination of public and private funds and the third and fourth years will be funded by Chicago Public Schools.⁵⁰ Households can qualify for the program if they qualify for free or reduced lunch. Community-based organizations will receive funding to do outreach to connect households to the internet and provide digital literacy training for families.⁵¹

In 2021, the program served 64,000 students and 42,000 households. Students participating in the program had attendance rates 0.5 percent higher than the average district attendance rate. Seventy-one percent of families utilized the internet connection to communicate with others and to search the internet. Families expressed that they wanted to use the internet to do things like continue their education, find a new job, get a promotion at their current jobs and get certifications to become more marketable. Eighty-two percent

⁴⁷ *Students Connected: A Model Program Providing Broadband Internet Service to LA Families* (Partnership for Los Angeles Schools), <https://partnershipla.org/wp-content/uploads/2021/06/Students-Connected-one-pager.pptx-1.pdf>.

⁴⁸ *Statewide Broadband Adoption Survey: Closing the Homework Gap in California: Promoting Broadband for K-12 Families Beyond the Pandemic* (CETF-USC, April 2021), http://arnicusc.org/wp-content/uploads/2021/05/CETF-USC_Statewide_Broadband_Adoption_Survey_3.pdf, 4-5.

⁴⁹ *Ibid.*

⁵⁰ Kids First Chicago, "Public-Private Education Partners Come Together to Close Chicago's Digital Divide," Press Release, June 25, 2020, <https://static1.squarespace.com/static/5b212dce5417fcd9ddec5349/t/5ef4e6f4f159c74e4e363c11/1593108212727/20200625+K1C+Press+Release+on+Chicago+Connected+vF+%283%29.pdf>.

⁵¹ "Chicago Connected," *Kids First Chicago*, accessed January 18, 2022, <https://kidsfirstchicago.org/chicago-connected>.

of respondents reported satisfaction with the Chicago Connected program. Sixty-seven percent of respondents expressed interest in a digital literacy program and Chicago Connected is working on implementing training that would include “self-paced resources, live trainings from local community-based organizations, and access to citywide, one-on-one tech support.”⁵²

Virginia

Albemarle County Public School (ACPS) has provided home connectivity for students by leasing 2.5 GHz spectrum. The 2.5 GHz band was originally reserved for educational institutions to use for expanding connectivity in their district but was made available for commercial bidding by the FCC in 2019. Schools that are licensed in this band can provide their own connection to students or lease to an ISP that will provide connection for students.⁵³ ACPS leased the band to an ISP and the resulting network utilizes cellular wireless communication systems to provide connectivity. One school receives the 5GHz microwave and the rest of the schools and data centers are connected through fiber. Three schools then use radio towers to provide high-speed wireless internet to the surrounding households. The network covers 726 square miles and serves 1,175 students while also providing connectivity to households in the area without students. The project cost \$500,000, or \$689 per square mile.⁵⁴

Funding for Remote Learning in Pennsylvania

In August of 2021, Pennsylvania was given \$1.6 billion in pandemic relief funds after submitting Pennsylvania’s American Rescue Plan Elementary and Secondary School Emergency Relief (ARP ESSER) plan to the U.S. Department of Education. The plan identified three major needs: “developing student and educator and staff mental health supports; strengthening access and equity of remote learning, which has led to instructional and learning inequities; and addressing staffing shortages and other staffing challenges.”⁵⁵ Connectivity and technology knowledge were listed as a high priority need for several different student groups in Pennsylvania’s ARP ESSER Plan.⁵⁶

⁵² *Chicago Connected: 2021 Program Impact Report* (Kids First Chicago, 2021), <https://static1.squarespace.com/static/5b212dce5417fcd9ddec5349/t/60d0aa0d68579e7a02ab86d9/1624287763153/2021-Chicago+Connected+-+Year+Review-vF-WEB.pdf>.

⁵³ “Background,” *Office of Educational Technology*, accessed January 19, 2022, <https://tech.ed.gov/wireless-brief/background/>.

⁵⁴ “School District Wireless Network Models,” *Office of Educational Technology*, accessed January 19, 2022, <https://tech.ed.gov/wireless-brief/network-models/>.

⁵⁵ “Wolf Administration Announces Additional \$1.6 Billion in Federal Relief for Schools,” Press Release, August 6, 2021, <https://www.media.pa.gov/pages/education-details.aspx?newsid=1169>.

⁵⁶ *Pennsylvania ARP ESSER State Plan: American Rescue Plan Elementary and Secondary School Emergency Relief Fund* (Pennsylvania Department of Education, July 2021), <https://www.education.pa.gov/Documents/K-12/Safe%20Schools/COVID/CARESAct/Pennsylvania%20ARP%20ESSER%20Plan.pdf>, 9-11.

To access this funding, LEAs must submit an application with the following sections:

- Assessing Impacts and Needs;
- Engaging Stakeholders in Plan Development (discussed above);
- Using ARP ESSER Funds to Plan for Safe, In-Person Instruction;
- Proposed Budget and Timeline;
- Monitoring and Measuring Progress, and
- ARP ESSER Fund Assurances.⁵⁷

LEAs must also demonstrate stakeholder engagement in the process. Stakeholders could be “students, families, public, school and district administrators (including special education administrators), teachers, principals, school staff, and school unions.”⁵⁸ LEAs must also consult with “tribes, civil rights organizations, English learners representatives, children experiencing homelessness representatives, foster care representatives, migratory students representatives, incarcerated children representatives, and other underserved students representatives.”⁵⁹ ARP ESSER funds must be used on expenses that occurred after March 13, 2020, twenty percent of the funds must be used for addressing learning loss that occurred during the pandemic, and 80 percent can be used for a range of costs including educational technology.⁶⁰

E-Rate Changes

The E-Rate program implemented several changes in FY 2021 that have continued in FY 2022. It is the second year of the new five-year budget cycle which provides \$167 per full-time student and has an increased Category 2 expense budget of \$25,000. The FCC is considering additional changes to the system, though they are administrative changes. On January 27, 2022, the FCC issued a Notice of Proposed Rulemaking (NPRM) that would require providers to submit bids through a central repository instead of communicating directly with applicants. The goal of this change would be to minimize the risk of fraud, which was identified by the Government Accountability Office (GAO). The FCC’s proposed rulemaking change would require bidders to submit the bids to a central document repository and establish a time frame during which the USAC would withhold the bids from applicants. This policy would, according to the FCC, bring about more transparency for the process and less chances for fraud in compliance in the competitive

⁵⁷ Ryan Gonder, “The Pennsylvania School Board Director’s Quick-Guide to ARP ESSER/ESSER III Funding,” *McNeese Public Sector*, last modified September 8, 2021, <https://www.mcneespublicsector.com/2021/09/the-pennsylvania-school-board-directors-quick-guide-to-arp-esser-esser-iii-funding/>.

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

bidding process. Currently, applicants “must wait at least 28 days from the posting of their FCC Form 470 before entering into an agreement with a service provider.”⁶¹ However, applicants are able to access bids as soon as they are submitted. The Office of the Inspector General (OIG) recommended in 2017 that bids be held in a repository for 28 days to ensure a “level playing field” for bidders.⁶² The NPRM asked stakeholders to comment on the usefulness and feasibility of a centralized document repository and bidding window. The NPRM asked for comment by March 28, 2022 and reply comments will be due on April 27, 2022.⁶³ If the rulemaking is adopted, this new portal would not go into effect until July of 2023 in anticipation of FY 2024.⁶⁴

On May 12, 2022, FCC Chairwoman Jessica Rosenworcel introduced a declaratory ruling that would clarify the educational role of WiFi on school buses and make related expenses eligible for E-Rate funding.⁶⁵ The ruling notes that \$35 million in COVID-19 relief funding has been used to install WiFi on school buses and the investment of funding into such installations is a “substantial benefit” to the students.⁶⁶ Additionally, in recent years the actual E-Rate funding distributed has not met the established funding cap, indicating that the E-Rate budget could withstand additional eligible expenses that benefit students.⁶⁷

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.”⁶⁸ The Connecting Minority Communities Pilot Program Final Rule acknowledges the importance of anchor institutions, especially those 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.

⁶¹ “Promoting Fair and Open Competitive Bidding in the E-Rate Program,” *Federal Register*, last modified January 27, 2022, <https://www.federalregister.gov/documents/2022/01/27/2022-00684/promoting-fair-and-open-competitive-bidding-in-the-e-rate-program>.

⁶² *Ibid.*

⁶³ *Ibid.*

⁶⁴ “FCC Proposes to Mandate Nationwide Bidding Portal,” *E-Rate in Pennsylvania*, last modified January 27, 2022, <http://e-ratepa.org/?p=34040>.

⁶⁵ FCC, “Chairwoman Rosenworcel Circulates Ruling Making Wi-Fi on School Buses Eligible for E-Rate Funding,” News Release, May 11, 2022, <https://docs.fcc.gov/public/attachments/DOC-383230A1.pdf>.

⁶⁶ *Ibid.*

⁶⁷ *Ibid.*

⁶⁸ 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>.

households and a gateway to increased productivity, growth and market access for businesses of all sizes.”⁶⁹ 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.⁷⁰

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.”⁷¹ The National Telecommunications and Information Administration began accepting applications in August of 2021 and the application deadline was December 1, 2021.⁷²

⁶⁹ “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.

⁷⁰ *Ibid.*

⁷¹ *Ibid.*

⁷² NTIA Office of Public Affairs, “Department of Commerce’s NTIA to Begin Accepting Applications.”

UPDATE: HEALTHCARE

The U.S. Department of Health and Human Services defines telehealth as “the use of electronic information and telecommunication technologies to support long-distance clinical health care, patient and professional health-related education, health administration, and public health.”⁷³ Three types of telehealth include: real-time communication (allows patients to connect synchronously with providers through videoconference); store-and-forward (transmission of data, images, sound or video from one care site to another for evaluation); and remote patient monitoring (collecting a patient’s vital signs or other health data while patient is at home or another site and transferring this data to a remote provider for monitoring and response as needed).⁷⁴ Mobile Health (mHealth) is an emerging telehealth application encompassing health education, information, or other services through a mobile device.⁷⁵

Patient benefits of telehealth include the following: increases access to both primary and specialty care in a timely manner without the necessity of travel; reduces exposure to other illnesses (including COVID-19), which may be more prevalent in health care settings; lowers patient’s costs, including the burdens associated with lost work time, transportation, and child care; and reduces wait times to see providers, particularly specialists.⁷⁶

In addition, providers benefit from telehealth by building and supplementing workforce capacity in rural areas where recruiting and retaining health care providers is challenging; allowing primary care providers to prescribe necessary specialty care which may not be readily available; facilitating consultations between local and remote providers; and allowing providers to offer care in patient homes, hospitals, and offices.⁷⁷

⁷³ “What is Telehealth?,” *U.S. Health Resources & Administration*, accessed June 2, 2022, <https://www.hhs.gov/hipaa/for-professionals/faq/3015/what-is-telehealth/index.html#:~:text=The%20Health%20Resources%20and%20Services%20Administration%20%28HSA%29%20of,health-related%20education%2C%20and%20public%20health%20and%20health%20administration.>

⁷⁴ Sydne Enlund, “What is Telehealth?,” *National Conference of State Legislatures*, July 2021, accessed June 2, 2022, https://www.ncsl.org/Portals/1/Documents/Health/What-is-Telehealth_36242.pdf.

⁷⁵ “State Telehealth Policies,” *National Conference of State Legislatures*, accessed June 2, 2022, <https://www.ncsl.org/research/health/state-coverage-for-telehealth-services.aspx>.

⁷⁶ Enlund, “What is Telehealth?”

⁷⁷ *Ibid.*

“Since the beginning of the COVID-19 Public Health Emergency, CMS [The Centers for Medicare & Medicaid Services] has issued an unprecedented array of temporary regulatory waivers and new rules to equip the American healthcare system with maximum flexibility to respond to the 2019 Novel Coronavirus (COVID-19) pandemic.”⁷⁸ One of the goals of these actions includes “increase access to telehealth in Medicare to ensure patients have access to physicians and other clinicians while keeping patients safe at home.”⁷⁹

In May 2021, The Centers for Medicare & Medicaid Services released a resource titled *Rural Crosswalk: CMS Flexibilities to Fight COVID-19*,⁸⁰ outlining available telehealth and other virtual services including:

- expanding reimbursement for beneficiary location (patient’s place of residence);
- approving additional telehealth services (approved more than 135 new telehealth services “including emergency department visits, initial and subsequent observation, initial hospital care and hospital discharge day management, initial nursing facility visits, critical care services, intensive care services, therapy services”⁸¹);
- approving virtual check-ins; remote evaluations, and e-visits (including services by licensed clinical social workers, clinical psychologists, physical therapists, occupational therapists, and speech language pathologists);
- approving remote patient monitoring (services can be provided for both acute and chronic conditions, now including for patients with only one disease);
- approving removal of frequency limitations on Medicare telehealth;
- expanding eligible practitioners for reimbursement of services (including physical therapists, occupational therapists, speech language pathologists, and others);
- expanding practitioner locations (waiving Medicare requirement that providers be licensed in the state where the service is provided);

⁷⁸ “Rural Crosswalk: *CMS Flexibilities to Fight COVID-19*,” *Centers for Medicare & Medicaid Services*, 1, May 2021, accessed June 2, 2022, <https://www.cms.gov/files/document/omh-rural-crosswalk-5-21-21.pdf>.

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*

⁸¹ *Ibid.*, 2.

- allowing expanded sites to serve as approved distant sites for telehealth (including a provider’s home);⁸²
- allowing providers to serve patients in nursing facilities;
- allowing audio-only telehealth for certain services;
- allowing registered dietitians and nutrition professionals to bill for audio-only telephone assessment; and
- approving reimbursement for hospital outpatient fees accompanying professional services.⁸³

To further support telehealth services, the U.S. Department of Health and Human Services Office for Civil Rights has issued this guidance: “HIPPA-covered health care providers may, in good faith, provide telehealth services to patients using remote communication technologies-- such as commonly used apps including FaceTime, Facebook Messenger, Google Hangouts, Zoom, or Skype--- for telehealth services, even if the application does not fully comply with HIPPA rules. However, providers should not use any platforms that are public-facing—for instance, Facebook Live and Twitch—to provide telehealth.”⁸⁴

To further support the development of telehealth services, the federal government has developed a wealth of resources. The U.S. Department of Health and Human Services Health Resources and Services Administration Office for the Advancement of Telehealth funds The National Consortium of Telehealth Resource Centers (NCTRC). “Since 2017, the NCTRC has been dedicated to collaboratively expanding the research of healthcare, supporting the building of sustainable telehealth programs and improving health outcomes.”⁸⁵ Working collaboratively to connect telehealth stakeholders at local, state, and federal levels, NCTRC provides the following expert technical assistance: “design and execution of needs assessments, identification of funding sources, strategic and business planning, selection and use of various telehealth technologies, policy analysis and guidance, and program evaluation.”⁸⁶

⁸² “2019-Novel Coronavirus (COVID-19) Medicare Provider Enrollment Relief Frequently Asked Questions (FAQs),” *The Centers for Medicare & Medicaid Services*, accessed June 2, 2022, <https://www.cms.gov/files/document/provider-enrollment-relief-faqs-covid-19.pdf>.

⁸³ “Rural Crosswalk: *CMS Flexibilities to Fight COVID-19*,” 2-4.

⁸⁴ “Telehealth: Delivering Care Safely During COVID-19,” *U.S. Department of Health & Human Services*, accessed June 2, 2022, <https://telehealth.hhs.gov/>.

⁸⁵ “National Consortium Of Telehealth Resource Centers Annual Report 2020,” *National Consortium of Telehealth Resource Centers*, accessed June 2, 2022, https://3f9znz109u3oybcpa3vow591-wpengine.netdna-ssl.com/wp-content/uploads/2021/02/NCTRC_AR2020_FINAL.pdf.

⁸⁶ *Ibid.*, 8.

In 2020, NCTRC’s Telehealth Technology Assessment Resource Center assisted with identifying geographical areas lacking broadband access impeding telehealth delivery, “most specifically in rural communities.”⁸⁷ In addition, NCTRC’s Center for Connected Health Policy has developed numerous resources including factsheets, YouTube videos, and email alerts to inform providers about specific policy changes in the Medicare program. Plus, the Center for Connected Health Policy has created a “more user-friendly experience and updates on a minute-by-minute basis with the latest information on telehealth legislation and regulation as it moves through the policy process.”⁸⁸

*Encouraging the Use of Telepsychiatry*⁸⁹

The use of telemedicine services for mental health treatment is generally referred to as “telepsychiatry.” The American Psychiatric Association has identified telepsychiatry as a subset of telemedicine. According to the American Psychiatric Association, telepsychiatry can provide “a range of services including psychiatric evaluations, therapy (individual therapy, group therapy, family therapy), patient education and medication management.” Telepsychiatry can involve direct interaction between a psychiatrist and the patient. The practice itself also encompasses psychiatrists supporting primary care providers with mental health care consultation and expertise.⁹⁰

As telemedicine advanced, the practice of telepsychiatry became more commonly used to treat mental health needs. For example, the U.S. Department of Veterans Affairs began using interactive, remote patient monitoring, and store-and-forward telemedicine to provide psychotherapy, psychiatric diagnostic interview examinations, and medication management to veterans battling depression and post-traumatic stress disorder as well for those with end stage conditions such as renal disease.⁹¹ Secondary schools have also started utilizing telemedicine to address the mental health conditions showing up in adolescents.⁹²

⁸⁷ Ibid., 12.

⁸⁸ Ibid.

⁸⁹ Joint State Government Commission, “Pennsylvania Mental Health Care Workforce Shortage: Challenges and Solutions,” (June 2020), accessed June 2, 2022, http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2020-06-04%20HR193_Mental%20Health%20Workforce.pdf, 106.

⁹⁰ American Psychiatric Association, “What is Telepsychiatry?” accessed June 30, 2022, <https://psychiatry.org/patients-families/telepsychiatry>.

⁹¹ America’s Health Insurance Plans, “Telehealth Connects Patients and Doctors in Real Time,” Issue Brief, (Nov. 2017), 4, https://www.ahip.org/wp-content/uploads/2017/11/Telehealth_IssueBrief_11.20.17.pdf.

⁹² Joint State Government Commission, “Pennsylvania Health Care Workforce Needs,” (April 2019), 112.

Growing Demand for Telepsychiatry⁹³

Telemedicine has the potential to improve access to health care in the Commonwealth — especially in rural regions — because it eliminates many of the common access barriers found in underserved areas such as lack of primary care physicians and specialists, sparse population, geographic remoteness, limited financial resources, and inclement weather.⁹⁴

Telepsychiatry offers additional benefits beyond improving access to psychiatric care. For instance, while one limitation of telemedicine in other contexts tends to be the lack of in-person contact between patient and provider, mental health diagnosis and therapy are generally conducted by interview without a physical examination. Therefore, the general absence of a need to undergo a physical examination makes telemedicine an ideal practice for mental health care.⁹⁵

Further, telepsychiatry can bring the provider to the patient, and “the ease of accessing a provider at a nearby facility or even in the home can facilitate treatment initiation and engagement.”⁹⁶ Telemedicine provided directly to a patient while the patient is in the comfort and privacy of their own home can alleviate a patient’s fear of potential public stigma associated with venturing out to a hospital or mental health facility.

Other benefits of telepsychiatry include reducing delays in care, reducing needed trips to the emergency room for mental health issues, improving the continuity of care and physician follow-up, reducing the need to take time off from work or school or find childcare, and potentially helping to integrate primary medical care with mental health care.⁹⁷

COVID-19 Telehealth Program

To address the significant costs associated with developing and utilizing telehealth services, the Federal Communications Commission continues to administer the COVID-19 Telehealth Program through Round 2 awards. Pursuant to Round 2, a total of 19 Pennsylvania institutions captured \$10,609,096 in funding opportunities. On August 26,

⁹³ Joint State Government Commission, “Pennsylvania Mental Health Care Workforce Shortage: Challenges and Solutions,” (June 2020), 107-108.

⁹⁴ Joint State Government Commission, “Pennsylvania Health Care Workforce Needs,” (April 2019), 109.

⁹⁵ Joint State Government Commission, “Pennsylvania Mental Health Care Workforce Shortage: Challenges and Solutions,” (June 2020), 107-108.

⁹⁶ Milcahel L. Barnett and Haiden A. Huskamp, “Telemedicine for Mental Health in the United States: Making Progress, Still a Long Way to Go,” *Psychiatry Online*, 71 no. 2, (Dec. 18, 2019): 197-198, doi: 10.1176/appi.ps.201900555.

⁹⁷ “What is Telepsychiatry?” *American Psychiatric Association*, accessed June 30, 2022, <https://psychiatry.org/patients-families/what-is-psychiatry>.

2021, the Federal Communications Commission announced it “commits \$41,980,345 in funding to 62 health care providers in every state, territory, and the District of Columbia.”⁹⁸

Allegheny Health Network in Pittsburgh was awarded \$999,910 to acquire, deploy, and support telehealth connected devices such as tablets and video platform hardware to enable video visits with patients in medically underserved communities that have been particularly vulnerable during the pandemic.⁹⁹

On September 29, 2021, the Federal Communications Commission approved additional applications for Round 2 of its COVID-19 Telehealth Program, including these eight Pennsylvania institutions:

The Brighter Beginnings Richmond Family Health Clinic in Philadelphia, Pennsylvania was awarded \$1,000,000 for remote psychological monitoring devices, connected telehealth solutions, tablets, and laptops to help patients manage chronic conditions at home, and telehealth devices that allow virtual video visits.

Centerville Clinics in Fredericktown, Pennsylvania was awarded \$224,204 to purchase phone systems, workstations for telehealth devices, and upgraded virtual storage, allowing providers to perform faster telehealth visits and handle the increased call volume due to the COVID-19 pandemic.

Community Health Net in Erie, Pennsylvania was awarded \$327,661 for telehealth devices that will allow for remote evaluations from digitally connected exam rooms and management of remote patient encounters.

East Liberty Family Health Care Center in Pittsburgh, Pennsylvania was awarded \$427,782 to purchase laptops, monitors, and enhanced network equipment establish secure telehealth services for patients during the COVID-19 pandemic, including addressing medical, dental, and behavioral health care needs.

The Guthrie Clinic in Troy, Pennsylvania, was awarded \$949,721 to purchase telehealth equipment to facilitate a variety of remote health care services including tele-ICU consultations with specialists for COVID-19 patients, remote continuous monitoring (tele-sitting) for senior patients, and increased access to primary and specialty care for non-COVID-19 patients.

Indiana Regional Medical Center in Indiana, Pennsylvania was awarded \$295,298 to purchase laptops for physicians when engaging patients directly, and telemedicine carts that help connect physicians to the patients remotely.

⁹⁸ “FCC Announces New COVID-19 Telehealth Program Awards Totaling Nearly \$42 Million to Health Care Providers In Every State and Territory,” *Federal Communications Commission*, accessed June 2, 2022, <https://docs.fcc.gov/public/attachments/DOC-375244A1.pdf>; FCC Public Notice, *Federal Communications Commission*, August 26, 2021, accessed June 2, 2022, <https://docs.fcc.gov/public/attachments/DA-21-1052A1.pdf>.

⁹⁹ *Ibid.*

Philadelphia FIGHT in Philadelphia, Pennsylvania was awarded \$399,183 for tablets to support remote access to clinical information systems (including electronic medical/health records), facilitate telehealth visits with patients, and grant health care providers access to the tools necessary to ensure quality continuity of care during the pandemic.

Wayne Memorial Community Health Centers in Honesdale, Pennsylvania was awarded \$421,883 to purchase cameras and headphones to better communicate with patients, and ultrasound machines to provide patients obstetrical tests, all while supporting virtual communication for telehealth visits.¹⁰⁰

On October 21, 2021, the Federal Communications Commission announced it has approved more than \$123.5 million in applications for Round 2 of its COVID-19 Telehealth Program (nearly half of the amount allocated in the 2021 Consolidated Appropriations Act).¹⁰¹ “Round 2 is a \$249.95 million federal initiative that builds on the \$200 million program established as part of the CARES Act. As outlined in the Round 2 Report and Order, once \$150 million in funding has been committed, the FCC’s Wireline Competition Bureau will announce an opportunity for all remaining applicants to supplement their applications, as required by Congress. After all remaining applicants have the opportunity to supplement, the remaining program funding will be committed.”¹⁰² Three Pennsylvania institutions received funding as part of these awards:

DuBois Regional Medical Center in DuBois, Pennsylvania was awarded \$530,800 to purchase a telemedicine platform and equipment that will improve remote in-home monitoring, increase access to physicians without requiring patients to travel, and encourage better compliance with medications and care recommendations.

Family First Health Corporation in York, Pennsylvania was awarded \$620,510 for telehealth devices and software, including laptops, cameras, headsets, and video platform licenses, to support the delivery of telehealth to their patients during the COVID-19 pandemic by enabling remote communication between patients and medical providers.¹⁰³

¹⁰⁰ Federal Communications Commission, “FCC Announces New COVID-19 Telehealth Program Awards Totaling more Than \$41.11 Million To Health Care Providers,” September 29, 2021, accessed June 2, 2022, DOC-376153A1.pdf.

¹⁰¹ Federal Communications Commission, “FCC Announces An Additional \$40.46 Million Awarded As Part of COVID-19 Telehealth Program,” October 21, 2021, accessed June 2, 2022, <https://docs.fcc.gov/public/attachments/DOC-376784A1.pdf>.

¹⁰² Ibid.

¹⁰³ Ibid.

On November 9, 2021, as part of the fourth group of funding for Round 2 of the COVID-19 Telehealth Program, four Pennsylvania institutions received funding as part of these awards:

Broad Top Area Medical Center in Broad Top, Pennsylvania was awarded \$354,602 for remote patient monitoring devices, including digital blood pressure and glucose monitors to assist patients with disease management, computers and connected devices to enable point-to-point telehealth audio/visual appointments, and a telehealth platform to permit screensharing, document and file-sharing, text messaging appointment reminders, and payment processing.

Children’s Hospital of Philadelphia was awarded \$869,672 to fund three critical streams of work at CHOP: improving its telemedicine platform, expanding its capabilities in remote monitoring for medically complex patients, and addressing digital health disparities for priority populations. The funds will help CHOP to improve telehealth equity, accessibility, and usability for the 500,000 patients who seek care at CHOP annually, and the 2,400 providers who serve them. In addition, CHOP will utilize these funds to improve its existing telehealth capabilities with the Indian Health Service.

Kirkland Village in Dillsburg, Pennsylvania was awarded \$1,000,000 for equipment to support social distancing guidelines and allow remote clinicians to work with point-of-care staff to examine, diagnose, and treat patients across 12 skilled nursing homes.

The Wright Center Medical Group in Scranton, Pennsylvania was awarded \$491,814 to purchase laptops and telehealth software which will allow for the delivery of timely patient care via telehealth.¹⁰⁴

On December 21, 2021, the Federal Communications Commission Wireline Competition Bureau announced the fifth group of funding under Round 2 of the COVID-19 Telehealth Program, including

Monongahela Valley Hospital in Monongahela, Pennsylvania was awarded \$498,726 for the purchase of remote patient monitoring devices to improve the health of patients and reduce their risk of COVID-19 exposure.¹⁰⁵

¹⁰⁴ Federal Communications Commission, “FCC Reaches \$150 Million Benchmark for COVID-19 Telehealth Program Round 2,” November 9, 2021, accessed June 2, 2022, <https://docs.fcc.gov/public/attachments/DOC-377691A1.pdf>.

¹⁰⁵ Federal Communications Commission, “FCC Awards Additional \$42.7 Million In Round 2 of COVID-19 Telehealth Program,” December 21, 2021, accessed June 2, 2022, <https://docs.fcc.gov/public/attachments/DOC-378809A1.pdf>.

On January 26, 2022, The Federal Communications Commission “approved an additional 100 applications for funding commitments totaling \$47.89 million for its COVID-19 Telehealth Program. This is the FCC’s sixth and final funding announcement of approved Round 2 applications.”¹⁰⁶ Three Pennsylvania institutions received funding:

Multi-Cultural Health Evaluation Delivery System in Erie, Pennsylvania was awarded \$80,137 to purchase computers, tablets, phones, and remote monitoring devices to allow providers, interpreters, and patients to connect more easily with each other and to have a higher level of quality for telehealth visits.

Primary Care Health Services, Inc., in Pittsburgh, Pennsylvania was awarded \$321,183 to purchase laptops, computers, monitors, internet connectivity, monitoring and management software, and telehealth carts to continue to provide remote care to vulnerable populations and encourage vulnerable populations to stay home to reduce the spread of COVID-19.

St. Luke's Hospital in Bethlehem, Pennsylvania was awarded \$796,010 to purchase tablets and virtual consultation system equipment, to provide consistent telehealth care and increased specialty care across a large geographic service area and to decrease delays to receiving care.¹⁰⁷

Administered by the Federal Communications Commission Wireline Competition Bureau, the COVID-19 Telehealth Program is a reimbursement program, not a grant. “To receive reimbursements, healthcare providers are required to submit an invoice form and supporting documentation to receive reimbursement for eligible telemedicine and mHealth expenses and services.”¹⁰⁸ In addition the Federal Communication Commission is responsible for the Connected Care Pilot Program, a \$100 million project aimed at helping healthcare organizations launch or expand connected health projects to improve access to care for underserved populations and veterans.¹⁰⁹

The Centers for Disease Control and Prevention supports the benefits: “Telehealth can facilitate access to care, reduce rate for transmission of [COVID-19], conserve scarce medical supplies, and reduce strain on health care capacity and facilities while supporting continuity of care.”¹¹⁰ On March 6, 2020, Governor Wolf issued an emergency disaster declaration in response to the presence of the COVID-19 (coronavirus) in Pennsylvania. Pursuant to this disaster declaration, the Office of Medical Assistance Programs (OMAP)

¹⁰⁶ Federal Communications Commission, “FCC Announces Final Group of COVID-19 Telehealth Program Awards,” January 26, 2022, accessed June 2, 2022, <https://docs.fcc.gov/public/attachments/DOC-379636A1.pdf>.

¹⁰⁷ Ibid.

¹⁰⁸ “FCC Announces 3rd Group of COVID-19 Telehealth Program Awards,” *mHealth Intelligence*, accessed June 2, 2022, <https://mhealthintelligence.com/news/fcc-announces-3rd-group-of-covid-19-telehealth-program-awards>.

¹⁰⁹ Ibid.

¹¹⁰ HB Demeke, S Merali, S Marks, et al. “Trends in Use of Telehealth Among Health Centers During the COVID-19 Pandemic — United States, June 26–November 6, 2020,” *MMWR* 70 (2021):240–244, doi: 10.15585/mmwr.mm7007a3.

is issuing this guidance to advise providers that telemedicine may be used to provide services to Medicaid fee-for-service beneficiaries and Physical HealthChoices members.¹¹¹

The Pennsylvania Department of Human Services is providing direct services via telemedicine in the School-Based ACCESS Program during the COVID-19 Emergency. The covered services include audiology services, hearing-impaired services, nurse practitioner services, occupational therapy services, orientation, mobility and vision services, physician services, physical therapy services, psychiatric services, psychological services, social work and counseling services, and speech and language services.¹¹²

COVID-19 Public Health Emergency Extended

On April 16, 2022, the U.S. Department of Health and Human Services extended the public-health emergency an additional 90 days through July 15, 2022,¹¹³ continuing expanded pandemic-era telehealth policies through both Medicare and Medicaid, including the Children’s Health Insurance Program.¹¹⁴ On March 15, 2022, President Biden signed into law the Consolidated Appropriations Act, 2022.¹¹⁵ “The Act extends certain telehealth flexibilities for Medicare patients for 151 days after the official end of the federal public emergency.”¹¹⁶ This newly adopted law will allow Congress an opportunity to review Centers for Medicare and Medicaid Services’ data regarding the use of telehealth and the potential opportunity to enact permanent policy changes.

The Consolidated Appropriations Act, 2022 affects the telehealth industry by expanding Medicare telehealth coverage after the public health emergency terminates for an additional 151 days in the following areas:

- Expands the “originating site” to include an individual’s home. (Prior to the public-health emergency, Medicare required covered services to be delivered to patients located at hospitals and other provider facilities.)

¹¹¹ “Telemedicine Guidelines Related to COVID-19,” *Pennsylvania Department of Human Services*, accessed June 2, 2022,

<https://www.dhs.pa.gov/providers/Providers/Documents/Coronavirus%202020/COVID-19%20Telemedicine%20Guidance%20Quick%20Tip%20.pdf>.

¹¹² “Providing Direct Services Via Telemedicine in the School-Based ACCESS Program during the COVID-19 Emergency,” *Pennsylvania Department of Human Services*, accessed June 2, 2022, <https://www.dhs.pa.gov/coronavirus/Pages/OMAP-Direct-Services-via-Telemedicine-in-SBAP.aspx>.

¹¹³ “Renewal of Determination That A Public Health Emergency Exists,” *Office of the Assistant Secretary for Preparedness & Response, U.S. Department of Health & Human Services*, accessed June 2, 2022, <https://aspr.hhs.gov/legal/PHE/Pages/COVID19-14Jan2022.aspx>.

¹¹⁴ “Managed Care Ops Memo 04/2020-009: Telemedicine Guidelines Related to COVID-19,” *Pennsylvania Department of Human Services*, accessed June 2, 2022,

<https://www.dhs.pa.gov/coronavirus/Pages/OMAP-Telemedicine-Guidelines.aspx>.

¹¹⁵ Consolidated Appropriations Act, 2022, Pub. L. No. 117-103, 136 Stat. 49 (2022).

¹¹⁶ Thomas B. Ferrante, Rachel B. Goodman, “Congress Extends Telehealth Flexibilities: 7 Things You Need to Know,” *Health Care Law Today* (blog), March 17, 2022, accessed June 2, 2022, <https://www.foley.com/en/insights/publications/2022/03/congress-extends-telehealth-flexibilities-7-things>.

- Expands telehealth practitioners to include qualified occupational therapists, physical therapists, speech language pathologists, and audiologists. (Prior to the public-health emergency, only physicians, nurse practitioners, physician assistants, and other specified providers could deliver telehealth services covered by Medicare.)¹¹⁷
- Covers Medicare audio-only telehealth under public-health emergency temporary waivers.
- Delays until 152nd day after the public-health emergency sunsets, the Medicare in-person examination requirement alongside coverage of telemental health services at a patient’s home. (An in-person examination will be required within six months of the first telehealth service and subsequent visits every 12 months thereafter.)
- Extends federal qualified health centers and rural health clinics to serve as distant sites (location of the practitioner) for Medicare reimbursement.
- Extends flexibility for coverage for telehealth services through High Deductible Health Plans and health savings accounts, allowing “coverage for telehealth services without plan members incurring costs even before plan members’ deductibles are met (i.e. first-dollar coverage)...this flexibility is reinstated for the period of March 31, 2022 through December 31, 2022.”¹¹⁸

The new Act directs the Medicare Payment Advisory Commission (MedPAC) to conduct a study on the expansion of telehealth services and to analyze: (i) the utilization of telehealth; (ii) Medicare program expenditures on telehealth services; (iii) Medicare payment policies for telehealth services and alternate approaches to such payment policies; (iv) implications of expanded Medicare coverage of telehealth services on beneficiary access to care and the quality of care; and (v) other areas determined by MedPAC.

Further, beginning July 1, 2022, the Department of Health and Human Services Secretary must publicly post data on a quarterly basis with respect to telemedicine utilization and no later than June 15, 2023, the Office of Inspector General shall submit a report to Congress on program integrity risks associated with Medicare telehealth services with recommendations to prevent fraud, waste, and abuse.”¹¹⁹

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

***Pennsylvania Terminates Pandemic-Related Licensing Waivers
Related to Telemedicine***

“Pursuant to the March 26, 2020, declaration of disaster emergency relating to COVID-19, the Department of State requested, and the Governor approved, nearly 100 regulatory suspensions and waivers.”¹²⁰ Signed into law on March 30, 2022, Act 14¹²¹ requires all suspensions and waivers issued by the Department of State to expire on June 30, 2022. Agencies were granted the authority to terminate their own waivers and suspensions sooner than June 30. In Pennsylvania, the following waivers related to telemedicine expire or have expired:

- The waivers allowing health care professionals licensed under any of the Pennsylvania Department of State’s Bureau of Professional and Occupational Affairs licensing boards to provide services to patients via telemedicine during the coronavirus emergency expire on June 30, 2022.¹²²
- The Pennsylvania Department of Drug and Alcohol Programs’ suspension of both the requirement a licensed physician must take an initial medical history and physical examination before a patient may receive buprenorphine treatment and the requirement the Narcotic Treatment Programs have narcotic treatment physician services onsite expire on June 30, 2022.¹²³
- The Pennsylvania State Board of Medicine’s waiver allowing for hours of clinical experience obtained by individuals working toward licensure as a behavior specialist via telemedicine or teletherapy during the duration of the COVID-19 emergency to be recognized as valid and counted towards the 1,000 hours of clinical experience expires on June 30, 2022.¹²⁴
- The Pennsylvania State Board of Social Workers, Marriage and Family Therapists and Professional Counselors’ waiver allowing individuals who are receiving supervision for clinical experience to provide teletherapy services so long as they are receiving supervision from a supervisor who complies with all required regulatory requirements expires on June 30, 2022.¹²⁵

¹²⁰ “Waived and Suspended Licensing Regulations,” *Pennsylvania Department of State*, accessed June 2, 2022, <https://www.dos.pa.gov/Pages/COVID-19-Waivers.aspx>.

¹²¹ Act of Apr. 9, 1929 (P.L.177, No.175), § 2102-F(a.2), (a.3), 71 P.S., Pt. I, Ch. 2, Art. XXI-F.

¹²² “COVID-19 Suspensions,” *Pennsylvania Department of State*.

¹²³ *Ibid.*

¹²⁴ *Ibid.*

¹²⁵ *Ibid.*

- The Pennsylvania Department of State’s suspension of licensing requirements to allow licensed practitioners in other states to provide services to residents via the use of telemedicine without obtaining a Pennsylvania license expired on May 23, 2022.¹²⁶

In October 2021, the Joint State Government Commission released a staff study “Regulatory Waivers and Suspensions Issued by the Pennsylvania Department of State Bureau of Professional and Occupational Affairs During the COVID-19 Pandemic.” The report made the following recommendation regarding telemedicine:

It should be noted that Pennsylvania has no statute either authorizing or prohibiting the provision of health services via telemedicine, and none of the Boards governed by the BPOA [State Bureau of Professional and Occupational Affairs] have regulations either authorizing or prohibiting telemedicine. During the COVID-19 pandemic, the BPOA issued guidance specifically allowing any licensed health care provider to provide services to patients via telemedicine. The Commission has in past reports supported the use of telemedicine and has recommended that the General Assembly pass legislation requiring payment parity by health insurers for telemedicine services if it is equivalent to the in-person service.

To provide more clarity to practitioners, it is recommended that the General Assembly pass legislation requiring the medical licensing Boards within the jurisdiction of the BPOA promulgate regulations allowing for the use of telemedicine by the professions which they regulate.¹²⁷

Telehealth and Broadband in Rural Areas

In 2021, a Canadian study examined rural health service and telemedicine usage and satisfaction (including eHealth literacy) during COVID-19 in rural communities.¹²⁸ The study noted patients living in rural areas reported high levels of satisfaction with telehealth services for occupational therapy, physical therapy, speech-language therapy compared to in-person care.¹²⁹ Also, the study stressed reliance on telemedicine is dependent upon full video capacity supported by adequate broadband access which is often

¹²⁶ Ibid.

¹²⁷ Joint State Government Commission, “Regulatory Waivers and Suspensions Issued by the Pennsylvania Department of State Bureau of Professional and Occupational Affairs During the COVID-19 Pandemic,” October 2021, 52, accessed June 2, 2022, <http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2021-10-28%20HR88%20%20BPOA%20REPORT%20web.pdf>.

¹²⁸ KL Rush, C Seaton, E Li, ND Oelke, B Pesut, “Rural Use of Health Service and Telemedicine During COVID-19: The Role of Access and eHealth Literacy,” *Health Informatics J* 27, no. 2 (April-June, 2021): doi: 10.1177/14604582211020064.

¹²⁹ LC Harkey, SM Jung, ER Newton, et al., “Patient Satisfaction with Telehealth in Rural Settings: A Systematic Review,” *Int J Telerehab* 12, no.2 (2020): 53–64.

limited in rural and underserved areas.¹³⁰ Lastly, the study highlighted electronic health literacy is another factor that not only impacts a user's ability to use but also contributes to the patient's satisfaction with telehealth services. Electronic health literacy is defined as the ability to find, use, and apply health information from electronic sources.¹³¹

In March 2022, researchers at the University of Chicago published a study supporting one of the factors most consistently associated with a high risk of death due to COVID-19 in the United States was the lack of internet access.¹³² The authors estimated that for every additional one percent of residents in a county who have internet access between 2.4 and 6 deaths per 100,000 people could be prevented, depending on the makeup of the region. "Furthermore, internet access was a significant factor in all communities....We believe this finding suggests that more awareness is needed about the essential asset of technological access to reliable information, remote work, schooling opportunities, resource purchasing, and/or social community."¹³³

In May 2022, the Center for Rural Pennsylvania held a public hearing to address Rural Broadband Development and Policy. James A. Nobles, President & CEO of North Penn Comprehensive Health Services and Laurel Health Centers, testified broadband access ranks at the top of the known barriers to providing quality telehealth services, including mental health treatment, to the communities his institutions serve.¹³⁴ Mr. Nobles stated:

While improvement in broadband access and increased use of telehealth services alone cannot fill the gaps in rural health care, it is an important first step as we look at how the Social Determinants of Health can impact an individual's access to care. In advocating for telehealth services, it has regularly been cited that this type of technology assists in addressing two common Social Determinants of Health—transportation and provider availability, which includes both primary care and specialty providers. However, as health care providers expanded the use of telehealth to meet the needs of their patients during the pandemic, we quickly realized that the technology was able to help overcome other barriers as well, such as linguistic and cultural competency, geography, childcare, employment, income, and support systems just to name a few.

¹³⁰ KA Hirko, JM Kerver, S Ford, et al., "Telehealth in Response to the COVID-19 Pandemic: Implications for Rural Health Disparities," *J Am Med Inform Assoc* 27, no. 11 (2020): 1816–1818.

¹³¹ CD Norman and HA Skinner, "eHEALS: The eHealth Literacy Scale," *J Med Internet Res* 8, no. 4 (2006): e27.

¹³² Qinyun Lin, Susan Paykin, Dylan Halpern, Aresha Martinez-Cardoso, Marynia Kotak, "Assessment of Structural Barriers and Racial Group Disparities of COVID-19 Mortality with Spatial Analysis," *JAMA Network Open*, March 4, 2022, accessed June 2, 2022, https://jamanetwork.com/journals/jamanetworkopen/articlepdf/2789619/lin_2022_oi_220057_1645727148.46877.pdf.

¹³³ Ibid.

¹³⁴ "Public Hearing on Rural Broadband Development and Policy," *Center for Rural Pennsylvania*, Wellsboro, PA, May 20, 2022, accessed June 2, 2022, <https://www.rural.pa.gov/download.cfm?file=Resources/PDFs/news/Broadband%20Agenda%20May%2020%202022%20web.pdf>.

While telehealth services have advanced tremendously because of the pandemic, significant barriers still exist in our rural communities. These include digital literacy and the cost associated with broadband internet access....Expansion of broadband services in rural communities is a necessary first step, however, if we do not address the cost of this service and a mechanism to make broadband internet not only accessible, but affordable, we will be unsuccessful in expanding telehealth services to the most vulnerable subset of the population we serve.¹³⁵

COVID-19 has increased both the demand for and reliability upon telehealth services. As the pandemic continues, telehealth is enabling medical providers to deliver and patients to receive care that is convenient and efficient at a relatively low cost. While telehealth offers advantage in terms of stretching limited provider resources, the real struggles of broadband access, computer literacy, technology availability, and other inequities persist.¹³⁶

Connected Health Policy has created a “more user-friendly experience and updates on a minute-by-minute basis with the latest information on telehealth legislation and regulation as it moves through the policy process.”¹³⁷

¹³⁵ Ibid.

¹³⁶ Michael Ollove, “Telehealth May Be Here to Stay,” *The Pew Charitable Trusts*, accessed June 2, 2022, <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2021/12/01/telehealth-may-be-here-to-stay>.

¹³⁷ Ibid.

UPDATE: AGRICULTURE

In the initial broadband report, the Commission outlined various benefits associated with the adoption of precision agriculture. In the three years since, there has been an increase in national awareness about the ways in which expanding broadband access can benefit rural agriculture. However, despite the rise in awareness by the associations that represent farmers there are not many indicators that Pennsylvania farmers are rushing to assimilate precision agriculture technology into their own farms.

The small farmers that comprise the majority of Pennsylvania's agricultural industry lack not only access to broadband internet but also the training, disposable income to afford broadband, and access to computers. While progress is being made to expand broadband to rural areas, the pre-requisites are not in place for widespread adoption of precision agriculture technology. As time passes features previously considered advanced which are reliant on internet use are already becoming included in standard farming equipment.¹³⁸ Farmers are likely paying for machines with capabilities that will only become usable when reliable broadband comes to Pennsylvania's farmland.

While many farmers would likely be satisfied with affordable and dependable access to the base level broadband speeds recommended by the FCC, there is some uncertainty over how long those speeds will meet the needs of farmers. A 2019 USDA report recommended that as farming grows 25/3 Mbps will not be enough for advanced farming equipment and that symmetrical speeds to upload data will have a larger role in the future.¹³⁹ However, there is limited data that even modest internet access can benefit farmers. A study circulated by the FCC showed that doubling the number of households in a region with 10/7 Mbps connections was associated with a 2.4% decrease in average operating costs.¹⁴⁰ This same study found that doubling the number of households with 25/3 Mbps connections was associated with higher crop yields.

Adoption of precision agriculture represents a policy solution that could align the interest of disparate political factions. Precision agriculture machinery can be business friendly since this technology helps drive down the amount of money spent on inputs like seed, fertilizer, pesticides, and water through a more efficient application of resources. These same benefits could also create sustainable farming which could benefit both local

¹³⁸ Suzanne Bopp, "Striving For Broader Broadband In Agriculture," *Croplife*, last modified July 25, 2021, <https://www.croplife.com/precision/striving-for-broader-broadband-in-agriculture/>.

¹³⁹ USDA, *A Case for Rural Broadband: Insights on Rural Broadband Infrastructure and Next Generation Precision Agriculture Technologies* (April 2019).

¹⁴⁰ Katherine LoPiccolo, *Impact Of Broadband Penetration on U.S. Farm Productivity* (Washington D.C.: Federal Communications Commission, 2021), <https://www.fcc.gov/reports-research/working-papers/impact-broadband-penetration-us-farm-productivity>.

ecosystems and decrease agriculture’s contributions to climate change. However, along with internet access care must be taken to provide education, financing opportunities for small farmers to adopt smart farm technology least the gap between larger farmers that can afford such sophisticated machinery and smaller farmers which make up the bulk of Pennsylvania’s farming workforce.

As part of the 2021 Infrastructure Investment and Jobs Act, the Rural Utilities Service received two billion dollars in broadband funding for the ReConnect program. This program was established in 2018 to serve areas that did not have broadband with loans, grants, and hybrid that include multiple sources of funding. The ReConnect eligibility requires that 90 percent of the households lack access to broadband speeds of 100/20 Mbps.¹⁴¹ To be eligible for the program, applicants must build out facilities capable of hitting the target speed at every location in the proposed service area. The program defines rural area as town with fewer than 20,000 residents or an urbanized areas contiguous and adjacent to a town that has a population of fewer than 50,000.¹⁴²

In the Winter of 2021, the USDA made \$200 million available for the ReConnect program and accepted applications until March of the following year.¹⁴³ Four companies applied for the ReConnect program in PA and the USDA website provided limited information about each of the applications in its Public Notice Filing documents:

- Upward Broadband LLC –took a piecemeal approach to extend its service area in small parcels through 13 counties across lower Pennsylvania¹⁴⁴
- Pennsylvania Telephone Company – would extend service along one portion of the border of Lycoming and Clinton counties in the region surrounding the towns of Oval, Oriole, Collmsville and Rauchtown.¹⁴⁵
- Tri-County Rural Electric Cooperative – would expand 18 service areas primarily across Bradford County, as well as the intersection of Lycoming, Clinton, Cameron and Potter Counties, and select areas of McKean and Tioga Counties.¹⁴⁶

¹⁴¹ “Service Area Eligibility Requirements,” *USDA*, accessed March 7, 2022, <https://www.usda.gov/reconnect/service-area-eligibility-requirements>.

¹⁴² *Ibid.*

¹⁴³ “USDA Extends to March 9 the Application Deadline for ReConnect Program Funding,” *USDA*, last modified February 17, 2022, <https://www.rd.usda.gov/newsroom/news-release/usda-extends-march-9-application-deadline-reconnect-program-funding>.

¹⁴⁴ USDA Rural Utilities Service, Public Notice Filing-000835, accessed April 7, 2022, https://www.rus-services.rd.usda.gov/s/pnf-detail?pnfId=a6Pt0000000WGgiEAG¬_reloaded=true.

¹⁴⁵ USDA Rural Utility Service, Public Notice Filing #000827, accessed April 7, 2022, https://www.rus-services.rd.usda.gov/s/pnf-detail?pnfId=a6Pt0000000WGg4EAG¬_reloaded=true.

¹⁴⁶ USDA Rural Utility Service, Public Notice Filing #000790, accessed April 7, 2022, https://www.rus-services.rd.usda.gov/s/pnf-detail?pnfId=a6Pt0000000WGd5EAG¬_reloaded=true.

- Claverack Rural Electric Cooperative – would bring internet to rural regions west of Interstate-81 in Susquehanna County extending into Wyoming County.¹⁴⁷

Currently, these applications are under review. Additional preparation should be undertaken before the next round of funding to ensure that additional rural regions of rural Pennsylvania in need of broadband are represented and to maximize the chance that the organizations representing these regions have competitive applications.

¹⁴⁷ USDA Rural Utility Service, Public Notice Filing #000584, accessed April 7, 2022, https://www.rus-services.rd.usda.gov/s/pnf-detail?pnfId=a6Pt0000000WGM9EAO¬_reloaded=true.

UPDATE: COMMUNITY AND ECONOMIC DEVELOPMENT

While much effort has been spent since the start of the pandemic to connect American businesses to the internet, there is still much to do. In July of 2021, the Government Accountability Office reported that eight percent of surveyed small businesses lacked broadband internet.¹⁴⁸ This percentage accounts for approximately two-to-three million businesses. The research cited by the GOA indicated that 25/3 Mbps was insufficient to meet the needs of many businesses, particularly in regard to upload speeds. Although the appropriate benchmark for what a business needs is constantly moving, in 2017 Broadband USA recommended 50 Mbps for the tasks of “managing inventory, operating point-of-sale terminals, and coordinating shipping”.¹⁴⁹

In the past, the importance of internet use by small business owners was overlooked, however broadband internet increasingly represents an important priority for the group. Prior to the passage of the Infrastructure Investment and Jobs Act a surveyed 81 percent of small business owners supported the bill.¹⁵⁰ This indicated a shift in how broadband is viewed by business owners as broadband is often mentioned by small business advocates in the same breath as other important forms of infrastructure such as water, bridges, and highways.¹⁵¹

Despite the importance of internet for business owners their input was not overly considered when the FCC set minimum broadband speeds, something the GOA recommended should improve the next time they reevaluate upload and download speeds.¹⁵² Pennsylvania should also follow the GOA recommendation and incorporate business feedback if the state ever needs to set a minimum speed again. More about this GOA report can be found later in the study.

¹⁴⁸ *BROADBAND: FCC Should Analyze Small Business Speed Needs* (US GAO, July 2021), <https://www.gao.gov/assets/gao-21-494.pdf>, 12.

¹⁴⁹ *Ibid.*, 18.

¹⁵⁰ Rhett Buttle, “BID is a BFD for Business: Five Ways the Bipartisan Infrastructure Deal will Support the Private Sector,” *Forbes*, last modified November 14, 2021, <https://www.forbes.com/sites/rhettbuttle/2021/11/14/bid-is-a-bfd-for-business-here-are-five-ways-the-bipartisan-infrastructure-deal-will-support-the-private-sector/?sh=67db01d03dec>.

¹⁵¹ “WHAT THEY ARE SAYING: Small Business Advocates Celebrate the Passage of President Biden’s Transformational Bipartisan Infrastructure Deal,” *U.S. Small Business Administration*, last modified November 12, 2021, <https://www.sba.gov/article/2021/nov/12/what-they-are-saying-small-business-advocates-celebrate-passage-president-bidens-transformational>.

¹⁵² *BROADBAND: FCC Should Analyze Small Business Speed Needs* (US GAO, July 2021), <https://www.gao.gov/assets/gao-21-494.pdf>, 27.

While statewide data on the difficulty has not been collected, reportedly one of the largest barriers to internet adoption is just paying the high prices of start-up costs, such as paying have the line extended to a business or the cost installation equipment. For example, in Pennsylvania small business owners in York County spoke to local reporters about how vital they see the State’s broadband expansion to their success.¹⁵³ According to one business in southern York County it would cost \$15,000 to expand internet to their small business from a traditional provider and \$3,500 to set up a fixed wireless receiver. While digging lines to new houses have been reported nationally as up to \$20,000 to connect a house with an internet line across a street, if broadband is truly to become a utility enjoyed by everyone in a manner similar to electricity, this may be a fair investment for small businesses to connect.¹⁵⁴

In Pennsylvania, Broadband expansion support is largely seen as an apolitical issue, however there are not as many success stories in the central region of the state as residents would like. One example of an economic development agency that is making a difference in this region is SEDA-COG. A \$600,000 grant from the Pennsylvania General Assembly to aid SEDA-Council of Government was made in January 2021. SEDA-COG partnered with Juniata County to bring broadband to 1,000 families through Centre WISP, at a cost of \$500,000.

¹⁵³ Teresa Boeckel, “‘You Can’t Do Anything without Internet Service:’ How Broadband Money Could Help Communities,” *York Daily Record*, last modified December 2, 2021, <https://www.ydr.com/story/news/2021/12/02/federal-infrastructure-money-broadband-needed-rural-urban-areas-pennsylvania/8736004002/>.

¹⁵⁴ Jon Brodtkin, “When Home Internet Service Costs \$5,000—Or Even \$15,000,” *Arstechnica*, last modified January 16, 2017, <https://arstechnica.com/information-technology/2017/01/when-home-internet-service-costs-5000-or-even-15000/>.

UPDATE: DEPLOYMENT BARRIERS

Importance of Speed

One consideration in the conversation about broadband availability and access is the topic of download and upload speeds. The FCC retained its definition of minimum broadband speeds as 25/3 Mbps in 2021 even with political pressure to increase this threshold to 100/20 Mbps. The Infrastructure Investment and Jobs Act passed and signed in November of 2021 defined unserved as speeds below 25/3 Mbps but included a subclause that would increase this minimum requirement if the FCC revised the benchmarks.¹⁵⁵ The bill defined underserved as speeds of less than 100/20 Mbps, again with a subclause attaching this minimum to the FCC’s benchmarks.¹⁵⁶ Unserved or underserved service projects that are broadband grant recipients must provide broadband service with speeds of at least 100/20 Mbps to receive funding.¹⁵⁷

Critics argue that though the Infrastructure Act can incentivize providers to offer 100/20 Mbps where they deploy broadband, the FCC’s definition of being connected is too low. A family attending school virtually and working from home cannot all successfully utilize the Internet with speeds of 25/3 Mbps.¹⁵⁸ Senators Michael Bennet, Angus King Jr., Rob Portman and Joe Manchin III wrote a letter in March of 2021 urging the FCC to goal for a symmetrical 100/100 Mbps speed where possible, taking into account available geography and infrastructure.¹⁵⁹

A working group at the Broadband Deployment Advisory Council recommended the FCC transition to using a functional definition that could change as technology and infrastructure considerations evolve.¹⁶⁰ In some industries such as agriculture, symmetrical speeds—download and upload speeds being similar—will be important to the utility of an

¹⁵⁵ Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. § 60401(16) (2021-2022).

¹⁵⁶ Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. § 60401(17) (2021-2022).

¹⁵⁷ Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. § 60102(4) (2021-2022).

¹⁵⁸ Kipp Bentley, “Is It Even Possible to Get Broadband for All?” *Governing*, last modified August 15, 2021, <https://www.governing.com/now/is-it-even-possible-to-get-broadband-for-all>.

¹⁵⁹ Michael F. Bennet, August S. King Jr., Rob Portman and Joe Manchin III to Tom Vilsack, Gina Raimondo, Jessica Rosenworcel and Brian Deese, March 4, 2021,

https://www.bennet.senate.gov/public/_cache/files/c/7/c76028fb-488d-498e-8506-7d8a2dce3172/05DDC9148CC7F12A9F09235F77BB7A0D.bipartisan-broadband-speed-letter.pdf.

¹⁶⁰ *Increasing Broadband Investment in Low-Income Communities Working Group* (Federal Communications Commission Broadband Deployment Advisory Council, December 2020), <https://www.fcc.gov/sites/default/files/bdac-low-income-communities-approved-rec-12172020.pdf>, 7.

Internet connection as they transmit large amounts of data.¹⁶¹ Small businesses also report that speeds of 25/3 Mbps are often not sufficient for their operations.¹⁶²

However, reaching the speeds desired by citizens and politicians can be difficult due to the infrastructure available to providers. Old copper cabling cannot support the higher speeds and thus cable companies have so far successfully argued for maintaining the lower speed thresholds. Proponents of fiber expansion argue that the situation calls for an upgrade of broadband infrastructure to fiber to withstand an expected continual increase in speeds.¹⁶³

Affordability

Another difficulty of expanding broadband access is affordability. The Infrastructure Law extended the Emergency Broadband Benefit Program indefinitely but reduced the monthly subsidy from \$50 to \$30 for low-income households.¹⁶⁴ The Infrastructure Law also established the Affordable Connectivity Program (ACP), which provides a \$30 monthly discount for eligible houses and a \$75 discount on Tribal lands. In addition, the White House asked participating ISPs to provide quality high-speed Internet—defined as 100 Mbps—at a price of \$30 a month meaning that most eligible consumers will receive an Internet connection for no cost. To assist in the implementation of the program, the White House launched a website to connect eligible consumers with providers and will use government agencies that administer programs in which participants would also be eligible for ACP to notify households of their eligibility. The White House will also partner with states, cities, and public interest organizations to make more consumers aware of their eligibility.¹⁶⁵

According to a Consumer Reports survey conducted in June 2021, minority communities face the highest affordability barriers. Thirty-three percent of Hispanic respondents with broadband and 32 percent of Black respondents indicated some level of difficulty paying for their broadband service while 21 percent of white respondents felt

¹⁶¹ *Examining Current and Future Connectivity Demand for Precision Agriculture* (Federal Communications Commission, October 2020), <https://www.fcc.gov/sites/default/files/precision-ag-connectivity-demand-wg-report-10282020.pdf>, 26.

¹⁶² *BROADBAND: FCC Should Analyze Small Business Speed Needs* (US GAO, July 2021), <https://www.gao.gov/assets/gao-21-494.pdf>, 23.

¹⁶³ *Ibid.*

¹⁶⁴ “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.

¹⁶⁵ “FACT SHEET: President Biden and Vice President Harris Reduce High-Speed Internet Costs for Millions of Americans,” *The White House*, last modified May 9, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/09/fact-sheet-president-biden-and-vice-president-harris-reduce-high-speed-internet-costs-for-millions-of-americans/>.

similarly.¹⁶⁶ In areas with three or more competing providers, service prices averaged about \$68 while they were around \$75 in areas with only one provider available.¹⁶⁷ Proponents of municipal broadband argue that municipal broadband creates competition with other providers and therefore will contribute to more competitive pricing. The Consumer Report survey found that three quarters of respondents were in favor of allowing municipal broadband. A majority of Republicans, Democrats, and independents responded this way.¹⁶⁸

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.¹⁶⁹

Adoption

In the 2020 American Community Survey (ACS) 5-Year Estimate Subject Tables, 84.5 percent of Pennsylvania respondents had an internet subscription. Eighty-four percent of respondents had broadband of some type, with 71.9 percent having cable, fiber optic, or DSL connection. Some respondents, 9.7 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 60 percent had a broadband subscription and almost 40 percent had no Internet subscription. Households with income between \$20,000 and \$74,999 saw higher rates of adoption, with over 80 percent saying they had a broadband subscription and almost 19 percent saying they did not. In households with a median income of \$75,000 or more, over 95 percent had a broadband subscription and only 4.5 percent did not.¹⁷⁰ For Pennsylvania, the 2015-2020 5-year estimate numbers are slightly lower than the 2019 1-year estimate, though not by a considerable amount.¹⁷¹ However, nationally the adoption rate grew slightly from 68.9 percent to 70.3 percent of respondents subscribing to fixed

¹⁶⁶ 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/>.

¹⁶⁷ *Ibid.*

¹⁶⁸ *Ibid.*

¹⁶⁹ *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.

¹⁷⁰ “Types of Computers and Internet Subscriptions,” *2020: ACS 5-Year Estimates Subject Tables*, United States Census Bureau, accessed April 19, 2022, <https://data.census.gov/cedsci/table?q=s2801&g=0100000US,%240400000&tid=ACSST5Y2020.S2801&moe=fals>.

¹⁷¹ “Types of Computers and Internet Subscriptions,” *2019: ACS 1-Year Estimates Subject Tables*, United States Census Bureau, accessed April 19, 2022, <https://data.census.gov/cedsci/table?q=s2801&g=0100000US,%240400000&tid=ACSST1Y2019.S2801>.

broadband.¹⁷² There are many factors that affect adoption rates across the country including race, age, income and education. Consistently, older, non-white, low income and poorly educated Americans report lower levels of adoption.¹⁷³ Finding ways to increase adoption is a crucial aspect of deployment strategies to ensure that infrastructure is being utilized by the communities served.

Digital Inclusion Efforts

Rates of adoption can be affected by a lack of digital literacy by certain underserved groups. Possible consumers may not be educated on the many ways an Internet connection could be leveraged to their advantage in other areas of their lives, and therefore show less interest in investing in an Internet connection. This is why states and private enterprises alike are attempting to increase digital inclusion and literacy programs, in the hopes that it will generate interest and participation in broadband expansion. One program supported by the Robert W. Deutsch Foundation in Baltimore is called the Digital Equity Leadership Lab (DELL). DELL was a five-week virtual community-leadership development program that taught participants about the need and utility of digital literacy for communities. It included participation from national policymakers, advocates, and community leaders.

Takeaways from the sessions included the realization that local voices need to be more involved in conversations about Internet policy to ensure that the gaps in various communities are adequately understood. Participants also found digital inequality to be a social and not technological problem that could be countered with technical education to reduce fear of the Internet and technology. DELL produced three recommendations to improve community involvement with digital equity advocacy: First, increasing community leaders' knowledge of how the Internet works will improve their ability to understand the problems faced and solutions offered by policymakers. Second, community leaders should have a shared space to collaborate including shared platforms and spaces in which to convene and share ideas. Last, work on digital inequality "must be rooted in an understanding of how power, privilege, and oppression shape digital inequality, as well as how this knowledge can be used to address systemic barriers to social and racial justice."

A 2019 report from the Pennsylvania Long-Term Care Council underscored the importance of broadband technology in assisting direct care workers providing quality care to participants. The utilization of technology by both workers and participants would allow some participants to practice self-care and independence in dealing with some situations they may encounter. The report identified a lack of funding for assistive technology, inconsistent promotion of what is available, and a lack of knowledge of what is available.

¹⁷² "New Census Data Show Broadband Adoption is Growing," *Connected Nation*, last modified March 17, 2022, <https://connectednation.org/blog/2022/03/17/new-census-data-show-broadband-adoption-is-growing/>.

¹⁷³ "Internet/Broadband Fact Sheet," *Pew Research Center*, last modified April 7, 2021, <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/?menuItem=20864b5f-4589-4e03-aad1-c1737fbd07cb>.

Better implementation of what technology is available and the continued expansion of technological resources in long-term care would increase the efficiency of care and relieve direct care workers of some unnecessary responsibilities.¹⁷⁴

One recommendation of this report was requiring Community Health Choices Managed Care Organizations (CHC-MCOs) to submit annual reports to the Department of Human Services that detail implementation of new technology and technology support, new uses of technology, data on the use of existing technologies, and mandatory trainings on assistive technology. Another recommendation suggested adding \$500,000 in state funding to Technology for Our Whole Lives (TechOWL) through the Department of Labor & Industry, \$500,000 to the Pennsylvania Assistive Technology Foundation (PATF), and \$500,000 for the Office of Vocational Rehabilitation (OVR) to support the distribution of assistive technology. The final recommendation on this topic was investing in state broadband so that the digital skills and technology can be utilized all across the Commonwealth.¹⁷⁵

Veterans also experience difficulties in accessing veteran's services due to a lack of technological knowledge. Joint State Government Commission's 2021 report on the Coordination of Veterans Services in Pennsylvania highlighted the inability of some veterans to navigate the Internet and the platforms intended to connect veterans to available services. Improving the digital literacy of veterans would allow them to better utilize the resources available in Pennsylvania.¹⁷⁶

Pennsylvania stakeholders are working to increase digital literacy among all age groups, including older members of the workforce. Digital skills continue to become more important for workers in many different occupations and several programs in Pennsylvania are being implemented to close the digital literacy gap among adults.

Northstar Digital Literacy is an assessment and learning service that assesses a participant's digital literacy and then provides a report of their knowledge and a learning plan with practice exercises built in. Once a participant has passed an assessment, they are given a certificate of completion. Northstar is utilized in 83 locations in Pennsylvania, many of which are Pennsylvania CareerLink locations in counties throughout the Commonwealth. Additionally, Pennsylvania CareerLink has launched a program called SkillUp PA that allows users to sign up for a free account through which they can access a self-directed online learning program. The program uses the Metrix Learning platform which, similar to Northstar, targets areas in need of improvement, provides additional

¹⁷⁴ *A Blueprint for Strengthening Pennsylvania's Direct Care Workforce* (Pennsylvania Long-Term Care Council, April 18, 2019), https://www.aging.pa.gov/organization/PennsylvaniaLongTermCareCouncil/Documents/Reports/LTCC_Blueprint%20for%20Strengthening%20Pennsylvania%E2%80%99s%20Direct%20Care%20Workforce_April2019.pdf, 22-23.

¹⁷⁵ *Ibid.*, 23-24.

¹⁷⁶ *Coordination of Veterans Services in Pennsylvania: A Task Force and Advisory Committee Report* (Joint State Government Commission, March 2021), <http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2021-03-05%20CVS%20Web%203.5.21.pdf>, 4.

training, and administers certificates to signify mastery of a topic or skill. The free program is available to a user for 180 days from the date of the first log-in. After 180 days, the certifications and information is saved on the account, but new courses cannot be taken. SkillUp is currently supported by state funding, but future improvement and implementations will be federally funded through the Employment and Training Administration CAREER National Dislocated Worker Grant (NDWG). Pennsylvania also received a National Governors Association's Workforce Innovation Network (NGA WIN) grant of up to \$100,000 in November of 2021, which will be used to measure the digital literacy gap in the Commonwealth and invest in strategies to close the digital divide in the workforce.

The Pennsylvania Department of Labor and Industry (L&I) announced \$1.3 million in grant funding on April 29, 2021. Digital Literacy and Workforce Development Grants were awarded for up to \$45,000 per grant. On March 17, 2022 L&I announced an additional \$900,000 in awards, with recipients including Project Home in Philadelphia, Southeast Asian Mutual Assistance Associations Coalition in Philadelphia, the Neighborhood Academy in Allegheny County, the York County Literary Council, the Lackawanna and Pocono Counties Workforce Development Boards, and more. In total, 21 projects were awarded an L&I Digital Literacy and Workforce Development Grant in March 2022.

HB 723 of 2021 would establish a Pennsylvania Workforce Investment Board that would work with the executive and legislative branch to create a “well-educated, highly skilled workforce.”¹⁷⁷ This board would become a central location into which various workforce development programs would be integrated. The board will be comprised of business representatives, labor representatives, and lead Commonwealth Agency Officials, all appointed by the Governor. Input from local workforce development boards would be sought out and unified through the Pennsylvania Board. The board would provide technical assistance to local workforce development boards where appropriate. This board would also evaluate the performance of local workforce development boards and monitor statewide performance as well. The chief elected official of a local workforce development area will receive grants and be liable for their disbursement within that area. The local workforce development boards will be comprised of business and labor representatives as well as “governmental and economic and community development entities.”¹⁷⁸ The local boards will submit a four-year workforce development plan for comment from stakeholders that includes the area’s workforce development vision, how this vision supports the Commonwealth’s goals, analysis of the area’s workforce market, and the role of elected officials in the plan.

Grants awarded under this chapter will go toward training that enhances the workforce in industries where workers are in demand. Stakeholders will identify industries with workforce needs and create clusters that can be targeted “for workforce and economic development investments.”¹⁷⁹ The decision on what industry clusters to target will be based on the importance of the cluster to the Commonwealth’s economy, the workforce

¹⁷⁷ HB 723 of 2021, Modernization of the Workforce Development Act, 9.

¹⁷⁸ *Ibid.*, 29.

¹⁷⁹ *Ibid.*, 48.

development needs wherein, economic growth potential, competitiveness, employment base, wages, benefits and career opportunities, and employment data.¹⁸⁰ With quickly evolving workforce needs, it is likely that future determinations of workforce needs will include the need to employ digitally literate workers. Grant funding made available in the future may then be used to enhance the digital literacy of Pennsylvania's workforce.

The Mayor's Fund for Philadelphia's Digital Literacy Alliance partnered with PHL ConnectED to create a grant cycle for Fall 2021 that targeted digital support initiatives for pre-K-12 caregivers. The opportunity made \$162,500 available in funding, expecting to award around 7-10 recipients with between \$15,000 and \$20,000 toward digital pre-K-12 caregiver digital literacy. The deadline for applications for this grant was January 12, 2022. The winners of this grant were announced in March 2022 and included the Caring People Alliance, Ezperanza Academy Charter School, Global Leadership Academy Charter School, Masjid Al-Wasatiyah-Itidaal, and the Intergenerational Center at Temple University. An additional similar grant opportunity called the PHLConnectEdD Caregiver Digital Literacy Initiative made available \$376,000 with maximum awards of \$62,000. If awarded a grant from this initiative, grantees will need to conduct assessments to determine the digital literacy needs of the caregivers and then provide instruction to caregivers. The deadline for applications for this grant was December 6, 2021. Winners of this grant were announced in March 2022 and include the Cambodian Association of Greater Philadelphia, Congreso de Latinos Unidos, the ExCITE Center at Drexel University, Girls, Inc., the People's Emergency Center, and the Intergenerational Center at Temple University.

Mapping

Another barrier to the expansion of broadband where it is needed most is the quality of mapping. The shortcomings of the FCC's mapping have been raised by many stakeholders and experts in recent years. Because of the way connectivity is defined, the mapping does not accurately represent the level of need for all communities. A census block is considered covered if one household within it meets the FCC connectivity standard.¹⁸¹ Proper data and mapping that accurately represents connectivity in communities would better enable ISPs and municipalities alike to use resources efficiently and bring connectivity to all.¹⁸² Using an app called TestIT that collects speed tests from real users around the country, NACo found that 65 percent of counties displayed speeds of less than the FCC's minimum speed, 25/3 Mbps.¹⁸³

The Broadband Deployment Accuracy and Technological Availability Act, signed into law in March 2020 required the FCC to improve their maps by providing more granular data, allowing stakeholders and consumers to challenge the findings of the maps and

¹⁸⁰ Ibid.

¹⁸¹ John Hendel, "Why Billions in Broadband Money May Go to the Wrong Places," *Politico*, last modified November 29, 2021, <https://www.politico.com/news/2021/11/29/fcc-broadband-maps-biden-523425>.

¹⁸² *Broadband Task Force*, 24.

¹⁸³ Ibid., 26.

enforcing consequences for fraudulent data submissions.¹⁸⁴ As of March 2022, FCC Chairwoman Rosenworcel stated that new maps would be available by Fall 2022.¹⁸⁵

Once the new maps are completed, there is reason to be optimistic about their ability to identify areas of low connectivity. However, the timing of the completion of this undertaking will mean that some government funding may not be funneled to the areas with truly the highest need. States that have undertaken their own mapping projects or utilized a speed testing service like Ohio and Georgia can invest broadband funding with greater efficiency. The Center for Rural Pennsylvania performed a speed test analysis in 2021 of interest speeds in Pennsylvania. The study found, that among speed test participants, those in rural counties experienced disproportionately lower speeds than urban counties. Additionally, three specific rural geographical regions were identified as clusters of lower speeds. The analysis concluded that subcounty data is needed to accurately identify areas of greatest need, as there may be urban counties with rural pockets of lower speeds or rural counties with higher speeds in more populous towns.¹⁸⁶

NTIA has recently released an interactive map that allows the viewer to compare different data collections on connectivity. The interactive map includes for each county: the population, percentage of households without Internet access, percentage of households without computer, smartphone or tablet, median speeds of two different speed tests, and the Microsoft percentage of downloads completed over 25 Mbps or higher. For each census tract, it includes the population, the percentage of households without Internet access, the percentage of households without computer, smartphone or tablet access, and a median speed test.¹⁸⁷

Fraud

On November 22, 2021, the Federal Communications Commission Office of the Inspector General released an advisory letter on fraud in the Emergency Broadband Benefit (EBB) program. The USDA's National School Lunch Program's Community Eligibility Provision (CEP) allows schools that have high poverty rates to provide free breakfast and lunch to all students. The Consolidated Appropriations Act made households with students who attend CEP schools eligible for the EBB program. To determine eligibility for EBB

¹⁸⁴ U.S. Senate Committee on Commerce, Science, & Transportation, "Bill to Improve Broadband Data Maps Signed Into Law," Press Release, March 23, 2020, <https://www.commerce.senate.gov/2020/3/bill-to-improve-broadband-data-maps-signed-into-law>.

¹⁸⁵ "Completed Maps Will 'Absolutely' be Available This Fall, FCC's Rosenworcel Says," *Broadband Breakfast*, last modified March 31, 2022, <https://broadbandbreakfast.com/2022/03/completed-maps-will-absolutely-be-available-this-fall-fccs-rosenworcel-says/>.

¹⁸⁶ "Pennsylvania Broadband Access: A Speed Test Analysis," *Center for Rural Pennsylvania*, February 2022, <https://rural.pa.gov/getfile.cfm?file=Resources/PDFs/research-report/Broadband-Speed-Test-Analysis-Feb-2022-web.pdf&view=true>.

¹⁸⁷ "Indicators of Broadband Need," *NTIA*, accessed January 10, 2022, <https://broadbandusa.maps.arcgis.com/apps/webappviewer/index.html?id=e2b4907376b548f892672ef6afbc0da5>.

through CEP participation, the customer must select the school the dependent attends from a drop-down menu. FCC-OIG found that sales agents for providers are fraudulently selecting CEP schools when consumers do not have a dependent child that attends that school.¹⁸⁸

In Florida, one school was used for EBB enrollment by 1,884 households while the school only had 200 students. FCC-OIG was able to trace the fraudulent enrollment back to specific sales agents and specific providers. They verified that the vast majority of the fraud was committed not by individual consumers but by a few sales agents and providers. Other examples of overenrolled schools were found in Alaska, Arizona, California, Colorado and New York. Some of these enrollments were using provider retail addresses instead of home addresses and some of the addresses were located over 100 miles away from the schools.¹⁸⁹

Distributing Funding

A recent influx in federal broadband funding should allow states to invest in broadband infrastructure and deployment with increased focus and attention. Many states have created broadband authorities or initiatives, with Pennsylvania being added to these ranks with the passage of Act 96 of 2021. This bill establishes The Pennsylvania Broadband Development Authority, which will oversee the distribution of federal broadband funding and coordinate subsequent deployment.¹⁹⁰ Some experts worry that the new funding will overwhelm state governments that have not distributed such large amounts of broadband funding before. In the absence of the upcoming new FCC maps, there is also a higher chance that funding will not be directed to the areas of truly highest need. States should also consider future-proof solutions and technology as the federal funding is distributed. Efficient use of the new federal funding will be crucial as some experts expect that this will be the most significant federal investment into broadband infrastructure ever.¹⁹¹

¹⁸⁸ “Advisory Regarding Fraudulent EBB Enrollments Based On USDA National School Lunch Program Community Eligibility Provision,” *United States Government Federal Communications Commission, Office of Inspector General Memorandum*, https://www.fcc.gov/sites/default/files/oig_advisory_cep_11222021.pdf, 1-2.

¹⁸⁹ *Ibid.*, 2-3.

¹⁹⁰ Governor Tom Wolf, “Gov. Wolf Issues Statement on Passage of Bill to Help Expand High-Speed Broadband Internet In Pennsylvania,” Press Release, December 13, 2021, <https://www.governor.pa.gov/newsroom/gov-wolf-issues-statement-on-passage-of-bill-to-help-expand-high-speed-broadband-internet-in-pennsylvania/>.

¹⁹¹ Cat Zakrzewski and Chris Alcantara, “Biden’s Ambitious Broadband Funding Has a Key Impediment: An Outdated Map of Who Needs It,” *Washington Post*, last modified December 14, 2021, <https://www.washingtonpost.com/technology/2021/12/14/bidens-ambitious-broadband-funding-has-key-impediment-an-outdated-map-who-needs-it/>.

UPDATE: ALTERNATIVE METHODS

Dig Once Policies

The Pennsylvania One Call System is a non-profit that allows for communication between any organization or person attempting to dig in Pennsylvania. In order to facilitate safe digging and prevent damage to underground facilities, the One Call System includes over 3,660 entities that are members, in industries ranging from telecommunications to sewers. PennDOT is not a member, though they do sit on the Board of Directors. Companies wishing to dig in Pennsylvania must call the phone number 811 to create a “Work Location Request.”¹⁹² The information is passed along to any member of the One Call System who has underground facilities or lines in that area.¹⁹³

Coordinate PA is a web-based application developed by Pennsylvania 811. It is a map of utility and public works projects across the state that allows entities to coordinate digs and projects to reduce cost and prevent damage. The program has been in use for several years and the software was modeled after a similar software utilized in Philadelphia. It is supported by 30 utility coordinating committees located across the state. Eleven Local Damage Prevention Liaisons provide the more than 21,000 registered users the opportunity to have Pre-Design and Pre-Construction meetings, either virtually or face to face.¹⁹⁴

In 2017, Governor Wolf signed Act 50 into law, which mandated participation by facility owners in the membership program. The Designer Effectiveness Guidelines adopted by the Pennsylvania One Call System Board of Directors in April of 2020 state: “Project Owners, Designers, and Excavators must use CPA on all complex underground projects, and complex excavation notifications in Pennsylvania.”¹⁹⁵ A complex project is defined as “any excavation project that involves more than properly can be described in a single locate request; or any project designated as such by the excavator or facility owner as a consequence of its complexity; or its potential to cause significant disruption to lines or facilities and the public, including excavations that require scheduling locates over an extended time frame.”¹⁹⁶

¹⁹² “History,” *Pennsylvania 811*, accessed May 21, 2020, https://www.pa1call.org/pa811/Public/About/History/Public/POCS_Content/About_Us/History.aspx?hkey=5cc3c2fc-394f-47a8-9cc7-aac867a6d997.

¹⁹³ Ibid.

¹⁹⁴ Bill Kiger, President of the Pennsylvania One Call System, email to JSGC staff, October 16, 2021.

¹⁹⁵ Designer Effectiveness Guidelines adopted by the Pennsylvania One Call System Board of Directors in April of 2020.

¹⁹⁶ Ibid.

The ability to see plans for a project before they are enacted is helpful for municipalities. As their primary concern is the impact to their community, being able to plan ahead and reduce costs of excavations and projects is a welcome innovation. For broadband projects, one concern raised nationally has been the competition between larger companies. Sharing their project plans or even working together to deploy broadband can take away from each company's competitive edge against the other. It is estimated that proper coordinating through the use of this system could save six or seven billion dollars a year. Doing more to emphasize the importance of using the system could lead to increased benefits to the Commonwealth by decreasing spending and increasing broadband deployment.¹⁹⁷

Municipal Broadband

The city of Lancaster had attempted to get a jump start on other Pennsylvania cities by building out its own fiber internet system back in 2015 when it hired Reading-based MAW Communications to build out the city's fiber optic network, however the endeavor quickly became mired in legal proceedings.¹⁹⁸ Initially the town wanted to upgrade its capacity so that half of its bandwidth could be used to improve city utilities such as smart meter readings, and its security and traffic systems. The other half of the city's network would've been used to provide fiber optic internet service.

By 2017 the company had started to sign up customers and a portion of its internet services business was operation. Then legal disputes arose when PPL Electric sued MAW in Lebanon County Court for inappropriately installing its broadband equipment on PPL lines. MAW had reportedly violated its agreement with the city of Lancaster and not gotten the correct approvals for their pole attachments. After reaching a settlement to end their business arrangement Lancaster now controls the 16 miles of existing fiber cables and has taken over service for 200 residential customers¹⁹⁹. This case illustrates the necessity of municipalities choosing their business partners carefully and making sure that right of way issues and pole attachments are settled before commencing the building stage of a broadband project. The city of Lancaster is reportedly now exploring new partners to continue to build and operate its broadband network.

¹⁹⁷ Bill Kiger, President of the Pennsylvania One Call System, phone call with JSGC staff, May 21, 2020.

¹⁹⁸ Chad Umble, "Lancaster city plans breakup with MAW, takeover of LanCity Connect," *Lancaster Online*, last modified February 6, 2021, https://lancasteronline.com/business/local_business/lancaster-city-plans-breakup-with-maw-takeover-of-lancity-connect-we-didnt-have-the-right/article_e4c44bc0-67ff-11eb-8d00-cf0f8fd8987e.html.

¹⁹⁹ Ibid.

Co-Op Broadband

Tri CoConnections, the internet branch of TriCounty Rural Electric Cooperative has continued to gradually expand its service area centered on western Potter County in the Coudersport area. Their digital literacy program aimed at senior citizens, which is operated in partnership with high school students, received local recognition. To build out their network, the organization has partnered with Graybar to provide a material management platform.²⁰⁰

Despite the Pennsylvania broadband law allowing local co-ops to apply for broadband funds, there is little indication that many other members in the Pennsylvania Rural Electric Association are preparing to commence broadband projects, despite many of these associations covering areas of poor broadband connectivity. The exception to this is Claverack REC based out of Wysox which has applied for USDA ReConnect funding. Because these co-ops are individual organizations that are locally controlled, the choice of whether to expand into broadband rest solely on their communities. It is possible that while coverage in these areas could be improved, it may be that local co-op members are relying on traditional internet providers to expand or perhaps do not feel organizing what can be a monumental undertaking.

To support this notion of reliance on traditional providers, Comcast claims that over 11,000 rural customers in the Pennsylvania now have access to internet.²⁰¹ Windstream, a DSL and fiber-to-end-user provider, announced that they would expand by 56,000 locations through 2021. There has been a decreased media focus on rural electric co-ops as an avenue to provide broadband in the last few years, possibly a result of the COVID-19 pandemic fully driving home the need for action among local communities and conventional broadband providers to create partnerships to address the digital divide. If other rural broadband co-ops do not organize to provide broadband, they will likely miss the opportunities offered by recent rounds of federal funding.

Rural Electrification

While many parallels have been drawn between rural electrification and broadband expansion one crucial difference is the federal government had a much more hands-on role in empowering electric co-ops through offering them technical assistance effectively providing a template that communities could use to build out their infrastructure. At the time, the federal government was taking on other large infrastructure projects, and the

²⁰⁰ *Deploying Broadband with Tri-County REC, Deploying Broadband with Tri-County REC* (Graybar, 2021), <https://www.tricoconnections.com/news-updates/bridging-the-digital-divide/>.

²⁰¹ Carl Weinschenk and Joan Engebretson, "Comcast Rural Pennsylvania Expansion Reaches 1,700 Locations," *Telecompetitor*, last modified March 9, 2022, <https://www.telecompetitor.com/comcast-rural-pennsylvania-expansion-reaches-1700-locations/>.

belief was held that electric companies who had failed to service less profitable portions of their communities should not be rewarded.

Almost 100 years later, this mentality has largely been abandoned, as federal government programs are primarily focused on providing funds to qualified partners who can figure out the best plan expansion. It may also be that building internet is a more complicated process than building out electric lines. While the current system makes the government's role purely an administrative one that does not need to get bogged down in the minutia of a country-wide effort to create broadband, it also puts pressure on states to oversee that these funds are spent appropriately and puts pressure on local communities to attract the right partners rather than jump into the process of constructing broadband themselves.

UPDATE: NEW 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 2021, Pennsylvania entities received four awards to further broadband infrastructure. The Greene County Broadband Implementation Initiative received \$2.5 million to “deploy 105 miles of fiber network to 108 businesses and 767 households” through a public-private partnership with Windstream.²⁰² The Clarion County Connected Project received a grant of \$1,096,125 to build a fixed wireless network that would then be maintained and utilized by an ISP chosen through a competitive process. Construction would include four new towers and utilize five existing 911 towers to bring coverage to 85 businesses and 1,620 households. Bedford County received \$745,588 for the Connecting the Alleghenies Through Core Broadband Infrastructure project. This project would build four new towers that would be utilized and maintained by a contracted ISP to provide speeds of 100/50 Mbps to five businesses and 350 households in the Bedford area. Last, Carbon County Commissioners received \$50,000 to complete a feasibility study to determine the best strategy for providing connectivity to the region.²⁰³

The ARC also administers a Central Appalachia & North Central/North Appalachia Broadband program which made \$15 million available for broadband planning and deployment in FY 2021.²⁰⁴

U.S. Department of Agriculture

The Rural eConnectivity Pilot Program (ReConnect Program) was originally provided \$600 million to serve rural areas where at least 90 percent of households lacked access to broadband at 10/1 Mbps speeds. The program was provided an additional \$550 million in FY 2019 and \$555 million in FY 2020. Another \$100 million

²⁰² “POWER 2021 Award Summaries,” *Appalachian Regional Commission*, accessed April 19, 2022, <https://www.arc.gov/wp-content/uploads/2021/12/POWER-2021-Award-Summaries-1.pdf>, 12.

²⁰³ *Ibid.*, 12-14.

²⁰⁴ “Appalachian Regional Commission -Central Appalachia & North Central/North Appalachia Broadband,” *Broadband USA*, accessed April 19, 2022, <https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding/appalachian-regional-commission-central-appalachia-north>.

was included in the CARES Act, which was available until September 30, 2021. In the first funding window, the Rural Utilities Service (RUS) administered \$744.3 million within 34 states and territories to 82 applicants. In this funding window, loans and loan/grant combinations were eligible if 90 percent of the households in the designated area lacked 10/1 Mbps speeds, and grants were only eligible if 100 percent of households lacked those speeds. Funding for both rounds was only eligible for:

- construction or improvement of facilities required to provide broadband service,
- terrestrial-based facilities for satellite broadband service,
- reasonable pre-application expenses in an amount not to exceed 5 percent of the award, and
- acquisition and upgrade of an existing system that does not currently provide sufficient access to broadband (acquisitions eligible only for 100 percent loans.)²⁰⁵

The second round of funding included \$512 million along with the \$100 million provided by the CARES Act. In this round, loans, loan/grant combinations, and grants all were eligible if 90 percent of the households in the designated area lacked 10/1 Mbps speeds. This round also increased the priority of federally determined Opportunity Zones.²⁰⁶

A third round of funding through this program was made available from November 24, 2021 to February 22, 2022 to areas where at least 90 percent of households do not have access to 100/20 Mbps speeds. Areas already receiving RDOF funds are eligible for this funding since it covers only capital expenses if able to demonstrate the need for additional funding. Up to three percent of funding can be used for pre-application expenses like environment review requirements. Applications were evaluated based on the following factors: rurality of the area, level of existing service, economic need of the community, affordability, labor standards, tribal lands, local governments, non-profits and cooperatives, socially vulnerable communities, net neutrality, and wholesale broadband services.²⁰⁷

There are four categories of funding offered in the third round of the ReConnect Program. The first is a 100 percent loan, which has \$200 million available, with a maximum award of \$50 million per applicant. The interest rate for the loan is fixed at two percent with principal and interest payments deferred for three years. Next is a 50 percent loan/50 percent grant which has \$350 million available and a maximum award of \$25 million per

²⁰⁵ *UDSA's ReConnect Broadband Pilot Program* (Congressional Research Service, August 3, 2020), <https://crsreports.congress.gov/product/pdf/IF/IF11262>.

²⁰⁶ *Ibid.*

²⁰⁷ "Rural eConnectivity Program," *Federal Register*, last modified October 25, 2021, <https://www.federalregister.gov/documents/2021/10/25/2021-23128/rural-econnectivity-program>.

applicant. Next is a 100 percent grant, which requires a matching contribution of 25 percent of the cost of the project that will be available at the closing of the award. Up to \$350 million is available in this program with the maximum award of \$25 million per applicant. Last is a 100 percent grant for Tribal Governments and Socially Vulnerable Communities with up to \$350 million available and a maximum award of \$25 million per applicant.²⁰⁸

The USDA also administers several other loan and grant opportunities. These include the Business and Industry Guaranteed Loan Program, which has a FY 2021 budget of \$1.3 billion, the Community Facilities Direct Loan and Grant Program with \$2.8 billion in direct loans and \$43 million in grants, the Community Facilities Guaranteed Loan Program with \$500 million available, \$57 million for the Distance Learning and Telemedicine Grant Program, and over \$11 million in the Rural Broadband Loan and Loan Guarantee Program.²⁰⁹

The Rural Business Development program provides for rural public entities to provide technical training for small rural businesses. This program has around \$41 million available in FY 2021. 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 \$39 million for loans and \$10 million for grants to local utility organizations undertaking rural projects. The Telecommunications Infrastructure Program has \$690 million available for broadband deployment.²¹⁰

Department of Commerce

The Broadband Infrastructure Program administered by the Department of Commerce provides grants to states participating in covered partnerships with providers to deploy broadband. This program has \$288 million in FY 2021. Huntington County, Pennsylvania was the recipient of \$20,463,175.38 through this program for Rural Broadband Infrastructure Expansion in the Alleghenies by Upward Broadband, Crowsnest Broadband, and Alleghenies Broadband, Inc.²¹¹ 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 2021, this program had \$206.5 million available. The EDA also offered a Statewide Planning, Research, and Networks Notice of Funding Opportunity that promotes the gathering of broadband data and planning broadband development. The American Rescue Plan made an additional \$500 million available in Economic Adjustment Assistance Grants, which can be used for a variety of projects including telecommunications infrastructure.²¹²

²⁰⁸ Ibid.

²⁰⁹ “Federal Funding,” *Broadband USA*, accessed April 19, 2022, <https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding>.

²¹⁰ Ibid.

²¹¹ “Broadband Infrastructure Program Awardees,” *Broadband USA*, accessed May 24, 2022, <https://broadbandusa.ntia.doc.gov/broadband-infrastructure-program-awardees>.

²¹² “Federal Funding,” *Broadband USA*.

Department of Education

The Student Support and Academic Enrichment Program, Title IV, Part A makes available \$1.22 billion in funding for increasing the use of technology and digital literacy of students.²¹³

Department of Housing and Urban Development

The Capital Fund program provides \$2.8 billion for grants which could be used to expand broadband development. The Section 108 Loan Guarantee Program allows low to moderate income areas to invest in broadband projects. This program had \$300 million available in FY 2021. The Community Development Block Grant makes \$3.45 billion available for economic development of low and moderate income areas. The Public Housing Operating Fund provides funding for Internet service in public spaces such as Neighborhood Networks and training of staff. \$7.8 billion is available in this program.²¹⁴

FCC Funding Adjusted for Inflation (Healthcare Connect Fund and E-Rate)

On March 14, 2022, the FCC increased the funding cap for the Healthcare Connect Fund to \$637,721,108 to represent a 4.2 percent inflation adjustment to the 2021 funding cap. The E-Rate program also received a 4.2 percent inflation adjustment, making the 2022 funding cap \$4,456,460,992.²¹⁵

Institute of Museum and Library Services (IMLS)

The Grants to States program administered by 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.²¹⁶ Pennsylvania's five-year plan includes improving library technology, technology support and training, and access to broadband.²¹⁷ Pennsylvania was allotted \$5,668,793 in 2021 and \$5,703,751 in 2022.²¹⁸

²¹³ Ibid.

²¹⁴ Ibid.

²¹⁵ Federal Communications Commission, "Wireline Competition Bureau Announces E-Rate and RHC Programs' Inflation-Based Caps for Funding Year 2022," Press Release, March 14, 2022, <https://docs.fcc.gov/public/attachments/DA-22-271A1.pdf>.

²¹⁶ "Grants to States," *Institute of Museum and Library Services*, accessed April 19, 2022, <https://www.imls.gov/grants/grant-programs/grants-states>.

²¹⁷ *Library Services & Technology Act Five-Year State Plan: Federal Fiscal Years: 2019-2022* (Pennsylvania Department of Education, June 217), <https://www.imls.gov/sites/default/files/state-profiles/plans/pennsylvania5yearplan.pdf>.

²¹⁸ "Pennsylvania," *Institute of Museum and Library Services*, accessed April 19, 2022, <https://www.imls.gov/grants/grants-state/state-profiles/pennsylvania>.

The American Rescue Plan Act of 2021

On March 11, 2021, The American Rescue Plan Act of 2021 was signed into law to provide an additional round of coronavirus relief to state and local governments. Some funding was specifically set aside for broadband expansion and other funding has a variety of eligible uses, including broadband deployment.

The Coronavirus Capital Projects Fund provides \$10 billion to “address many challenges laid bare by the pandemic, especially in rural America and low- and moderate income communities, helping to ensure that all communities have access to the high quality, modern infrastructure needed to thrive, including internet access.”²¹⁹ To start, \$100 million will be distributed to each of the 50 states, along with \$100 million each for Puerto Rico and Washington, D.C. An additional \$100 million will be shared between the Virgin Islands, American Samoa, Northern Mariana Islands, Marshall Islands, Federated States of Micronesia, and the Republic of Palau, and \$100 million will be split evenly between Tribal governments and Hawaii. After these allocations, the remaining funds will be distributed to states based on population, rural area distribution, and household income.²²⁰ State plans for these projects are due September 24, 2022, and funds must be fully expended by the end of 2026.²²¹

Lifeline

Due to the coronavirus pandemic, the FCC “temporarily waived recertification, reverification, general de-enrollment, subscriber usage, income documentation, and documentation requirements for subscribers residing in rural areas on Tribal lands and has extended those waivers until June 30, 2022.”²²² Current Lifeline subscribers are protected by FCC orders that no subscribers be involuntarily removed from the program during the national crisis. In April 2020, the FCC also temporarily waived the requirement to provide three consecutive months of income documentation, a change that has been extended until June 30, 2022.²²³

²¹⁹ “Capital Projects Fund,” *U.S. Department of the Treasury*, accessed April 28, 2021, <https://home.treasury.gov/policy-issues/coronavirus/assistance-for-state-local-and-tribalgovernments/capital-projects-fund>.

²²⁰ Department of Community and Economic Development and PUC Webinar, 2021 Funding Opportunities Breakdown, (March 8, 2021).

²²¹ Anna Read and Kathryn de Wit, “Strategies for Crafting Effective State Broadband Plans,” Issue Brief, Broadband Access Initiative, The Pew Charitable Trusts, April 20, 2022, <https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2022/04/strategies-for-crafting-effective-state-broadband-plans>

²²² *Order* (Federal Communications Commission, 2022), <https://docs.fcc.gov/public/attachments/DA-22-323A1.pdf>.

²²³ *Ibid.*

National Science Foundation

The National Science Foundation's Campus Cyberinfrastructure program provides funding to increase campus connectivity, infrastructure and research. The program had \$13 million available in FY 2021. Project Overcome will implement five submitted proof-of-concept broadband deployment strategies for underserved communities in urban and rural areas, with \$1.945 million available.²²⁴

Rural Digital Opportunity Fund

The completion of RDOF Phase I Auction brought almost \$36 million in broadband funding to Pennsylvania. However, once the winning bidders for the first phase were announced the winning bidders were required to submit long-form applications and given the opportunity to assign bids to other related entities that would submit long-form applications. The FCC received 417 long-form applications by February 18, 2021. The FCC has issued eight Ready to Authorize Public Notices, each one indicating a new batch of long-form applications that have been approved to receive the support. Pennsylvania winning bidders were not included until the fifth Ready to Authorize Public Notice. In this notice released in December of 2021, the winners mentioned were Armstrong Telecommunications, Inc., Centre WISP Venture Company, LLC, Claverack Communications, LLC, Tri-Co Connections, LLC, and a very significant portion were awarded to Windstream Pennsylvania, LLC. The sixth notice awarded around 29 bids to Time Warner Cable Information Services in January of 2022. The seventh notice, released in March of 2022, included bids from Centre WISP Venture Company, Time Warner Cable, and Armstrong Telecommunications. The eighth notice was released in April of 2022 and included a few bids by Centre Wisp Venture Company. The most recent notice at the writing of this report was the ninth notice, released in May of 2022. This notice included bids from the United Telephone Company of Pennsylvania and Youngsville Television Corporation. It is important to note that due to this strategy of rolling out funding, there are companies and locations that proposed winning bids that have not received their funding yet. Therefore, the clock on their funding has not begun ticking yet. The RDOF Phase II Auction will make \$11.2 billion available for applicants but will not take place until the new Broadband Data Collection and Broadband Map is available to determine eligibility of applicants. The completion of RDOF Phase I Auction brought almost \$115 million in broadband funding to Pennsylvania. However, the RDOF Phase II Auction, which will make \$11.2 billion available for applicants, will not take place until the new Broadband Data Collection and Broadband Map is available to determine eligibility of applicants.²²⁵

²²⁴ "Federal Funding," *Broadband USA*, accessed April 19, 2022, <https://broadbandusa.ntia.doc.gov/resources/federal/federal-funding>.

²²⁵ "The Rural Digital Opportunity Fund: What's Up with the Wait for Phase II?" *Connected Nation*, last modified September 24, 2021, <https://connectednation.org/blog/2021/09/24/the-rural-digital-opportunity-fund-whats-up-with-the-wait-for-phase-ii/>.

The Infrastructure Investment and Jobs Act

Deployment

The federal Infrastructure Investment and Jobs Act, signed into law on November 15, 2021, includes \$65 billion for broadband deployment.

\$42.45 billion will go to a new Broadband Equity, Access, and Deployment (BEAD) Program established by the Assistant Secretary of Commerce for Communications and Information. The program will allocate grants to high-cost areas and provide technical support for entities applying for grants. Each state will receive a minimum of \$100 million, with the United States Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands receiving \$100 million to split evenly between them.²²⁶ Initially states have the option to submit a five-year action plan and receive \$5 million of the funding per state or \$1.25 million per territory to allow the beginning stages of planning and coordination to commence. Then \$4.245 billion of the funding will be distributed using a formula that compares the unserved locations (those not having 25/3 Mbps speeds) in high-cost areas in the state to unserved locations in high-cost areas across the country according to new FCC mapping. Those regions not providing more than 100/20 Mbps speeds are considered underserved.²²⁷ The stated priority is regions having less than 25/3 Mbps speeds, then 100/20 Mbps, and lastly community anchor institutions with less than 1/1 GigaBits per second (Gbps). The remaining funding will be distributed based on the number of unserved locations in an eligible entity compared to the number of unserved locations in the United States.²²⁸

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."²²⁹

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;

²²⁶ Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. § 60102(b) (2021-2022).

²²⁷ *A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and Other Partners* (Washington, DC: The White House, 2022), https://www.whitehouse.gov/wp-content/uploads/2022/01/BUILDING-A-BETTER-AMERICA_FINAL.pdf, 391.

²²⁸ "Grants," *National Telecommunications and Information Administration*, accessed May 31, 2022, <https://www.ntia.doc.gov/category/grants>.

²²⁹ H.R. 3684, 117th Cong. § 60102(h) (2021-2022).

- 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.²³⁰

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.²³¹ 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.²³²

Eligible entities must submit a letter of intent to participate in the program by July 18, 2022. Entities that have completed this step may apply for up to \$5 million in planning funds by August 15, 2022 and must release a Five-Year Action Plan within 270 days of receiving the funding. The notice of available funding will be released by the NTIA when the new FCC maps are available. Entities will then have 180 days to provide an Initial Proposal describing how subgrants will be distributed. After a challenge process, the NTIA will make a determination about a proposal and if approved, make 20 percent of the allocated funds available to the entity. The entity will then select the subgrantees, submit a final proposal, and undergo ongoing monitoring on the project’s performance.²³³

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.”²³⁴ This program will be called the Middle Mile Broadband Infrastructure

²³⁰ H.R. 3684, 117th Cong. § 60102(f) (2021-2022).

²³¹ H.R. 3684, 117th Cong. § 60102(h) (2021-2022).

²³² H.R. 3684, 117th Cong. § 60102(h) (2021-2022).

²³³ *Notice of Funding Opportunity, Broadband Equity, Access, and Deployment Program Executive Summary* (NTIA), <https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>.

²³⁴ H.R. 3684, 117th Cong. § 60401(c) (2021-2022).

Program. \$980 million will be allocated for fiscal years 2022-2026 for the middle mile grants.²³⁵ 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.²³⁶

Eligible entities include states, political subdivisions and Tribal government, private industry entities, non-profits, regional planning councils, and economic development authorities.²³⁷ 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.²³⁸ The amount awarded in a middle mile grant must be less than or equal to 70 percent of the total project's cost.

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 Gpbs 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, 2023.²³⁹

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 \$30.²⁴⁰

²³⁵ H.R. 3684, 117th Cong. § 60401(h) (2021-2022).

²³⁶ H.R. 3684, 117th Cong. § 60401(e) (2021-2022).

²³⁷ "Internet for All Webinar Series: Enabling Middle Mile Broadband Infrastructure Program," *Broadband USA*, accessed May 31, 2022, <https://broadbandusa.ntia.gov/events/latest-events/internet-all-webinar-series-enabling-middle-mile-broadband-infrastructure>.

²³⁸ H.R. 3684, 117th Cong. § 60401(e) (2021-2022).

²³⁹ *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>.

²⁴⁰ "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->

The Act establishes another program under the Assistant Secretary of Commerce for Communications and Information called the State Digital Equity Capacity Grant Program. This program will receive \$1.44 billion.²⁴¹ 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.²⁴² A State Digital Equity Planning Grant Program of \$60 million is available to assist states in developing these plans.²⁴³ Additionally, a Digital Equity Competitive Grant Program will also be established, which will receive \$1.25 billion to be distributed in discretionary grants over five years.²⁴⁴

Applications for the State Digital Equity Planning Grant Program, which will assist states in their goals of creating a State Digital Equity Plan, are due to the NTIA July 12, 2022. Awards are 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. The planning grant can be used to establish subgrants to entities that can assist in the creation of a State Digital Equity Plan. This 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.²⁴⁵

The Act makes \$1.926 billion available for the Broadband ReConnect Program grants, loans, or loan-grant combinations administered by the USDA.²⁴⁶ \$74 million will be provided to the existing Rural Broadband Access Loan and Loan Guarantee Program to finance loans for broadband construction and deployment.²⁴⁷ Tribal Broadband Connectivity Grants will receive an additional \$2 billion.²⁴⁸ \$250,000 will go to the Denali Commission to support development of broadband in rural Alaska.²⁴⁹ \$600 million will support private equity bonds for rural broadband deployment.²⁵⁰

The Act also allows for the FCC to provide grants that would help promote education about the Affordable Connectivity Program, though the amount available and

expansion?utm_source=National+Conference+of+State+Legislatures&utm_campaign=fa0fe8497b-Today_Nov_11&utm_medium=email&utm_term=0_1716623089-fa0fe8497b-377902076.

²⁴¹ “Infrastructure Bill,” *Governing*.

²⁴² H.R. 3684, 117th Cong. § 60304(c) (2021-2022).

²⁴³ *A Guidebook to the Bipartisan Infrastructure Law*, 395.

²⁴⁴ *Ibid.*

²⁴⁵ *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>.

²⁴⁶ *Ibid.*, 394.

²⁴⁷ *Ibid.*, 399.

²⁴⁸ H.R. 3684, 117th Cong. Title II (2021-2022).

²⁴⁹ *A Guidebook to the Bipartisan Infrastructure Law*, 402.

²⁵⁰ *Ibid.*, 387.

possible recipients have yet to be determined.²⁵¹ A NPRM for such an outreach grant program was issued on January 14, 2022, with comments due March 16, 2022.²⁵²

\$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.²⁵³

Broadband Consumer Labels

The Act also reintroduces a mid-2010s concept of a broadband consumer label that would require ISPs to provide pricing transparency to consumers. Earlier iterations of this policy had been enacted in 2015 by an FCC Open Internet Order and then overturned by a 2017 FCC Restoring Internet Freedom Order.²⁵⁴ The Infrastructure Act requires the FCC to “promulgate regulations to require the display of broadband consumer labels... to disclose to consumers information regarding broadband internet access service plans.”²⁵⁵ The ISPs must distinguish between an introductory rate and the rate that would follow the introductory period. The FCC price data collection will be based on the consumer label information. Lastly, the FCC will conduct hearings to determine: “(1) how consumers evaluate broadband internet access service plans; and (2) whether disclosures to consumers of information regarding broadband internet access service plans, including the disclosures required under section 8.1 of title 47, Code of Federal Regulations, are available, effective, and sufficient.”²⁵⁶

GAO Report

Within a year of the passage of the Infrastructure Act, the U.S. Government Accountability Office will submit a report to several congressional committees that investigates the process the FCC uses for determining minimum speed thresholds. The GAO report should also investigate whether the FCC should consider increasing needs for higher speeds over the next five to ten years and technological innovations like “the proliferation of internet-based business; working remotely and running a business from home; video conferencing; distance learning; in-house web hosting; and cloud data storage,” when establishing a minimum speed threshold.²⁵⁷

²⁵¹ Ibid., 400.

²⁵² “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>.

²⁵³ *A Guidebook to the Bipartisan Infrastructure Law*, 401.

²⁵⁴ Jonathan Schwantes, “The Rise, Fall, & Return of the Consumer Broadband Label,” *Consumer Reports*, last modified July 26, 2021, <https://digital-lab.consumerreports.org/2021/07/26/the-rise-fall-return-of-the-consumer-broadband-label/>.

²⁵⁵ H.R. 3684, 117th Cong. § 60504(a) (2021-2022).

²⁵⁶ H.R. 3684, 117th Cong. § 60504(b)(c) (2021-2022).

²⁵⁷ H.R. 3684, 117th Cong. § 60505 (3)(a) (2021-2022).

Digital Discrimination

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.”²⁵⁸ 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.²⁵⁹ These measures are being set in place in this Act to combat “digital redlining,” the systematic discrimination by ISPs against low income communities.²⁶⁰

In June 2021, The FCC, NTIA, and USDA entered a memorandum of understanding (MOU) to coordinate the distribution of federal high-speed internet funds. In May 2022, the three agencies and the Department of the Treasury announced that they had entered into an additional interagency agreement to share information and about projects that have received or will receive funding from programs administered by the agencies for broadband deployment purposes.²⁶¹

Current Pennsylvania Grant and Loan Programs

The Pennsylvania Grant and Loan Programs remain available as they were in 2021. Aside from the Pennsylvania Broadband Investment Initiative, which committed \$35 million in funding towards broadband expansion, there are some programs administered by the Department of Community and Economic Development (DCED) that have broadband infrastructure as an eligible use of funds. Local Share Account funds are available in Fayette, Luzerne, Monroe, Montgomery and Washington County to be used for economic development, community improvement and public interests.²⁶²

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.”²⁶³ Municipalities, municipal authorities, redevelopment

²⁵⁸ H.R. 3684, 117th Cong. § 60506 (c)(1) (2021-2022).

²⁵⁹ H.R. 3684, 117th Cong. § 60506 (d-e) (2021-2022).

²⁶⁰ Shara Tibken, “The Broadband Gap’s Dirty Secret: Redlining Still Exists in Digital Form,” *CNet*, last modified June 28, 2021, <https://www.cnet.com/features/the-broadband-gaps-dirty-secret-redlining-still-exists-in-digital-form/>.

²⁶¹ Federal Communications Commission, “FCC, NTIA, USDA and Treasury Announce Interagency Agreement to Collaborate on Federal Broadband Funding,” Press Release, May 12, 2022, <https://www.fcc.gov/document/fcc-ntia-usda-treasury-announce-broadband-info-sharing-agreement>.

²⁶² “Broadband Funding and Information Resources,” *Pennsylvania Department of Community and Economic Development*, accessed April 19, 2022, <https://dced.pa.gov/broadband-resources/broadband-funding-information/>.

²⁶³ “Business in Our Sites Grants/Loans (BOS),” *Pennsylvania Department of Community and Economic Development*, accessed April 19, 2022, <https://dced.pa.gov/programs/business-in-our-sites-grants-and-loans-bos/>.

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.²⁶⁴

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.²⁶⁵

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.”²⁶⁶ 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.

Act 24 of 1921 amended the Fiscal Code to create the Homeowner Assistance Grant Program within the Pennsylvania Housing Finance Agency to assist eligible low-income individuals to pay household expenses, including Internet service and broadband internet access service.²⁶⁷ \$350 million in ARPA funds were received by Pennsylvania for this program. After the program was approved by the U.S. Treasury, applications began to be accepted on February 1, 2022. As of April 28, 2022, over \$6 million in grants had been made.²⁶⁸

²⁶⁴ “Business in Our Sites Program Guidelines, January 2020,” *Pennsylvania Department of Community and Economic Development*, accessed April 19, 2022, <https://dced.pa.gov/download/business-sites-guidelines/?wpdmdl=67429>.

²⁶⁵ “Keystone Communities Program (KCP),” *Pennsylvania Department of Community and Economic Development*, accessed April 19, 2022, <https://dced.pa.gov/programs/keystone-communities-program-kcp/>.

²⁶⁶ “Pennsylvania First Program (PA First),” *Pennsylvania Department of Community and Economic Development*, accessed April 19, 2022, <https://dced.pa.gov/programs/pennsylvania-first-program-pa-first/>.

²⁶⁷ Article I-F, Homeowners Assistance Grant Program, § 101-F of the act of April 9, 1929 (P.L.343, No. 176), known as the Fiscal Code, as amended by the Act of June 30, 2021 (P.L.62, No.24).

²⁶⁸ Pennsylvania Housing Assistance Fund (PAHAF) Dashboard, accessed April 29, 2022, <https://pahaf.org/program-dashboard/>. See also, “Wolf Administration Launches \$350 Million Pa. Homeowner Assistance Fund,” Press Release, January 6, 2022, <https://www.governor.pa.gov/newsroom/wolf-administration-launches-350-million-pa-homeowner-assistance-fund/>.

UPDATE: RECENT PENNSYLVANIA STATE AND LOCAL INITIATIVES

Local Efforts

York County

A feasibility study conducted by Lit Communities consulting firm in 2020 found that the best way to provide internet connectivity to the least connected communities was to build seven rings of middle mile network and use that existing infrastructure to attract private company investment. The areas that would most benefit from these rings are: “Dover Township, Conewago Township, Lower Windsor Township, North Hopewell Township, Jackson Township, Jefferson and Red Lion...”²⁶⁹ The first rings to be completed will be in Red Lion, North Hopewell Township, and Jefferson. The board established the YoCo Fiber Broadband Task Force, which is currently fundraising for the first phase of the project. A pilot project using \$1.5 million in CARES Act funding created 16 miles of fiber infrastructure along the Heritage Rail Trail that can be built upon when construction begins on the first phase of the project.²⁷⁰

As of December 2021, they were accepting bids looking for firms to construct 144 miles of broadband.²⁷¹ The county requires that the project targets 47,000 households and over 4,000 businesses. An additional \$5 million is being spent by the cities of York and Hanover on the creation of public WiFi networks.

Bedford County

In 2020, Bedford County used \$184,000 in CARES Act funding to provide connectivity to 900 consumers with wireless transmitters. This project was completed in December 2020. In 2021, Bedford County started a broadband initiative called “Speed Zone” in which the county will partner with regional non-profit Alleghenies Broadband, Inc (ABI) to begin projects that utilize a variety of technologies to deliver broadband connectivity to consumers. The Request for Proposals, due July 7, 2021, asked for 100/100

²⁶⁹ Lindsey O’Laughlin, “York County’s Broadband Strategy: If You Build it, They Will Come,” *York Dispatch*, last modified February 9, 2021, <https://www.yorkdispatch.com/story/news/2021/02/09/york-countys-broadband-strategy-if-you-build-it-they-come/4434000001/>.

²⁷⁰ Ibid.

²⁷¹ The County of York, “YoCo Fiber Initiative Opens Bids for Design, Engineering and Construction,” Press Release, December 16, 2021, <https://yorkcountypa.gov/communications-office/news/1993-yoco-fiber-initiative-opens-bids-for-design-engineering-and-construction.html>.

Mbps speeds unless such speeds were impractical, at which point 100/20 Mbps could be acceptable.²⁷²

Fayette County

Fayette County has partnered with Vitalink LLC to build out fixed-point wireless internet service. With this system, antennas are mounted on buildings and receive signals from broadcast towers that provide internet service. Fayette County mounted such hotspots on 10-15 miles of historic highway Route 40. Vitalink also assisted with installing 27 hotspots on public buildings and churches in the county. These hotspots have provided possible coverage to around twenty percent of county residents. The Fayette County Commissioner hopes to have most of the county connected in eighteen months, using a portion of \$25 million in grant money.²⁷³

Indiana County

Indiana County's County Broadband Deployment Initiative received a \$1.5 million matching grant from the Appalachian Regional Commission (ARC) to invest in broadband deployment. The initiative will use \$1.5 million in local money in conjunction with the matching grant to deploy over 100 miles of fiber optic cable and eight wireless telecom sites that will bring connectivity to 825 houses and 75 businesses.²⁷⁴

Columbia, Montour, and Northumberland Counties

Comcast announced the expansion of fiber-base network to 1,700 homes and businesses in parts of these three north central Pennsylvania counties in March 2022. Residential speeds can reach 1,200 Mbps and business speeds up to 100 Gbps.²⁷⁵

Pennsylvania Turnpike Commission Fiber Optic Network

The Pennsylvania Turnpike Commission began work in April 2021 on a fiber optic network that would stretch 220 miles, along both the Mainline PA Turnpike and the Northeast Extension. The project "includes two 288-count fiber optic cables and two empty ducts for the PTC and one 288-count fiber optic cable and three empty ducts for

²⁷² Kelsey Rogers, "Bedford County Launches County-Wide Broadband Initiative," *WTAJ*, last modified June 11, 2021, <https://www.wearecentralpa.com/news/local-news/bedford-broadband/>.

²⁷³ Kris B. Mamula, "Historic Pennsylvania Highway Paves Route to Better Broadband," *Government Technology*, last modified May 17, 2021, <https://www.govtech.com/fs/historic-pennsylvania-highway-paves-route-to-better-broadband>.

²⁷⁴ Patrick Cloonan, "ARC Awards \$1.5 Million for Broadband in Indiana County," *The Indiana Gazette*, last modified April 3, 2021, https://www.indianagazette.com/news/arc-awards-1-5-million-for-broadband-in-indiana-county/article_79ac80e4-bafe-5303-b407-f2e1c2699aa7.html.

²⁷⁵ "Comcast Reports Fiber-Based Network Now Passes 11K in Rural PA," *Broadband Technology Report*, last modified March 11, 2022, <https://www.broadbandtechreport.com/fiber/article/14235437/comcast-reports-fiberbased-network-now-passes-11k-in-rural-pa>.

commercialization.”²⁷⁶ Black and Veatch designed and built the fiber optic network, Plenary Broadband Infrastructure (PBI), LLC will operate and maintain the network, and PBI and Tilson Infrastructure will commercialize the excess capacity for fiber the project creates. Tilson Technology Management, Inc. will manage the operation contract.²⁷⁷ The project is due to be completed in 2022, and the western section of the Turnpike should have fiber optic infrastructure by 2026.²⁷⁸

This project has cost around \$95 million and is near completion. PBI and Tilson Infrastructure will receive 50 percent of the revenue from marketing the excess capacity, which is made up of four channels, to ISPs. There are access points currently available every 2,400 feet along the Turnpike. New access points can be added by Tilson if necessary. The PA Turnpike Commission estimates that over the lifetime of the contract, 50 percent of the revenue could be over \$100 million.²⁷⁹

BROADBAND RELATED LEGISLATION Pennsylvania, January 2021 – June 2022			
Bill/Printer’s No.	Prime Sponsor	Subject	Status
HB 40, PN 280	Grove	Create the state Office of Information Technology to oversee cybersecurity and IT operations in state agencies, including broadband operations and security	1 st consideration January 27, 2021; laid on the table April 7, 2021
HB 166, PN 134	Snyder	Authorizes municipal authorities to deploy broadband	Referred to H. Local Government January 14, 2021
SB 341, PN 375	Phillips-Hill	Streamline regulations for telecommunications carriers	Passed Senate (28-19) May 25, 2021; Referred to H. Consumer Affairs May 26, 2021
SB 442, PN 460	Phillips-Hill	Provides for an inventory of State-owned assets for development of fixed broadband services in unserved areas	Passed Senate (27-20) May 25, 2021; 2nd consideration; Re-referred to H. Approps. June 21, 2021

²⁷⁶ “PA Turnpike Commission Fiber Optic Network,” *Pennsylvania Turnpike*, accessed January 10, 2022, <https://www.paturnpike.com/traveling/design-construction/ptc-fiber-project>.

²⁷⁷ Ibid.

²⁷⁸ “PA Turnpike Partners with Broadband Infrastructure Experts,” Press Release, October 7, 2021, <https://www.paturnpike.com/news/details/2021/10/08/20211007105650>.

²⁷⁹ Ed Blazina, “Pennsylvania Turnpike Poised to Profit from Excess Broadband,” *Government Technology*, last modified October 12, 2021, <https://www.govtech.com/network/pennsylvania-turnpike-poised-to-profit-from-excess-broadband>.

**BROADBAND RELATED LEGISLATION
Pennsylvania, January 2021 – June 2022**

Bill/Printer's No.	Prime Sponsor	Subject	Status
HB 956, PN 968	Ortitay	Provides for county block grants under broadband deployment and development program	Referred to H. Consumer Affairs March 17, 2021
SB 482, PN 1185	Phillips-Hill	Consolidating all state government IT under the Office of Information Technology (includes broadband)	Passed Senate (29-20) January 19, 2022; Referred to H. State Government January 21, 2022
HB 1042, PN 1078	Stambaugh	Requires local exchange companies to be able to offer broadband at FCC minimums by January 2025	Referred to H. Consumer Affairs March 29, 2021
HB 1075, PN 1111	Snyder	Establishes the Pennsylvania Broadband Development Authority	Referred to H. Consumer Affairs April 1, 2021
HB 1152, PN 1208	Diamond	Digital Fair Repair Act – creates a right to repair for owners of computerized equipment and vehicles	Referred to H. Commerce April 12, 2021
SB 769, PN 898	Browne	Small Wireless Facilities Deployment Act	Passed Senate (49-1) June 22, 2021; Referred to H. Consumer Affairs June 23, 2021
HB 609, PN 1281	Emrick	Exempts employees, contractors, and agents of ISPs from the licensure requirements of the Engineer, Land Surveyor and Geologist Registration Law if they are engaged in non-engineering work for the company	Passed House (197-4) May 4, 2021
HB 1042, PN 1078	Stambaugh	Require local carriers providing broadband under the Public Utility Code to increase speeds to FCC minimums by January 2025	Referred to H. Consumer Affairs March 29, 2021
HB 992, PN 1190	D. Miller	Remote eWIC Re-loading Pilot Program for Families Receiving WIC – internet delivery of public benefits	Referred to H. Health April 7, 2021
HB 1629, PN 1804	E. Nelson	Amends the Capital Facilities Debt Enabling Act to establish a funding stream for broadband capital projects and energy infrastructure capital projects	Referred to H. Appropriations June 14, 2021
HB 1658, PN 1857	Heffley	Amends the Transportation Code to assist local telephone companies in moving poles for highway, bridge and tunnel construction	Passed House (199-0) September 28, 2021 Referred to S. Transportation September 28, 2021

**BROADBAND RELATED LEGISLATION
Pennsylvania, January 2021 – June 2022**

Bill/Printer's No.	Prime Sponsor	Subject	Status
SB 923, PN 1179	Brooks	Prohibits the use to telemedicine with regards to any medication that the FBS has issued a risk evaluation and mitigation strategy (drug safety program for high risk medications, including some psychotropics, cancer medications, etc.)	Referred to S. Health and Human Services October 26, 2021
SB 962, PN 1350	Langerholc	Creates the Rural Coworking and Innovation Center Grant Program to assist workers to be able to access high-speed broadband in rural counties and municipalities	Passed Senate (49-0) April 12, 2022 Referred to H. Commerce April 14, 2022
SB 1012, PN 1352	Santarsiero	Amends the Fiscal Code to allocate funding through the LIHEAP program (heating assistance) and DCED to provide utility payment assistance to middle income consumers	Referred to S. Consumer Protection and Professional Licensure January 25, 2022
HB 2391, PN 2813	Fritz	Excludes net gain or income from installation of high-speed broadband on real property from the state personal income tax (defined at FCC minimums)	Referred to H. Finance March 9, 2022
HB 2419, PN 2841	Pickett	Authorizing use of telehealth for psychiatric outpatient services and addressing telehealth psychiatric and advanced practice professionals' supervision requirements in outpatient psychiatric clinics	Passed House (199-0) April 12, 2022; 2 nd consideration and referred to S. Approp. June 15, 2022; reported as committed June 22, 2022
SB 1204, PN 1619	Tartaglione	Creates the Pennsylvania Opportunity Program and Fund to be administered by Pa. Treasury to make one-time state tax exempt payments of \$2,000 to families with income of less than \$80K to be used for pandemic related expenses, including broadband services	Referred to S. Finance April 26, 2022

UPDATE:

METHODS EMPLOYED IN OTHER STATES

Statutory enactments in other states during the period July 2021 to June 2022 primarily involve the authorization to accept and spend federal funding on broadband. Other more substantive issues have included: increasing minimum speeds, highway right of ways, mapping projects, pole attachment regulation, digital literacy, and authorization of municipalities to become ISPs.

In March 2022, the Alabama Legislature adopted a proposed constitutional amendment to authorize the state, a county, or municipality “to grant federal award funds or any other source of funding designated for broadband infrastructure by state law to public or private entities for providing or expanding broadband infrastructure.” The question is expected to be on the ballot at next general election, although a special election could be called.²⁸⁰

Additionally, Alabama increased its minimum speeds to 100 mbps/20 mbps for its Connect Alabama grant program, authorized the Department of Economic and Community Affairs to enter into non-disclosure agreements to protect ISPs proprietary information and establish middle mile and line extension programs in its Connect Alabama grant program.²⁸¹ The Alabama Broadband Accessibility Act was amended to provide for mandatory participation in the state’s broadband mapping program for all potential and current grant recipients, added local government units are potential grantees under the accessibility grant program, established 100/20 as the minimum speed for service in general and for grants to provide service in some unserved rural areas, set minimum speeds at 100/100. Additionally, grant recipients are required to commit to improving the adoption rate of broadband services by offering programs to households that meet DECA or funding source guidelines including, including, but not limited to, special service rates, Internet-enabled devices that meet the needs of the user, and digital skills training.²⁸²

The California Advanced Services Fund (CASF) was created to encourage deployment of high-quality advanced communications services to all Californians that will promote economic growth, job creation, and the substantial social benefits of advanced information and communications technologies. The program, scheduled to end in 2022, was extended by amendment in 2022 to terminate December 31, 2032. Administered by the California Public Utility Commission, the 2022 amendment authorized the PUC to require each internet service provider, to report the following information regarding each free, low-cost, income-qualified, or affordable internet service plan advertised by the

²⁸⁰ Alabama Act 117, adopted March 10, 2022 (HB255).

²⁸¹ Alabama Act 125, signed by the Governor March 10, 2022 (SB 123).

²⁸² Alabama Act 138, Signed by the Governor March 15, 2022 (SB124).

provider: the cost of the plan, including any fees and taxes; the eligibility requirements for the plan; the data limitations of the plan; the number of California residents enrolled in the plan; and a description of the outreach efforts undertaken by the provider to eligible populations to increase awareness about the plan. The PUC was required under this act to report, in perpetuity, information regarding remaining unserved areas, the CASF balance, and projected collections of its surcharge for the coming year.²⁸³

Additional enactments in California in the fall of 2021 included expanding State’s “dig once” policy by requiring the Department of Transportation’s to ensure that certain projects funded in priority areas include the installation of conduits capable of supporting fiber optic communication cables. Additional procedures were adopted to ease the approval of encroachment permit applications for broadband facilities seeking to encroach on highways.²⁸⁴ The PUC is required to maintain and update a statewide, publicly accessible, and interactive map showing the accessibility of broadband service in the state.²⁸⁵ A state statute that required state video service franchisees to report annually to the PUC on the availability of and subscriptions to broadband and video service was amended to remove the reporting requirement and instead impose a duty on the PUC to collect data on actual locations service by franchise holders, adopt customer service requirements for franchisees, and adjudicate customer complaints.²⁸⁶ Another statute required the Governor’s Office of Business and Economic Development to coordinate with other state agencies and national organizations to explore ways of streamlining local land use approvals and construction permit processes for projects related to broadband infrastructure deployment and connectivity.²⁸⁷ Additionally, one-time appropriations to support various aspects of broadband development involving libraries were made.²⁸⁸

The issuance of mortgage revenue bonds by joint power entities in California was expanded to include the issuance of revenue bonds for the deployment of broadband infrastructure by a public entity or nonprofit organization. The ability of municipal entities to develop, maintain and operate broadband internet access was extended under this act as well. The Office of Broadband and Digital Literacy was also charged with developing, maintaining, and operating a statewide open-access middle-mile broadband network.²⁸⁹ Another statute eases the permitting process for developing, collocating, and siting a wireless telecommunications facility. It also eased the use of microtrenching for the installation of underground fiber.²⁹⁰

Colorado established the Colorado Broadband Office in the Office of Information Technology, created a digital inclusion grant program, a broadband stimulus grant program, and an internet connectivity grant program.²⁹¹ A program to provide financial

²⁸³ California, Chapter 658, signed by the Governor October 8, 2021 (AB 14).

²⁸⁴ California, Chapter 670, signed by the Governor October 11, 2021 (AB 955).

²⁸⁵ California, Chapter 659, signed by the Governor October 11, 2021 (AB 41).

²⁸⁶ California, Chapter 673, signed by the Governor October 8, 2021 (SB 28).

²⁸⁷ California, Chapter 671, signed by the Governor October 8, 2021 (SB 4).

²⁸⁸ California, Chapter 21, signed by the Governor June 28, 2021 (AB 128).

²⁸⁹ California, Chapter 112, signed by the Governor July 20, 2021 (SB 156).

²⁹⁰ California, Chapter 677, signed by the Governor October 8, 2021 (SB378).

²⁹¹ Colorado, Chapter 371, signed by the Governor June 28, 2021 (HB 1289).

assistance for income-eligible households to access broadband service was implemented by statute,²⁹² and expanded the types of electric transmission facilities that were authorized to charge collocation fees for broadband facilities within their rights of way.²⁹³ The Colorado Department of Transportation was charged with developing a uniform electronic application, permitting, contract, and fee structure to facilitate nongovernmental entities' access to public rights of ways for the deployment of broadband by August 30, 2022.²⁹⁴

Connecticut enacted a comprehensive broadband law that requires the Office of Policy and Management to maintain an up-to-date broadband map with data showing the availability and adoption of broadband service, requires the Department of Energy and Environmental Protection to create a broadband deployment grant program and to maintain a public listing of federal funding opportunities, and imposes duties on the Public Utilities Regulatory Authority to establish “dig once” requirements for broadband underground facilities.²⁹⁵

Florida provided for a GIS broadband mapping program and revised its rules governing pole attachments.²⁹⁶

Hawaii established the Broadband and Digital Equity Office within its Department of Business, Economic Development, and Tourism, and created the broadband infrastructure grant program.²⁹⁷

Idaho enacted dig once and right of way legislation in March 2022.²⁹⁸

Illinois amended its Broadband Advisory Council Act to add four additional members to the Council to represent underrepresented and ethnically diverse communities.²⁹⁹

In 2022, Kentucky passed comprehensive broadband legislation that created the Office of Broadband Development, administratively attached to the Kentucky Infrastructure Authority. A revolving fund was established to receive federal funds and loan and grant programs are provided for. Funding will be provided to extend broadband service to unserved areas (defined as speeds of 25/3) and underserved areas (defined as speeds of 100/20). Previous broadband funding was limited to fixed, terrestrial broadband, and that restriction was removed.³⁰⁰

²⁹² Colorado, Chapter 357, signed by the Governor June 27, 2021 (SB 60).

²⁹³ Colorado, Chapter 329, signed by the Governor June 24, 2021 (SB 72).

²⁹⁴ Colorado, Chapter 72, signed by the Governor April 7, 2022 (SB 83).

²⁹⁵ Connecticut, Public Act 21-159, signed by the Governor July 12, 2021 (HB 6442).

²⁹⁶ Florida, Chapter 24, signed by the Governor May 7, 2021 (HB 1239).

²⁹⁷ Hawaii, Act 225, signed by the Governor July 6, 2021 (HB 1191/ SB 917).

²⁹⁸ Idaho, Chapter 208, signed by the Governor March 24, 2022 (HB 640).

²⁹⁹ Illinois Public Act 102-247, signed by the Governor August 3, 2021 (SB 919).

³⁰⁰ Kentucky Act 202, signed by the Governor with a line-item veto April 11, 2022; veto overridden April 13, 2022 (HB 315).

Louisiana established a Rural Development Program to assist rural areas to improve living conditions, including matters such as broadband connectivity, water quality, and sewer treatment.³⁰¹ The Louisiana State Legislature authorized funds to receive federal ARPA funds, including the use of funds for the Granting Unserved Municipalities Broadband Opportunities Fund (GUMBO Fund).³⁰² A last-mile program was also created in the summer of 2021.³⁰³

Maine amended its Municipal Gigabit Broadband Network Access Fund, which is designed to address the need in Maine to access ultra high-speed broadband infrastructure through the provision of grants to communities, regional partnerships and municipalities to support a municipal gigabit fiber-optic 35 broadband network. The amendment limits the grants to a municipality or group of municipalities, provides definitions of "gigabit fiber-optic network," "symmetrical high-speed Internet" and "open-access network" and requires the authority, beginning in 2025, to establish minimum upload and download speeds for a symmetrical high-speed Internet at least equal to the minimum upload and download speeds available to a majority of urban census blocks in the United States.³⁰⁴ Another statute established the Connectivity Infrastructure Act.³⁰⁵ In April 2022, a statute was enacted that established the Internet Access Expansion Investment Fund to expand and improve Internet access. Electric cooperatives and utilities, including municipal utilities are authorized to build and maintain broadband or other internet access systems.³⁰⁶

Mississippi enacted the Broadband and Accessibility of Mississippi Act (BEAM) in April 2022 to prepare for receipt of federal infrastructure development funds. While "unserved" and "underserved" are not defined, "broadband service" is defined as speeds of 100/20.³⁰⁷

Missouri allows two or more municipalities to form a broadband infrastructure improvement district for the delivery of broadband internet service to the residents of such municipalities. A district has the power partner with a telecommunications company or broadband service provider to construct or improve telecommunications facilities.³⁰⁸

Nebraska created the Nebraska Broadband Bridge Act within the Public Service Commission. The act provides grants annually increase high-speed broadband across the state. Eligible areas to receive the grants are prioritized into three categories: unserved areas that have not been targeted for a project; unserved areas that are receiving federal support for construction that will not be completed within 24 months, and underserved areas that have developed a broadband and digital inclusion plan. Grant recipients of the grant must provide broadband speeds of 100 Mbps/100 Mbps or greater, matching funds

³⁰¹ Louisiana Act 331, signed by the Governor June 14, 2021 (HB 622).

³⁰² Louisiana, Act 410, signed by the Governor June 17, 2021 (HB 642).

³⁰³ Louisiana, Act 477, signed by the Governor June 29, 2021 (HB 648).

³⁰⁴ Maine Public Chapter 362, became law without the Governor's signature June 24, 2021 (LD 1432, Special Session).

³⁰⁵ Maine Public Chapter 364, signed by the Governor June 24, 2021 (LD 1484, Special Session).

³⁰⁶ Maine Chapter 616, signed by the Governor April 15, 2022 (LD 1894).

³⁰⁷ Mississippi HB 1029, signed by the Governor April 14, 2022.

³⁰⁸ Missouri HB 271, signed by the Governor June 15, 2021.

equal to at least 50% of the development costs, and complete the project within 18 months. The Commission may permit one extension of up to six months upon request and for good cause. If the project is not completed within the time frame, a percentage of the grant must be repaid for each month the project is extended. After completion of a project, recipients will be required to conduct a speed test as determined by the Public Service Commission. If the broadband network does not provide scalable speeds of 100/100, the grant must be paid back.³⁰⁹

Nevada created the Account for the Grant Program for Infrastructure that is funded by providers of broadband or commercial mobile radio service to participate in a voluntary contribution program for broadband infrastructure that enables a customer of the provider to opt in and make voluntary monetary contributions as part of the customer's monthly bill to fund a program of infrastructure grants for broadband deployment. The grants are to be used for infrastructure grants for the development or improvement of broadband services for persons with low income and persons in rural areas of the state. A Broadband Ready Community Certification program was also established.³¹⁰

New Hampshire created a broadband matching grant initiative to encourage public-private partnerships to improve broadband availability across the state. Broadband providers, political subdivisions, and communications districts are all eligible to receive the grants. Eligible projects must provide high-speed internet access in unserved areas, defined as an area that lacks service at FCC minimum speeds from at least one provider.³¹¹ Additional legislation was enacted to provide for the issuance of bonds for financing broadband infrastructure and regulating utility pole attachments.³¹²

New Jersey established a Broadband Access Study Commission to evaluate all impediments to access to broadband in the state, including physical access, affordability, and deployment, and to evaluate the feasibility of establishing community broadband networks and leasing or purchasing established broadband infrastructure. The Commission has one year from the date of its initial meeting to release its findings.³¹³

New York directed its Public Service Commission to conduct a study on the feasibility and the costs of burying all or most of the electrical, telephone and internet transmission lines in New York state. The Commission's report must be published on its website and transmitted to the Governor and the General Assembly in one year of the effective date of the act.³¹⁴ New York's public service law regulating pole attachments and use of utility ducts, trenches and conduits for cable television and broadband internet was amended to require contracts authorizing this kind of access are to include such poles, ducts, trenches and conduits located within a given village, town or city.³¹⁵

³⁰⁹ Nebraska, LB 388, signed by the Governor May 26, 2021.

³¹⁰ Nevada Chapter 519, signed by the Governor June 8, 2021 (AB388).

³¹¹ New Hampshire Chapter 123, signed by the Governor July 13, 2021 (SB 85).

³¹² New Hampshire Chapter 198, signed by the Governor August 10, 2021 (SB 88).

³¹³ New Jersey P.L.2021, Chapter 161, signed by the Governor July 7, 2021 (AB 850/SB 2864).

³¹⁴ New York Chapter 805, signed by the Governor December 29, 2021 (AB 2330/SB 4186).

³¹⁵ New York Chapter 723, signed by the Governor December 22, 2021 (AB 2396/SB 7028).

Additionally, New York authorized telephone corporations to replace telephone lines with fiber optic facilities for the purpose of providing telephone, broadband, cable or other video service, generally without be required to provide additional compensation to the owner.³¹⁶ The Public Service Commission was also directed to initiate a study of ways to streamline pole attachment procedures.³¹⁷ Additionally, the installation of fiber optic cable by a tenant must conform to such reasonable conditions as are necessary to protect the safety, functioning and appearance of the landlord's premises, and the convenience and well-being of other tenants. Further, landlords are prohibited from demanding or accepting payment from any tenant, in any form, in exchange for permitting fiber optic service on or within the landlord's property or premises, discriminate in rental charges or otherwise, between tenants who receive fiber optic service and those who do not.³¹⁸

Oklahoma enacted a comprehensive pole attachment statute known as the Facilitating Internet Broadband Rural Expansion (FIBRE) Act. The act takes effect November 1, 2022.³¹⁹

Oregon amended its statute regulating the use of electric cooperative easements for the provision of broadband services.³²⁰

In March 2022, the Oregon legislature directed the Oregon Broadband Office to develop a Broadband Action Plan and a Digital Equity Plan that address the requirements of the federal Infrastructure Investment and Jobs Act. The act requires the OBS to collect geospatial data, including data that is reported to the FCC and other data as necessary from Internet service providers and entities with broadband infrastructure to assist the state determine eligibility for grants and loans and confirm the allocation of funds under the Infrastructure Investment and Jobs Act. Proprietary information may be collected subject to nondisclosure agreements. The Public Utility Commission, was directed to investigate and make recommendations on the feasibility of expanding or increasing the State's telephone assistance plan to support adequate and reasonable access to broadband Internet access service or other telecommunications services by residential customers with low incomes in this state, including allowing participation with providers that are not designated as eligible telecommunications carriers. A surcharge on residential broadband service is also to be considered as a means of funding low-income household access to broadband. Additionally, the PUC is required to investigate barriers faced by residential customers with low incomes to obtaining broadband Internet access service or other telecommunications services, including equipment and related services needed to obtain and utilize broadband Internet access service or other telecommunications services, legal and regulatory incentives and limitations that may affect the state's ability to expand or increase the plan of assistance, and the availability of other forms of federal, state or local

³¹⁶ New York Chapter 748, signed by the Governor December 22, 2021 (AB7214/SB 5868).

³¹⁷ New York Chapter 68, signed by the Governor February 24, 2022 (AB8756/SB 7689).

³¹⁸ New York Chapter 156, signed by the Governor March 18, 2022 (AB9285/SB7766).

³¹⁹ Oklahoma HB 3835, signed by the Governor April 28, 2022.

³²⁰ Oregon Chapter 149, signed by the Governor June 3, 2021 (HB 2654).

support for broadband Internet access service or other telecommunications services. A report must be issued by June 1, 2023.³²¹

Utah created the Utah Broadband Center Advisory Commission to make recommendations to the Broadband Center with respect to the development of a strategic plan to allow the state to access the federal Infrastructure Investment and Jobs Act funding.³²²

Virginia enacted several statutes in spring 2022. The Department of Housing and Community Development was directed to convene a stakeholder advisory group to evaluate state and local law and procedure as they relate to the expansion of high-speed broadband service and associated infrastructure in new residential and commercial development.³²³ A sales tax exemption was created for amplification, transmission and distribution equipment used to provide internet services.³²⁴ The Department of Housing and Community Development was also tasked with developing a Commonwealth Digital Affordability and Cost Effectiveness Plan in order to access federal infrastructure monies. The plan is to be submitted to the Governor and General Assembly by December 1, 2022.³²⁵ Each school year, beginning in 2022 and ending through 2025, the local school board is required to submit an annual report to the Virginia Department of Education and the Virginia Department of Housing and Community Development listing each student's 9-1-1 address that does not have broadband access.³²⁶

Washington has a competitive grant and loan broadband program designed to promote expansion of access to broadband service. The program is administered by the Public Works Board, which provides financial and technical assistance to local governments in addressing local infrastructure and public works projects. Grants and loans may be awarded under the Broadband Program to fund acquisition, installation, and construction of middle mile and last mile infrastructure that supports broadband services and to assist in funding strategic planning for deploying broadband service in unserved areas. Eligible applicants include local governments, tribes, nonprofit organizations, cooperative associations, multiparty entities comprised of public entities, limited liability corporations organized for the purpose of expanding broadband access, and incorporated businesses or partnerships.

New amendments enacted in February 2022 created a pre-application process. An applicant is required to provide information on a pre-application that includes, the location and description of the project; evidence regarding the unserved nature of the community in which the project is to be located; evidence that proposed infrastructure will be capable of scaling to greater download and upload speeds; the number of households passed that will gain access to broadband service as a result of the project or whose broadband service will

³²¹ Oregon Chapter 60, signed by the Governor March 23, 2022 (HB4092).

³²² Utah Chapter 458, signed by the Governor March 24, 2022 (SB 214).

³²³ Virginia Chapters 592/593, signed by the Governor April 11, 2022 (HB445/SB 446).

³²⁴ Virginia Chapters 434/435, signed by the Governor April 11, 2022 (HB 1155/SB 683).

³²⁵ Virginia Chapters 518/519, signed by the Governor April 11, 2022 (HB 1265/SB 716).

³²⁶ Virginia Chapter 211, signed by the Governor April 8, 2022 (SB724).

be upgraded as a result of the project; and evidence that before submission of the application, the applicant contacted, in writing, all existing broadband service providers near the proposed project area to ask each provider's plan to upgrade broadband service in the project area and any responses from the providers; the proposed geographic broadband service area and the proposed broadband speeds; evidence of community support for the project; and any additional information requested.³²⁷

In 2022, the state of Washington adopted a comprehensive digital equity act that created the Broadband Service Expansion Grant and Loan Program, the Digital Equity Opportunity Program, and the Digital Equity Planning Grant Program to assist the state in accessing federal infrastructure funding.³²⁸ The state's minimum broadband speeds were revised to 100/20.³²⁹

West Virginia created a separate Broadband Development Fund to receive monies from any source (e.g., federal infrastructure funding) that may be used for line extension advancement and development projects, including expansion of existing fiber and cable networks; major broadband project strategies, including new networks or major expansions of existing networks; GigReady incentive projects, including a state incentive for ISP and local governments and organizations to pool some of their federal American Rescue Plan Act allocations or other local funding; and Wireless Internet Networks, including expansions or upgrades of existing fixed wireless networks.³³⁰ Additionally, West Virginia enacted legislation regulating pole attachments.³³¹

³²⁷ Washington chapter 201, signed by the Governor March 30, 2022 (HB 1673).

³²⁸ Washington Chapter 265, signed by the Governor March 31, 2022 (HB 1723).

³²⁹ Washington Chapter 237, signed by the Governor March 30, 2022 (SB 5715).

³³⁰ West Virginia Act 28, signed by the Governor October 22, 2021 (HB 339, Third Special Session).

³³¹ West Virginia Act 48, signed by the Governor March 28, 2022 (SB 231).

UPDATE: DATA AND MAPPING

With the new influx of broadband spending, much of the country eagerly awaits updates on FCC mapping tools that will be able to pinpoint with greater accuracy which areas of the country are in greater need of broadband investment. Many locations throughout the country contain areas with poor internet access located in census blocks which, according to the FCC, are covered. This well documented limitation of the federal government has spurred many locales such as the cities of San Antonio and Louisville and the states of Wisconsin, and Georgia to take mapping into their own hands to prove their communities need broadband assistance.³³² Plans to update the FCC's maps began in 2020, and the coming influx of federal infrastructure money has made accurate data collection high on the list of the county's broadband need. However, it is unknown when the FCC will be unveiling these new tools. As a preliminary effort, in August 2021, the FCC released a new map showing where the nation's four largest mobile carriers, Verizon, AT&T, T-Mobile US, and UScellular offer LTE voice and data mobile coverage.³³³

At the state level, the Commission found evidence of 21 counties working hard to catch up with their neighbors by conducting surveys to inventory the broadband availability and speeds to position themselves more advantageously for federal funding. Overall, Pennsylvania counties are relying more heavily on teamwork than in previous years, perhaps realizing that many of their neighbors are in similar predicaments when it comes to the lack of broadband availability.

One of the largest initiatives to collect data this year is SWPA Connected. This consortium in the southwestern region of the state represents a diverse array of local interests. To drive engagement of their broadband survey they are offered participants in their survey a \$50 dollar gift card.³³⁴ The nine participating counties are Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Lawrence, Washington, and Westmoreland. The other major example of inter-county cooperation was the work of the Alleghenies Broadband Inc. In 2022 this company surveyed residents from Bedford, Blair, Cambria,

³³² Jed Pressgrove, "Absent New FCC Broadband Maps, Local Govs Plot Coverage," *Government Technology*, last modified March 2022, <https://www.govtech.com/network/absent-new-fcc-broadband-maps-local-govs-plot-coverage>.

³³³ Andrea Noble, "FCC Releases First U.S. Mobile Broadband Map," *Route Fifty Today*, last modified August 6, 2021, <https://www.route-fifty.com/tech-data/2021/08/fcc-releases-first-us-mobile-broadband-map/184360/>.

³³⁴ "Survey Seeks Regional Opinions about Broadband," *Southwestern Pennsylvania Commission*, last modified November 16, 2021, <https://www.spcregion.org/2021/11/16/survey-seeks-regional-opinions-about-broadband/>.

Fulton, Huntingdon, and Somerset Counties about their internet use and plan on mapping the results using GIS software.³³⁵

Even though teamwork was the trend across the state, some counties elected to conduct individual surveys this year. Adams, Berks, Carbon, Centre, Clarion, Delaware, and Wayne County were found to be collecting this data. While the majority of Pennsylvania counties have conducted broadband surveys either currently or in a previous year, a review of news articles published in the last five years conducted by Commission staff could find no indications that 19 counties had taken any recent efforts to gather data on broadband availability, 12 of which were rural counties.

³³⁵ David Hurst, "Pennsylvania County to Survey Residents About Internet Speed," *The Tribune-Democrat*, last modified February 7, 2022, <https://www.govtech.com/network/pennsylvania-county-to-survey-residents-about-internet-speed>.

UPDATE:

UNSERVED AND UNDERSERVED AREAS

Staff previously reviewed internet download speeds offered in and geographic areas covered by the zip codes identified in its earlier reports as unserved (no service or no fixed wired service above 25 Mbps/3 Mbps) and underserved (only one provider of FCC minimum speeds in the zip code or multiple providers, but none offering service in more than 50 percent of the service area). For purposes of this report, the speed requirements of the federal Infrastructure Investment and Jobs Act definitions will be used. Accordingly, “unserved” is defined as having no service or no service above 25/3. The federal definition states that the service must have sufficient latency to support real-time, interactive applications. Latency information is not readily available and is generally a concern with mobile and satellite broadband. “Underserved” is defined as no service available above the speeds of 100/20. The IJIA definitions also define unserved and underserved projects as those where no less than 80 percent of the locations are unserved or underserved.

Based on information available on BroadbandNow³³⁶ during May and June 2022, staff have identified the following unserved and underserved communities using the IJIA definitions. As the federal definition of unserved does not distinguish between types of internet service, it can be concluded that the availability of satellite service statewide can be used to rule out communities as unserved. This interpretation leads to the conclusion that no communities in Pennsylvania are “unserved,” as every community in the Commonwealth has access to satellite service at speeds of up to 50 mbps or 100 Mbps from Viasat, and 25 Mbps from Hughesnet, the satellite providers serving residential consumers. In the next three tables, internet service types will be abbreviated as follows:

<i>S</i>	Satellite
<i>FW</i>	Fixed Wireless
<i>C</i>	Cable
<i>5G</i>	5G Internet

³³⁶ BroadbandNow is an independent broadband research organization that produces a comprehensive dataset of internet plans, pricing, and availability. Their data is culled from FCC reports and supplemented by data provided directly by ISPs. However, it should be noted that the website discloses that some financial support for the project is received in the form of commissions from some of the providers listed on the site.

Table A lists communities in Pennsylvania that if satellite service availability is ignored, would meet the federal definition of “unserved.”

Table A Unserved Communities				
County	Community	Zip Code	Download speed and type of service	Geographic area of the community that is covered
Cambria	Cresson	16699	No fixed wireless	--
Centre	Madisonburg	16852	15 Mbps DSL 3 Mbps FW	20.5% 98.9%
	Rebersburg	16872	15 Mbps DSL 3 Mbps FW	65.4% 98.9%
	Woodward	16882	15 Mbps DSL	98.9%
Clearfield	Pottersdale	16871	15 Mbps DSL	43.5%
Clinton	Westport	17778	15 Mbps DSL	77.5%
Indiana	Chambersville	15723	15 Mbps DSL 10 Mbps FW	32.6% 100%
Lycoming	Cammal	17723	15 Mbps DSL	100%
McKean	Crosby	16724	15 Mbps DSL	99.3%
Potter	Genesee	16941	15 Mbps DSL	30.4%
Schuylkill	Pitman	17964	15 Mbps DSL	94.6%
Tioga	Sabinsville	16943	15 Mbps DSL	87.6%

Table B lists the communities in Pennsylvania that are “underserved” under the IIA definition, either on the basis that 100 Mbps download speeds are not available, or if they are available, they are only found in 20 percent or less of the community.

Table B				
Underserved Communities				
County	Community	Zip Code	Download speed and type of service	Geographic area of the community that is covered
Cambria	Chest Springs	16624	150 Mbps FW 25 Mbps FW 15 Mbps DSL	6.9% 88.2 99.5
Centre	Coburn	16832	70 Mbps FW 15 Mbps DSL 3 Mbps FW	5.7 86.1 8.6
--	Milheim	16854	70 Mbps FW 15 Mbps DSL 3 Mbps FW	24.0 98 8.1
Clearfield	New Millport	16861	182 Mbps 5G 200 Mbps DSL 15 Mbps DSL	12.5 7.1 91
Crawford	Riceville	16432	25 Mbps C 15 Mbps DSL	100 77.3
Potter	Cross Fork	17729	1 Gbps C 15 Mbps DSL	8.2 7.6

Table C lists communities in Pennsylvania that if 100 Mbps satellite service availability is ignored, would meet the federal definition of “underserved.”

Table C				
Underserved Communities if Satellite Service were Ignored				
County	Community	Zip Code	Download speed and type of service	Geographic area of the community that is covered
Berks	Virginville	19564	1.5 Gbps C 15 Mbps DSL	11.1% 82.2
Centre	Aaronsburg	16820	70 Mbps FW 15 Mbps DSL 3 Mbps FW	5.3 97 17.8
Fayette	La Belle	15450	1 Gbps C 100 Mbps DSL/C 15 Mbps DSL	12.4 2.5 12.7
--	New Geneva	15467	1 Gbps C 15 Mbps DSL	2.1 97.9
Lycoming	Cedar Run	17727	115 Mbps DSL 15 Mbps DSL	5.6 9.7
--	Jersey Mills	17739	1.2 Gbps C 15 Mbps DSL	12.5 96.9
--	Unityville	17774	200 Mbps DSL 115 Mbps DSL 15 Mbps DSL	18.8 10 65
Schuylkill	Gordon	17936	1.5 Gbps C 15 Mbps DSL	12.1 80.2

County-by-County Analysis

To properly comply with federal requirements for the use of IJJA broadband funds, it is important to determine which communities should be a priority for broadband expansion based on what areas are unserved and underserved. However, those categories only present the areas of most urgent need. If the goal of broadband expansion is to ensure that every American who wishes to have highspeed internet service can avail themselves of it in their home, it is important to understand which areas of the state are already 100 percent served. Further, it is important to know where communities exist that are neither unserved or underserved by the statutory definitions, but that still areas of gaps in coverage.

This section of the report is a “what if?” analysis. What if the federal minimum download speed was 100 Mbps and “served” meant at least one ISP providing that speed in 100 percent of the geographic area examined. Staff has applied this requirement to the residential zip codes listed in each county to determine which ones meet this standard and which ones don’t.

Two caveats apply to this analysis: (1) every listing of broadband service on BroadbandNow’s website carries the disclaimer: “Not all internet speeds available in all areas.” Accordingly, staff cannot guarantee that 100 Mbps will be available everywhere in the zip code, despite the information reviewed. (2) Almost every provider listed on BroadbandNow’s website lists its maximum download speed for each community. When staff conducted research on speeds for the 2021 report, Frontier Communications listed its DSL service at 115 Mbps download. While conducting research for this, the 2022 report, staff discovered that Frontier no longer lists speeds on the BroadbandNow website. However, in the interest of trying to be complete, staff has assumed that Frontier’s maximum download speed has remained at 115 Mbps and has not decreased. If that number has gone down, then the summaries in this section will overestimate the number of potentially fully served communities. Communities where Frontier is believed to be the provider with the greatest coverage areas will be identified so that readers may know that the information may not be 100 percent accurate.

Adams County

There are 17 communities that are identified as having residential internet access in the county. Four communities are considered 100 percent served by fixed internet service and one also has high-speed satellite service:

Adams County			
Name	Zip Code	Type of ISP	Maximum Speed
Cashtown	17310	DSL	100 Mbps
Idaville	17337	DSL	100 Mbps
McSherrystown	17344	Cable	1.2 Gbps
		Fiber	940 Mbps
		Satellite	100 Mbps
Orrtanna	17353	DSL	100 Mbps

Additionally, there are five communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with 100 percent full coverage. These include Abbottstown, East Berlin, Gettysburg, Littlestown, and New Oxford.

Eight communities do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. They are Arendtsville, Aspers, Bendersville, Biglerville, Fairfield, Gardners, McKnightstown, and York Springs.

Allegheny County

There are 139 zip codes that are identified as having residential internet access in the county. The City of Pittsburgh contains 75 of those zip codes. The remaining 64 zip codes represent distinct communities in the county. There are 25 communities that are considered 100 percent served by fixed internet service, and all of them also have satellite service at 100 Mbps covering 100 percent of the geographic area of the zip code:

Allegheny County			
Name	Zip Code	Type of ISP	Maximum Speed
Bakerstown	15007	Cable	1 Gbps
Brackenridge	15013	Cable	1.2 Gbps

Allegheny County			
Name	Zip Code	Type of ISP	Maximum Speed
Creighton	15030	Cable	1.2 Gbps
Crescent	15046	Cable	1.2 Gbps
Greenock	15047	Cable	1.2 Gbps
		Fiber	940 Mbps
Indianola	15051	Cable	1.2 Gbps
Leetsdale	15056	Cable	1.2 Gbps
		Fiber	940 Mbps
Morgan	15064	Cable	1.2 Gbps
Rural Ridge	15075	5G Internet	182 Mbps
Russellton	15076	Cable	1.2 Gbps
Warrendale (1 of 3)	15086	Cable	1 Gbps
		Fiber	1 Gbps
Warrendale (2 of 3)	15095	Cable	1 Gbps
		Fiber	1 Gbps
Warrendale (3 of 3)	15096	Cable	1 Gbps
		Fiber	1 Gbps
McKeesport (1 of 5)	15133	Cable	1.2 Gbps
McKeesport (2 of 5)	15135	Cable	1.2 Gbps
Oakmont	15139	Cable	1.2 Gbps
Springdale	15144	Cable	1.2 Gbps
Pittsburgh (1 of 75)	15210	Cable	1.2 Gbps
Pittsburgh (2 of 75)	15219	Cable	1.2 Gbps
Pittsburgh (3 of 75)	15224	Cable	1.2 Gbps
Pittsburgh (4 of 75)	15225	Cable	1.2 Gbps
		Fiber	940 Mbps
Pittsburgh (5 of 75)	15227	Cable	1.2 Gbps
Pittsburgh (6 of 75)	15232	Cable	1.2 Gbps
Pittsburgh (7 of 75)	15241	Cable	1.2 Gbps
Pittsburgh (8 of 75)	15243	Cable	1.2 Gbps

There are 114 communities whose only service at 100 Mbps that covers 100 percent of the geographic area is satellite service. Each of these communities has at least one provider of high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The community of Springdale also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds: DSL at 15 Mbps.

Armstrong County

There are 24 communities that are identified as having residential internet access in the county. Eleven communities are considered 100 percent served by fixed internet service, with one of them also served by 100 Mbps satellite service:

Armstrong County			
Name	Zip Code	Type of ISP	Maximum Speed
Elderton	15736	DSL	200 Mbps
Cadogan	16212	Cable	1.2 Gbps
		Fiber	1 Gbps
		Satellite	100 Mbps
Distant	16223	Cable	1.2 Gbps
Ford Cliff	16228	Cable	1.2 Gbps
		Fiber	1 Gbps
McGrann	16236	Fiber	1 Gbps
Manorville	16238	Cable	1.2 Gbps
		Fiber	1 Gbps
Nu Mine	16244	Cable	1.2 Gbps
		DSL	200 Mbps
		5G Internet	182 Mbps
Oak Ridge	16245	Cable	1.2Gbps
		DSL	100 Mbps
		5G Internet	182 Mbps
Sagamore	16250	DSL	200 Mbps
Seminole	16253	Cable	1.2 Gbps
Yatesboro	16263	Cable	1.2 Gbps
		DSL	100 Mbps

There are seven communities whose only service at 100 Mbps that covers 100 percent of the geographic area is satellite service. They include Leechburg, North Apollo, Spring Church, Kittanning, Ford City, Freeport, and Worthington.

Six communities do not have high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. These communities are Parker, Adrian, Cowansville, Dayton, Rural Valley, and Templeton.

The communities of Elderton and Sagamore also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds at 10 Mbps fixed wireless service.

Beaver County

There are 21 communities that are identified as having residential internet access in the county. Two communities are considered 100 percent served by fixed internet service and both also have satellite service at 100 Mbps covering 100 percent of the geographic area of the zip code:

Beaver County			
Name	Zip Code	Type of ISP	Maximum Speed
Shippingport	15077	Cable	1.2 Gbps
South Heights	15081	Cable	1.2 Gbps

The remaining 19 communities all have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

The community Conway also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Bedford County

There are 24 communities that are identified as having residential internet access in the county. One community is considered 100 percent served by fixed internet service.

Bedford County			
Name	Zip Code	Type of ISP	Maximum Speed
Defiance	16633	Cable	1.2 Gbps

The remaining 23 communities have no fixed or satellite service with full coverage but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Berks County

There are 52 communities that are identified as having residential internet access in the county. Eight communities are considered 100 percent served by fixed internet service and two also have high-speed satellite service:

Berks County			
Name	Zip Code	Type of ISP	Maximum Speed
Bowers	19591	Fiber	1 Gbps
Centerport	19516	DSL	115 Mbps*
		Satellite	100 Mbps
Geigertown	19523	DSL	200 Mbps
Limekiln	19535	DSL	200 Mbps
Maxatawny	19538	5G Internet	182 Mbps
		Satellite	100 Mbps
Strausstown	19559	Cable	1.2 Gbps
		Satellite	100 Mbps
Topton	19562	Fiber	1 Gbps
Reading (1 of 11)	19611	Cable	1.2 Gbps

*Speed estimated based on 2021 reported speeds.

Additionally, there are 14 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

There are 30 zip codes that do not have high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The community of Strausstown also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds: *fixed wireless at 3 Mbps*.

Blair County

There are 16 communities that are identified as having residential internet access in the county. Two communities are considered 100 percent served by fixed internet service.

Blair County			
Name	Zip Code	Type of ISP	Maximum Speed
Curryville	16631	Cable	1 Gbps
		5G Internet	182 Mbps
		DSL	100 Mbps
Sproul	16682	DSL	100 Mbps

None of the 14 remaining communities have high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Bradford County

There are 23 communities that are identified as having residential internet access in the county. There are 11 communities that are considered 100 percent served by fixed internet service and every zip code in the county has 100 Mbps satellite service available.

Bradford County			
Name	Zip Code	Type of ISP	Maximum Speed
Alba	16910	Fixed Wireless	182 Mbps
		DSL	115 Mbps*
Granville Summit	16926	DSL	115 Mbps*
Sylvania	16945	Cable	1 Gbps
		DSL	115 Mbps*
Burlington	18814	Cable	1 Gbps
		DSL	115 Mbps*
East Smithfield	18817	DSL	1 Gbps
Le Raysville	18829	DSL	115 Mbps*
Monroeton	18832	DSL	115 Mbps*
Rome	18837	DSL	115 Mbps*
Stevensville	18845	DSL	115 Mbps*
Sugar Run	18846	DSL	115 Mbps*
Towanda	18848	DSL	115 Mbps*
Warren Center	18851	DSL	115 Mbps*

*Speed estimated based on 2021 reported speeds.

None of the 12 remaining communities have fixed high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Burlington and East Smithfield also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with 15 Mbps fixed wireless service.

Bucks County

There are 51 communities that are identified as having residential internet access in the county. There are 18 communities that are considered 100 percent served by fixed internet service:

Bucks County			
Name	Zip Code	Type of ISP	Maximum Speed
Reigelsville	18077	Cable	1 Gbps
Springtown	18081	Cable	1 Gbps
Buckingham	18912	Fiber	940 Mbps
Carversville	18913	Cable	1.2 Gbps
Erwinna	18920	Cable	1 Gbps
		DSL	115 Mbps*
Jamison	18929	Cable	1.2 Gbps
Kintersville	18930	Cable	1 Gbps
Milford Square	18935	Cable	1.2 Gbps
		Fiber	940 Mbps
Plumsteadville	18949	Cable	1.2 Gbps
		Fiber	930 Mbps
Point Pleasant	18950	Cable	1 Gbps
Silverdale	18962	Cable	1.2 Gbps
		5G Internet	182 Mbps
		Fiber	940 Mbps
Spinnerstown	18968	Fiber	940 Mbps
Upper Black Eddy	18972	Cable	1 Gbps
Bristol	19007	Cable	1.2 Gbps
Croydon	19021	Cable	1.2 Gbps
Fort Washington (1 of 2)	19048	Cable	1.2 Gbps
Fort Washington (2 of 2)	19049	Cable	1.2 Gbps
Levittown (1 of 6)	19055	Cable	1.2 Gbps
		Fiber	940 Mbps

*Speed estimated based on 2021 reported speeds.

Mechanicsville is the only community with satellite service at 100 Mbps that covers 100 percent of the geographic area.

There are 32 communities that do not have high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Butler County

There are 35 communities that are identified as having residential internet access in the county. There are six communities that are considered 100 percent served by fixed internet service and three of them also have 100 Mbps satellite service available.

Butler County			
Name	Zip Code	Type of ISP	Maximum Speed
Connoquenessing	16027	Cable	1 Gbps
		Satellite	100 Mbps
Eau Claire	16030	DSL	100 Mbps
Forestville	16035	DSL	100 Mbps
Lyndora	16045	DSL	100 Mbps
		Satellite	100 Mbps
North Washington	16048	DSL	100 Mbps
Cranberry Township	16066	Cable	1 Gbps
		Fiber	1 Gbps
		Satellite	100 Mbps

There are 22 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

Seven of the remaining zip codes do not have high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. These are Boyers (4 zip codes), Bruin, Harrisville, and Hilliards.

Cambria County

There are 50 communities that are identified as having residential internet access in the county. Eleven communities are considered 100 percent served by fixed internet service, and one of them also has 100 Mbps satellite service available.

Cambria County			
Name	Zip Code	Type of ISP	Maximum Speed
Spangler	15775	5G Internet	182 Mbps
Beaverdale	15921	Cable	1.2 Gbps
Belsano	15922	Cable	1.2 Gbps

Cambria County			
Name	Zip Code	Type of ISP	Maximum Speed
Cassandra	15925	5G Internet	182 Mbps
Dunlo	15930	Cable	1.2 Gbps
Parkhill	15945	Cable	1 Gbps
		5G Internet	182 Mbps
Saint Michael	15951	Cable	1.2 Gbps
Salix	15952	Cable	1.2 Gbps
South Fork	15958	Cable	1.2 Gbps
Blandburg	16619	Cable	1.2 Gbps
		DSL	200 Mbps
Glasgow	16644	Cable	1.2 Mbps
		Satellite	100 Mbps

There are 38 communities that do not have high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The community of Elmora also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL service at 15 Mbps.

One community, Cresson, has no fixed wireless service at any speed and is only served by 50 Mbps and 25 Mbps satellite service.

Cameron County (no chart)

Three communities are identified as having residential internet access in the county.

None of the communities have fixed or satellite service with full 100 percent coverage but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Carbon County

There are 14 communities that are identified as having residential internet access in the county. There are five communities that are considered 100 percent served by fixed internet service and every zip code in the county has 100 Mbps satellite service available.

Carbon County			
Name	Zip Code	Type of ISP	Maximum Speed
Bowmanstown	18030	Cable	1 Gbps
Ashfield	18212	Cable	1 Gbps
Lansford	18232	Cable	1 Gbps
Lehighton	18235	Cable	1 Gbps
Nesquehoning	18240	Cable	1 Gbps

None of the remaining nine communities have fixed high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. These include Palmerton, Albrightsville, Jim Thorpe, Junedale, Parryville, Summit Hill, Tresckow, Weatherly, and Lake Harmony.

The community of Bowmansville also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 10 Mbps.

Centre County

There are 31 communities that are identified as having residential internet access in the county. Seven communities are considered 100 percent served by fixed internet service. None of these communities has satellite service at 100 Mbps.

Centre County			
Name	Zip Code	Type of ISP	Maximum Speed
State College (1 of 4)	16801	Fixed Wireless	100 Mbps
University Park	16802	Fixed Wireless	100 Mbps
State College (2 of 4)	16803	Fixed Wireless	100 Mbps
State College (3 of 4)	16804	Fixed Wireless	100 Mbps
State College (4 of 4)	16805	Fixed Wireless	100 Mbps
Orviston	16864	DSL	100 Mbps
Pine Grove Mills	16868	Cable	1.2 Gbps

There are four communities that have satellite service at 100 Mbps. They are Aaronsburg, Bellefonte, Rebersburg, and Woodward.

There are 20 communities that do not have high-speed internet service covering 100 percent of the geographic area. Of those, 17 have at least one provider offering high-

speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The remaining three communities do not have any high-speed internet providers. The fastest fixed providers in Aaronsburg, Coburn, and Milheim offer fixed wireless coverage at 70 Mbps but none provide full coverage to the community. The communities of Madisonburg, Coburn, and Milheim have 100 percent coverage of satellite service at 50 Mbps and 25 Mbps.

The communities of Boalsburg, Centre Hall, Lemont and Pine Grove Mills also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with fixed wireless service at 3 Mbps. Additionally, Lemont and Pine Grove Mills have a second provider at below high-speed thresholds with DSL at 15 Mbps.

Chester County

There are 37 communities that are identified as having residential internet access in the county. There are eight communities that are considered 100 percent served by fixed internet service and four of them have 100 Mbps satellite service available.

Chester County			
Name	Zip Code	Type of ISP	Maximum Speed
Brandamore	19316	Cable	1.2 Gbps
		Fiber	940 Mbps
Pomeroy	19367	Cable	1.2 Gbps
		Satellite	100 Mbps
Thorndale	19372	Cable	1.2 Gbps
		Fiber	940 Mbps
		Satellite	100 Mbps
Toughkenamon	19374	Cable	1.2 Gbps
		Satellite	100 Mbps
Unionville	19375	Cable	1.2 Gbps
		Fiber	940 Mbps
		Satellite	100 Mbps
West Chester (1 of 3)	19383	Cable	1.2 Gbps
		Fiber	940 Mbps
		5G Internet	182 Mbps
Kimberton	19442	Cable	1.2 Gbps
		Fiber	940 Mbps
Parker Ford	19457	Fiber	940 Mbps

There are 17 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage.

Twelve of the remaining zip codes do not have high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Clarion County

There are 23 communities that are identified as having residential internet access in the county. Four communities are considered 100 percent served by fixed internet service, and none have 100 Mbps satellite service.

Clarion County			
Name	Zip Code	Type of ISP	Maximum Speed
Foxburg	16036	DSL	100 Mbps
Hawthorn	16230	Fiber	1 Gbps
Kossuth	16331	DSL	200 Mbps
Tylersburg	16361	5G Internet	182 Mbps

The remaining 19 communities do not have high-speed internet service covering 100 percent of the geographic area, but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Fryburg has fiber at 50 Mbps covering 100 percent of the geographic area. Kossuth also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Clearfield County

There are 44 communities that are identified as having residential internet access in the county. Seven communities are considered 100 percent served by fixed internet service.

Clearfield County			
Name	Zip Code	Type of ISP	Maximum Speed
Troutville	15866	Cable	1.2 Gbps
		DSL	200 Mbps
Beccaria	16616	Cable	1.2 Gbps

Clearfield County			
Name	Zip Code	Type of ISP	Maximum Speed
Glen Hope	16645	DSL	200 Mbps
Allport	16821	Cable	1.2 Gbps
Glen Ritchey	16837	Cable	400 Mbps
Hawk Run	16840	5G Internet	182 Mbps
Lanse	16849	5G Internet	182 Mbps

The remaining 35 communities do not have high-speed internet service covering 100 percent of the geographic area, but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Two communities, New Millport and Pottersdale, have 100% coverage by 50 Mbps and 25 Mbps satellite service, but the only fixed providers offer DSL service at 15 Mbps, covering 91 percent of New Millport and 43.5 percent of the area of Pottersdale.

Additionally, the community of New Millport has two providers offering over 100 Mbps, but neither cover 100 percent of the zip code. They are 5G Internet at 182 Mbps and DSL at 200 Mbps, but they only cover, respectively, 12.5 percent and 7.1 percent of the geographic area.

The communities of Glen Ritchey, Lanse, and Mineral Springs also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Clinton County

There are 13 communities that are identified as having residential internet access in the county. Five communities are considered 100 percent served by fixed internet service, and three of them have 100 Mbps satellite service covering 100 percent of the zip code.

Clinton County			
Name	Zip Code	Type of ISP	Maximum Speed
Lamar	16848	DSL	100 Mbps
Avis	17721	Cable	1.2 Gbps
		5G Internet	182 Mbps
		Satellite	100 Mbps
McElhatten	17748	Cable	1.2 Gbps
		Satellite	100 Mbps

Clinton County			
Name	Zip Code	Type of ISP	Maximum Speed
Mackeyville	17750	Cable	1.2 Mbps
		5G Internet	182 Mbps
		DSL	100 Mbps
Woolrich	17779	Cable	1.2 Gbps
		Satellite	100 Mbps

Additionally, there are three communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. These include Lock Haven, Loganton, and Mill Hall.

Four communities do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. They are Beech Creek, Castenea, North Bend, and Renovo.

The community of Westport has no internet service of any kind over 100 Mbps. The community has 100 percent coverage of satellite service at 50 and 25 Mbps and 15 Mbps DSL service covering 77.5 percent of the area.

The communities of Avis, Castenea, and McElhatten also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with fixed wireless service at 10 Mbps.

Columbia County

There are 11 communities that are identified as having residential internet access in the county. Nine communities are considered 100 percent served by fixed internet service, and all of them have 100 Mbps satellite service covering 100 percent of the zip code.

Columbia County			
Name	Zip Code	Type of ISP	Maximum Speed
Bloomsburg	17815	Fixed Wireless	1.024 Gbps
Catawissa	17820	Fixed Wireless	1.024 Gbps
Numidia	17858	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
		Satellite	100 Mbps

Columbia County			
Name	Zip Code	Type of ISP	Maximum Speed
Orangeville	17859	Fixed Wireless	1.024 Gbps
Stillwater	17878	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Wilburton	17888	Fixed Wireless	1.024 Gbps
Aristes	17920	Fixed Wireless	1.024 Gbps
Berwick	18603	Fixed Wireless	1.024 Gbps
Mifflinville	18631	Fixed Wireless	1.024 Gbps

Additionally, there are two communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. These are Benton and Millville.

The communities of Numidia, and Mifflinville also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL service at 15 Mbps.

Crawford County

There are 20 communities that are identified as having residential internet access in the county. Three communities are considered 100 percent served by fixed internet service at 100 Mbps or faster.

Crawford County			
Name	Zip Code	Type of ISP	Maximum Speed
Hydetown	16328	Cable	1 Gbps
Harmonsburg	16422	Fiber	1 Gbps
Linesville	16242	Fiber	1 Gbps

There are 17 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The community of Riceville has no internet service of any kind over 100 Mbps. The community has 100 percent coverage of satellite service at 50 and 25 Mbps, and cable service at 25 Mbps. Additionally, there is 15 Mbps DSL service covering 77.3 percent of the area.

Cumberland County

There are 17 communities that are identified as having residential internet access in the county. Four communities are considered 100 percent served by fixed internet service at 100 Mbps or faster.

Cumberland County			
Name	Zip Code	Type of ISP	Maximum Speed
New Kingstown	17072	Cable	1.2 Gbps
Plainfield	17081	5G Internet	182 Mbps
Summerdale	17093	Cable	1.2 Gbps
Walnut Bottom	17266	5G Internet	182 Mbps
		DSL	100 Mbps

There are no communities with satellite service at 100 Mbps. The communities of New Kingstown and Summerdale also have fixed wireless service at 25 Mbps covering 100% of the area.

There are 13 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Dauphin County

There are 42 communities that are identified as having residential internet access in the county. Eight communities are considered 100 percent served by fixed internet service at 100 Mbps or faster. Seven of these communities also have satellite service at 100 Mbps.

Dauphin County			
Name	Zip Code	Type of ISP	Maximum Speed
Berryburg	17005	DSL	115 Mbps*
		Satellite	100 Mbps
Gratz	17030	DSL	115 Mbps*
		Satellite	100 Mbps
Highspire	17034	Cable	1.2 Gbps
Millersburg	17061	DSL	115 Mbps*
		Satellite	100 Mbps
Pillow	17080	5G Internet	182 Mbps
		DSL	100 Mbps
		Satellite	100 Mbps

Dauphin County			
Name	Zip Code	Type of ISP	Maximum Speed
Williamstown	17098	DSL	115 Mbps*
		Satellite	100 Mbps
Spring Glen	17978	DSL	115 Mbps*
		Satellite	100 Mbps

*Speed estimated based on 2021 reported speeds.

Additionally, there are three communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. These are Elizabethville, Halifax, and Wiconisco.

There are 31 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Four of Harrisburg's 26 zip codes have fixed wireless service at 25 Mbps covering 100% of the area.

Delaware County

There are 42 communities that are identified as having residential internet access in the county. There are 16 communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. One of these communities also has satellite service at 100 Mbps.

Delaware County			
Name	Zip Code	Type of ISP	Maximum Speed
Brookhaven	19015	Cable	1.2 Gbps
Clifton Heights	19018	Cable	1.2 Gbps
Crum Lynne	19022	Cable	1.2 Gbps
		Cable	1 Gbps
Essington	19029	Cable	1.2 Gbps
		Cable	1 Gbps
Folcroft	19032	Cable	1.2 Gbps
		Cable	1 Gbps
Folsom	19033	Cable	1.2 Gbps
		Fiber	940 Mbps
Glenolden	19036	Fiber	940 Mbps

Delaware County			
Name	Zip Code	Type of ISP	Maximum Speed
Holmes (1 of 2)	19043	Cable	1.2 Gbps
		Cable	1 Gbps
		Fiber	940 Mbps
Garnet Valley	19060	Cable	1.2 Gbps
		Satellite	100 Mbps
Morton	19070	Cable	1.2 Gbps
Norwood	19074	Fiber	940 Mbps
Sharon Hill	19079	Cable	1.2 Gbps
		Cable	1 Gbps
Havertown	19083	Fiber	940 Mbps
Woodlyn	19094	Cable	1.2 Gbps
		Cable	1 Gbps
Holmes (2 of 2)	19098	Cable	1.2 Gbps
		Cable	1 Gbps
		Fiber	940 Mbps
Philadelphia	19113	Cable	1.2 Gbps
		Cable	1 Gbps

Additionally, there are four communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. These include Marcus Hook, Chadds Ford, Glenn Mills, and Thornton.

There are 22 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Elk County

There are 12 communities that are identified as having residential internet access in the county. Five communities are considered 100 percent served by fixed internet service at 100 Mbps or faster. Wilcox is the only community with satellite service at 100 Mbps.

Elk County			
Name	Zip Code	Type of ISP	Maximum Speed
Brynedale	15827	DSL	200 Mbps

Elk County			
Name	Zip Code	Type of ISP	Maximum Speed
Force	15841	DSL	200 Mbps
Saint Marys	15857	Cable	1 Gbps
De Young	16728	DSL	200 Mbps
James City	16734	Cable	1.2 Gbps

There are six communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. Those communities are Benezett, Brockport, Johnsonburg, Kersey, Ridgeway, and Weedville.

Erie County

There are 45 communities that are identified as having residential internet access in the county. There are 11 communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. There are no communities that have satellite service at 100 Mbps.

Erie County			
Name	Zip Code	Type of ISP	Maximum Speed
Edinboro	16444	Cable	1 Gbps
Erie (1 of 26)	16501	Cable	1 Gbps
Erie (2 of 26)	16502	Cable	1 Gbps
Erie (3 of 26)	16503	Cable	1 Gbps
Erie (4 of 26)	16504	Cable	1 Gbps
Erie (5 of 26)	16506	Cable	1 Gbps
Erie (6 of 26)	16507	Cable	1 Gbps
Erie (7 of 26)	16508	Cable	1 Gbps
Erie (8 of 26)	16511	Cable	1 Gbps
Erie (9 of 26)	16546	Cable	1 Gbps
Erie (10 of 26)	16563	Cable	1 Gbps

There are 34 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Edinboro and Erie (16503) also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL service at 15 Mbps.

Fayette County

There are 56 communities that are identified as having residential internet access in the county. There are five communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. All five also have satellite service at 100 Mbps.

Fayette County			
Name	Zip Code	Type of ISP	Maximum Speed
Chalk Hill	15421	Cable	1.2 Gbps
		Cable	1 Gbps
Chestnut Ridge	15422	5G Internet	182 Mbps
Indian Head	15446	Fiber	1 Gbps
Melcroft	15462	Fiber	1 Gbps
Merrittown	15463	Cable	1 Gbps
		5G Internet	182 Mbps

Additionally, there are 49 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area and have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The communities of La Belle and New Geneva have satellite service at 100 Mbps that covers 100 percent of the community, but the fastest internet providers are both cable at 1 Gbps covering, respectively, only 12.4 percent and 2.1 percent of the area.

The communities of Chalk Hill, Chestnut Ridge, Merrittstown, Ronco, and Wickhaven also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Forest County

There are seven communities that are identified as having residential internet access in the county. There is one community that is considered 100 percent served by fixed internet service at 100 Mbps or faster.

Forest County			
Name	Zip Code	Type of ISP	Maximum Speed
East Hickory	16321	Cable	1 Gbps

There are six communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The community of East Hickory also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL service at 15 Mbps.

Franklin County

There are 29 communities that are identified as having residential internet access in the county. Nine communities are considered 100 percent served by fixed internet service at 100 Mbps or faster. None of these communities has satellite service at 100 Mbps.

Franklin County			
Name	Zip Code	Type of ISP	Maximum Speed
Amberson	17210	DSL	100 Mbps
Blue Ridge Summit	17214	DSL	100 Mbps
Marion	17235	Cable	1.2 Gbps
		DSL	100 Mbps
Quincy	17247	Cable	1.2 Gbps
Rouzerville	17250	Cable	1.2 Gbps
Roxbury	15251	DSL	100 Mbps
Shady Grove	17256	Cable	1.2 Gbps
		DSL	100 Mbps
Upperstrasburg	17265	DSL	100 Mbps
Zullinger	17272	Cable	1.2 Gbps
		5G Internet	182 Mbps
		DSL	100 Mbps

There are 20 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Chambersburg (17201), Marion, Pleasant Hall, Roxbury, and Scotland have an internet provider offering service in 100 percent of the geographic area

at below high-speed thresholds with fixed wireless service at 1 Mbps. The communities of Shady Grove, State Line, and Zullinger are similarly served with fixed wireless service at 3 Mbps.

Fulton County

There are 11 communities that are identified as having residential internet access in the county. There is one community that is considered 100 percent served by fixed internet service at 100 Mbps or faster. This community does not have satellite service at 100 Mbps.

Fulton County			
Name	Zip Code	Type of ISP	Maximum Speed
Burnt Cabins	17215	DSL	100 Mbps

There are ten communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Greene County

There are 23 communities that are identified as having residential internet access in the county. Eight communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. They all also have satellite service at 100 Mbps.

Greene County			
Name	Zip Code	Type of ISP	Maximum Speed
Bobtown	15315	Fiber	1 Gbps
Brave	15316	DSL	200 Mbps
Carmichaels	15320	Fiber	1 Gbps
Garards Fort	15334	Fiber	1 Gbps
Mather	15346	Cable	1 Gbps
		DSL	200 Mbps
Nemacolin	15351	DSL	200 Mbps
Nineveh	15353	DSL	200 Mbps
Rogersville	15359	DSL	200 Mbps

The remaining 15 communities have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

Huntingdon County

There are 26 communities that are identified as having residential internet access in the county. Six communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. None of them have satellite service at 100 Mbps.

Huntingdon County			
Name	Zip Code	Type of ISP	Maximum Speed
Entriiken	16638	Cable	1.2 Gbps
		5G Internet	182 Mbps
		DSL	100 Mbps
Warriors Mark	16877	Fiber	1 Gbps
Blairs Mills	17213	DSL	100 Mbps
Neelyton	17239	DSL	100 Mbps
Rockhill Furnace	17249	5G Internet	182 Mbps
Saltillo	17253	DSL	1000 Mbps

The remaining 20 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Indiana County

There are 43 communities that are identified as having residential internet access in the county. Nine communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. None of them have satellite service at 100 Mbps.

Indiana County			
Name	Zip Code	Type of ISP	Maximum Speed
Arcadia	15712	Cable	1.2 Gbps
Clune	15727	Cable	1.2 Gbps
Gipsy	15741	Cable	1.2 Gbps
Josephine	15750	Cable	1.2 Gbps
Kent	15752	Cable	1.2 Gbps

Indiana County			
Name	Zip Code	Type of ISP	Maximum Speed
Lucernemines	15754	Cable	1.2 Gbps
		5G Internet	182 Mbps
Mentcle	15761	Cable	1.2 Gbps
Dilltown	15929	Cable	1.2 Gbps
Beyer	16211	DSL	200 Mbps

Five communities have satellite service at 100 Mbps that covers 100 percent of the geographic area and have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Of the remaining 29 communities, 28 do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. Chambersville does not have internet service of any kind over 100 Mbps. It has 100 percent coverage of satellite service at 50 and 25 Mbps.

The communities of Aultman, Dixonville, Josephine, Luceremines, and Mentcle also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL service at 15 Mbps. The communities of Aultman, Black Lick, Chambersville, Clune, Clymer, Commodore, Coral, Creekside, Dixonville, Ernest, Heilwood, Hillsdale, Josphine, Kent, Lucernemines, McIntyre, Mentcle, Rochester Mills, Starford, Beyer, and Plumville also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with fixed wireless service at 10 Mbps.

Jefferson County

There are 23 communities that are identified as having residential internet access in the county. Ten communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. None of them have satellite service at 100 Mbps.

Jefferson County			
Name	Zip Code	Type of ISP	Maximum Speed
Anita	15711	Cable	1.2 Gbps
Big Run	15715	5G Internet	182 Mbps
Coolspring	15730	Cable	1.2 Gbps
		DSL	200 Mbps
		5G Internet	182 Mbps

Jefferson County			
Name	Zip Code	Type of ISP	Maximum Speed
Oliveburg	15764	Cable	1.2 Gbps
Valier	15780	Cable	1.2 Gbps
Walston	15781	Cable	1.2 Gbps
Worthville	15784	Cable	1.2 Gbps
		DSL	200 Mbps
Knoxdale	15847	Fiber	1 Gbps
Stump Creek	15863	Cable	1.2 Gbps
Sykesville	15865	Cable	1.2 Gbps

No communities in the county have satellite service at 100 Mbps.

The remaining 13 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Oliveburg and Walston also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL service at 15 Mbps. The communities of Anita, De Lancey, Oliveburg, and Walston also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with fixed wireless service at 10 Mbps.

Juniata County

There are 10 communities that are identified as having residential internet access in the county. There is one community that is considered 100 percent served by fixed internet service at 100 Mbps or faster. This community does not have satellite service at 100 Mbps.

Juniata County			
Name	Zip Code	Type of ISP	Maximum Speed
Oakland Hills	17076	Fixed Wireless	100 Mbps

There is one community, Richfield, that has 100 Mbps satellite coverage at 100 percent of the area, but no fixed service at full 100 percent coverage.

There are eight communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Lackawanna County

There are 32 communities that are identified as having residential internet access in the county. There are 30 communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. All these communities also have satellite service at 100 Mbps.

Lackawanna County			
Name	Zip Code	Type of ISP	Maximum Speed
Archbald	18403	Fixed Wireless	1.024 Gbps
Carbondale	18407	Cable	250 Mbps
Chinchilla	18410	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Clarks Summit	18411	Fixed Wireless	1.024 Gbps
Fleetwood	18420	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
		Cable	250 Mbps
		5G Internet	182 Mbps
		DSL	115 Mbps*
Jermyn	18433	Fixed Wireless	1.024 Gbps
Jessup	18434	Fixed Wireless	1.024 Gbps
Moscow	18444	Fixed Wireless	1.024 Gbps
Olyphant (1 of 2)	18447	Fixed Wireless	1.024 Gbps
Olyphant (1 of 2)	18448	Fixed Wireless	1.024 Gbps
Peckville	18452	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
Waverly	18471	Fixed Wireless	1.024 Gbps
Scranton (1 of 13)	18501	Fixed Wireless	1.024 Gbps
Scranton (2 of 13)	18502	Fixed Wireless	1.024 Gbps
Scranton (3 of 13)	18503	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
Scranton (4 of 13)	18504	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
Scranton (5 of 13)	18505	Fixed Wireless	1.024 Gbps
Moosic	18507	Fixed Wireless	1.024 Gbps

Lackawanna County			
Name	Zip Code	Type of ISP	Maximum Speed
Scranton (6 of 13)	18508	Fixed Wireless	1.024 Gbps
Scranton (7 of 13)	18509	Fixed Wireless	1.024 Gbps
Scranton (8 of 13)	18510	Fixed Wireless	1.024 Gbps
Scranton (9 of 13)	18512	Fixed Wireless	1.024 Gbps
Scranton (10 of 13)	18515	Fixed Wireless	1.024 Gbps
Taylor	18517	Fixed Wireless	1.024 Gbps
Old Forge	18518	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
Scranton (11 of 13)	18519	Fixed Wireless	1.024 Gbps
Scranton (12 of 13)	18540	Fixed Wireless	1.024 Gbps
Scranton (13 of 13)	18577	Fixed Wireless	1.024 Gbps
Ransom	18653	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*

*Speed estimated based on 2021 reported speeds.

There are two communities, Dalton and Gouldsboro, that have 100 Mbps satellite coverage at 100 percent of the area but no fixed service at full 100 percent coverage.

Additionally, 12 communities have 50 Mbps fixed wireless service available in 100 percent of the zip code. They are Carbondale, Chinchilla, Jessup, Peckville, Scranton (18503, 18504, 18508, 18509, 18510, 18512, and 18519), and Taylor.

Lancaster County

There are 66 communities that are identified as having residential internet access in the county. There are 30 communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. Of these, 16 communities also have satellite service at 100 Mbps.

Lancaster County			
Name	Zip Code	Type of ISP	Maximum Speed
Akron	17501	Cable	1 Gbps
		Fixed Wireless	100 Mbps
Blue Ball	17506	Cable	1.2 Gbps
		DSL	115 Mbps*
		Fixed Wireless	100 Mbps

Lancaster County			
Name	Zip Code	Type of ISP	Maximum Speed
Bowmansville	17507	Cable	1 Gbps
		5G Internet	182 Mbps
		DSL	115 Mbps*
Brownstown	17508	Cable	1.2 Gbps
		Cable	1 Gbps
		Fixed Wireless	100 Mbps
Christiana	17509	DSL	115 Mbps*
		Satellite	100 Mbps
Drumore	17518	DSL	115 Mbps*
		Satellite	100 Mbps
East Earl	17519	DSL	115 Mbps*
		Fixed Wireless	100 Mbps
East Petersburg	17520	Cable	1.2 Gbps
		Satellite	100 Mbps
Goodville	17528	Cable	1.2 Gbps
		DSL	115 Mbps*
		Fixed Wireless	100 Mbps
Gordonville	17529	Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Holtwood	17532	DSL	115 Mbps*
		Satellite	100 Mbps
Hopeland	17533	Cable	1 Gbps
Intercourse	17534	Cable	1 Gbps
		Fixed Wireless	182 Mbps
		DSL	115 Mbps*
		Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Kinzers	17535	Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Kirkwood	17536	DSL	115 Mbps*
		Satellite	100 Mbps
Lampeter	17537	Cable	1.2 Gbps
		Satellite	100 Mbps

Lancaster County			
Name	Zip Code	Type of ISP	Maximum Speed
Landisville	17538	Cable	1.2 Gbps
		Satellite	100 Mbps
Maytown	17550	Cable	1.2 Gbps
		DSL	100 Mbps
		Satellite	100 Mbps
New Holland	17557	DSL	115 Mbps*
		Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Peach Bottom	17563	DSL	115 Mbps*
		Satellite	100 Mbps
Penryn	17564	Cable	1 Gbps
		Fiber	1 Gbps
Reamstown	17567	Cable	1 Gbps
		Fiber	1 Gbps
		Fixed Wireless	100 Mbps
Refton	17568	DSL	115 Mbps*
		Satellite	100 Mbps
Rheems	17570	DSL	100 Mbps
Ronks	17572	Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Smoketown	17576	Cable	1.2 Gbps
		Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Terre Hill	17581	Cable	1.2 Gbps
		DSL	115 Mbps*
		Fixed Wireless	100 Mbps
Witmer	17585	Cable	1.2 Gbps
		Fixed Wireless	182 Mbps
		Fixed Wireless	100 Mbps
		Satellite	100 Mbps
Lancaster (1 of 11)	17606	Cable	1.2 Gbps
		5G Internet	182 Mbps
Adamstown	19501	Cable	1 Gbps

Additionally, there are 31 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

There are five communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. They are Elizabethtown, Denver, Ephrata, Reinholds, and Stevens.

The communities of Smoketown and Witmer also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Lawrence County

There are 19 communities that are identified as having residential internet access in the county. There are two communities that are considered 100 percent served by fixed internet service and neither of them have 100 Mbps satellite service available.

Lawrence County			
Name	Zip Code	Type of ISP	Maximum Speed
New Bedford	16140	Cable	1.2 Gbps
		5G Internet	182 Mbps
Villa Maria	16155	Cable	1.2 Gbps
		5G Internet	182 Mbps

There are 15 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

The remaining two communities, New Wilmington (16142 and 16172) do not have high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Hillsville, New Bedford, and Villa Maria also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Lebanon County

There are 17 communities that are identified as having residential internet access in the county. There are six communities that are considered 100 percent served by fixed internet service and none of them have 100 Mbps satellite service available.

Lebanon County			
Name	Zip Code	Type of ISP	Maximum Speed
Campbelltown	17010	Cable	1.2 Gbps
Kleinfeltersville	17039	Cable	1.2 Gbps
Lawn	17041	Cable	1.2 Gbps
Ono	17077	Cable	1.2 Gbps
Quentin	17083	Cable	1.2 Gbps
		Cable	1 Gbps
		5G Internet	182 Mbps
Schaefferstown	17088	Cable	1.2 Gbps

There are six communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. They are Annville, Fredericksburg, Jonestown, Lebanon (17046), Myerstown and Richland.

The remaining five communities do not have high-speed internet service covering 100 percent of the geographic area but all have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. They are Cornwall, Lebanon (17042), Mount Greta, Newmanstown and Palmyra.

The communities of Quentin and Richland also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with fixed wireless service at 3 Mbps.

Lehigh County

There are 32 communities that are identified as having residential internet access in the county. There are 26 communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. Six of these communities also have satellite service at 100 Mbps.

Lehigh County			
Name	Zip Code	Type of ISP	Maximum Speed
Bethlehem	18025	Cable	1 Gbps
Breinigsville	18031	Cable	1 Gbps
		Satellite	100 Mbps
Catasauqua	18032	Cable	1 Gbps
Center Valley	18034	Cable	1 Gbps
Coopersburg	18036	Cable	1 Gbps
Coplay	18037	Cable	1 Gbps
		Satellite	1 Gbps
East Texas	18046	Cable	1 Gbps
Emmaus (1 of 3)	18049	Cable	1 Gbps
Fogelsville	18051	Cable	1 Gbps
		Satellite	1 Gbps
Whitehall	18052	Cable	1 Gbps
Laurys Station	18059	Cable	1 Gbps
		Satellite	1 Gbps
Old Zionsville	18068	Cable	1 Gbps
		5G Internet	182 Mbps
Orefield	18069	Cable	1 Gbps
		Satellite	100 Mbps
Slatedale	18079	Cable	1 Gbps
		Satellite	100 Mbps
Trexlerstown	18087	Cable	1 Gbps
Zionsville	18092	Cable	1 Gbps
Emmaus (2 of 3)	18098	Cable	1 Gbps
Emmaus (3 of 3)	18099	Cable	1 Gbps
Allentown (1 of 8)	18101	Cable	1 Gbps
Allentown (2 of 8)	18102	Cable	1 Gbps
Allentown (3 of 8)	18103	Cable	1 Gbps
Allentown (4 of 8)	18104	Cable	1 Gbps
Allentown (5 of 8)	18105	Cable	1 Gbps
		Fiber	940 Mbps
		5G Internet	182 Mbps
Allentown (6 of 8)	18106	Cable	1 Gbps
Allentown 7 of 8)	18109	Cable	1 Gbps
Allentown (8 of 8)	18195	Cable	1 Gbps
		Cable	940 Mbps

Additionally, there are three communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. They are Germansville, Schnecksville, and Slatington.

There are three communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. They *are*

Alburtis, Macungie, and New Tripoli.

The communities of Laurys Station, Old Zionsville, and Allentown (18195) also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps. East Texas also has fixed wireless at 1.5 Mbps covering 100 percent of the community.

Luzerne County

There are 52 communities that are identified as having residential internet access in the county. There are 48 communities that are considered 100 percent served by fixed internet service at 100 Mbps or faster. All these communities also have satellite service at 100 Mbps.

Luzerne County			
Name	Zip Code	Type of ISP	Maximum Speed
Conyngham	18219	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Drifton	18221	Fixed Wireless	1.024 Gbps
		5G Internet	182 Mbps
Drums	18822	Fixed Wireless	1.024 Gbps
Evervale	18223	Fixed Wireless	1.024 Gbps
Freeland	18224	Fixed Wireless	1.024 Gbps
Harleigh	18225	Fixed Wireless	1.024 Gbps
Lattimer Mines	18234	Fixed Wireless	1.024 Gbps
Milnesville	18239	Fixed Wireless	1.024 Gbps
Rock Glen	18246	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Sugarloaf	18249	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Sybertsville	18251	Cable	1.5 Gbps
		Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*

Luzerne County			
Name	Zip Code	Type of ISP	Maximum Speed
Weston	18256	Fixed Wireless	1.024 Gbps
Bear Creek	18602	Fixed Wireless	1.024 Gbps
		Cable	1 Gbps
Dallas (1 of 2)	18612	DSL	115 Mbps*
Glen Lyon	18617	Fixed Wireless	1.024 Gbps
Harveys Lake	18618	DSL	115 Mbps*
Hunlock Creek	18621	Fixed Wireless	1.024 Gbps
Huntington Mills	18622	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Nanticoke	18634	Fixed Wireless	1.024 Gbps
Nescopeck	18635	Fixed Wireless	1.024 Gbps
Pittston (1 of 3)	18640	Fixed Wireless	1.024 Gbps
Pittston (2 of 3)	18641	Fixed Wireless	1.024 Gbps
Duryea	18642	Fixed Wireless	1.024 Gbps
Pittston (3 of 3)	18643	Fixed Wireless	1.024 Gbps
Wyoming	18644	Fixed Wireless	1.024 Gbps
Plymouth	18651	Fixed Wireless	1.024 Gbps
Shickshinny	18655	Fixed Wireless	1.024 Gbps
Sweet Valley	18656	Fixed Wireless	1.024 Gbps
Wapwallopen	18660	Fixed Wireless	1.024 Gbps
		DSL	115 Mbps*
Dallas (2 of 2)	18690	DSL	115 Mbps*
Wilkes-Barre (1 of 14)	18701	Fixed Wireless	1.024 Gbps
		Cable	1 Gbps
Wilkes-Barre (2 of 14)	18702	Fixed Wireless	1.024 Gbps
Wilkes-Barre (3 of 14)	18703	Fixed Wireless	1.024 Gbps
Kingston	18704	Fixed Wireless	1.024 Gbps
Wilkes-Barre (4 of 14)	18705	Fixed Wireless	1.024 Gbps
		Cable	1 Gbps
Wilkes-Barre (5 of 14)	18706	Fixed Wireless	1.024 Gbps
		Cable	1 Gbps
Mountain Top	18707	Fixed Wireless	1.024 Gbps
Shavertown	18708	Fixed Wireless	1.024 Gbps
Luzerne	18709	Cable	1.2 Gbps
		Fixed Wireless	1.024 Gbps
		Cable	1 Gbps
Wilkes-Barre (6 of 14)	18710	Fixed Wireless	1.024 Gbps

Luzerne County			
Name	Zip Code	Type of ISP	Maximum Speed
Wilkes-Barre (7 of 14)	18711	Fixed Wireless	1.024 Gbps
Wilkes-Barre (8 of 14)	18762	Fixed Wireless	1.024 Gbps
Wilkes-Barre (9 of 14)	18764	Fixed Wireless	1.024 Gbps
Wilkes-Barre (10 of 14)	18765	Fixed Wireless	1.024 Gbps
Wilkes-Barre (11 of 14)	18766	Fixed Wireless	1.024 Gbps
Wilkes-Barre (12 of 14)	18767	Fixed Wireless	1.024 Gbps
Wilkes-Barre (13 of 14)	18769	Fixed Wireless	1.024 Gbps
Wilkes-Barre (14 of 14)	18773	Fixed Wireless	1.024 Gbps

*Speed estimated based on 2021 reported speeds.

There are four communities, Hazleton (18201 and 18202), Beaver Meadows, and White Haven, that have 100 Mbps satellite coverage at 100 percent of the area but no fixed service at full 100 percent coverage.

Additionally, five communities have 50 Mbps fixed wireless service available in 100 percent of the zip code. They are Glen Lyon, Plymouth, Wilkes Barre (18701), Kingston, and Luzerne.

The communities of Harleigh, Glen Lyon, and Wilkes Barre (18701) also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Lycoming County

There are 21 communities that are identified as having residential internet access in the county. Two communities are considered 100 percent served by fixed internet service, and both of them have 100 Mbps satellite service covering 100 percent of the zip code.

Lycoming County			
Name	Zip Code	Type of ISP	Maximum Speed
Lairdsville	17742	DSL	200 Mbps
Picture Rocks	17762	Fiber	1 Gbps

Additionally, there are 18 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

The communities of Cedar Run, Jersey Mills, and Unityville all have service over 100 Mbps but the fastest internet providers are: Cedar Run – 115 Mbps DSL covering 5.6 percent; Jersey Mills – 1.2 Gbps cable covering 12.5 percent; and Unityville – 200 Mbps DSL at 18.8 percent and 115 Mbps DSL at 10 percent.

The community of Cammal does not have internet service of any kind over 100 Mbps. The community has 100 percent coverage of satellite service at 50 and 25 Mbps and 15 Mbps DSL service covering 100 percent of the area.

McKean County

There are 19 communities that are identified as having residential internet access in the county. Three communities are considered 100 percent served by fixed internet service, and all three of them have 100 Mbps satellite service covering 100 percent of the zip code.

McKean County			
Name	Zip Code	Type of ISP	Maximum Speed
Ludlow	16333	Fiber	100 Mbps
East Smethport	16730	5G Internet	182 Mbps
Hazel Hurst	16733	5G Internet	182 Mbps

Additionally, there are 16 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. The community of Crosby has 100 Mbps and 25 Mbps satellite covering 100 percent of the area, but the only other provider is 15 Mbps DSL covering 99.3 percent of the area.

The community of Custer City also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Mercer County

There are 20 communities that are identified as having residential internet access in the county. Five communities are considered 100 percent served by fixed internet service, and none of them have 100 Mbps satellite service covering 100 percent of the zip code.

Mercer County			
Name	Zip Code	Type of ISP	Maximum Speed
Clark	16113	Cable	1 Gbps
Farrell	16121	Cable	1 Gbps
Sharon	16146	Cable	1 Gbps
Sheakleyville	16151	Cable	1 Gbps
		DSL	200 Mbps
Wheatland	16161	Cable	1 Gbps

There are 15 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The community of Clark also has an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

Mifflin County

There are 11 communities that are identified as having residential internet access in the county. Three communities are considered 100 percent served by fixed internet service, and none of them have 100 Mbps satellite service covering 100 percent of the zip code.

Mifflin County			
Name	Zip Code	Type of ISP	Maximum Speed
Burnham	17009	Fiber	1 Gbps
Granville	17029	Fiber	1 Gbps
		5G Internet	182 Mbps
Yeagertown	17099	Cable	1.2 Gbps
		Fiber	1 Gbps

There are eight communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Granville and Yeagertown also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps. Yeagertown also has a second an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with fixed wireless service at 3 Mbps.

Monroe County

There are 33 communities that are identified as having residential internet access in the county. There are 15 communities are considered 100 percent served by fixed internet service, and seven of them have 100 Mbps satellite service covering 100 percent of the zip code.

Monroe County			
Name	Zip Code	Type of ISP	Maximum Speed
Bartonsville	18321	Cable	1 Gbps
Brodheads ville	18322	Cable	1 Gbps
		Satellite	100 Mbps
Buck Hill Falls	18323	Cable	1 Gbps
Henryville	18332	Cable	1 Gbps
Kresgeville	18333	Cable	1 Gbps
		Satellite	100 Mbps
Marshalls Creek	18335	Cable	1 Gbps
Mountainhome	18342	Cable	1 Gbps
Pocono Summit	18346	Cable	1 Gbps
		Satellite	100 Mbps
Pocono Lake	18347	Cable	1 Gbps
		DSL	115 Mbps*
Reeders	18352	Cable	1 Gbps
		Satellite	100 Mbps
Sciota	18354	Cable	1 Gbps
		DSL	115 Mbps*
Shawnee on Delaware	18356	Cable	1 Gbps
Skytop	18357	Cable	1 Gbps
		5G Internet	182 Mbps
Swiftwater	18601	Cable	1 Gbps

*Speed estimated based on 2021 reported speeds.

Additionally, there are 13 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

There are eight communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Gilbert and Kresgeville also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 10 Mbps.

Montgomery County

There are 67 communities that are identified as having residential internet access in the county. There are 23 communities are considered 100 percent served by fixed internet service, and none of them have 100 Mbps satellite service covering 100 percent of the zip code.

Montgomery County			
Name	Zip Code	Type of ISP	Maximum Speed
Palm	18070	Cable	1.2 Gbps
Colmar	18915	Cable	1.2 Gbps
Montgomeryville	18936	Cable	1.2 Gbps
		Fiber	940 Mbps
Souderton	18964	Cable	1.2 Gbps
Bryn Athyn	19009	Cable	1.2 Gbps
		Fiber	940 Mbps
Cheltenham	19012	Cable	1.2 Gbps
		Fiber	940 Mbps
Elkins Park	19027	Cable	1.2 Gbps
Fort Washington	19034	Cable	1.2 Gbps
Gladwyne	19035	Fiber	940 Mbps
Narberth	19072	Fiber	940 Mbps
Oreland	19075	Cable	1.2 Gbps
Bridgeport	19405	Cable	1.2 Gbps
Conshohocken (1 of 2)	19428	Cable	1.2 Gbps
Conshohocken (2 of 2)	19429	Cable	1.2 Gbps
Frederick	19435	Cable	1.2 Gbps
		DSL	200 Mbps
		5G Internet	182 Mbps
Gwynedd	19436	Cable	1.2 Gbps
		Fiber	940 Mbps
Gwynedd Valley	19437	Fiber	940 Mbps
Mont Clair	19453	Cable	1.2 Gbps
		Fiber	940 Mbps
Oaks	16456	Cable	1.2 Gbps
		Fiber	940 Mbps

Montgomery County			
Name	Zip Code	Type of ISP	Maximum Speed
Sassamansville	19472	Cable	1.2 Gbps
		Fiber	940 Mbps
Skippack	19474	Cable	1.2 Gbps
		Fiber	940 Mbps
Spring House	19477	Cable	1.2 Gbps
		Fiber	940 Mbps
Zeiglersville	19492	Cable	1.2 Gbps
		5G Internet	182 Mbps

There are 44 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Gilbert and Kresgeville also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 10 Mbps.

Montour County

There are three communities that are identified as having residential internet access in the county. Two communities are considered 100 percent served by fixed internet service, and both have 100 Mbps satellite service.

Montour County			
Name	Zip Code	Type of ISP	Maximum Speed
Danville (1 of 2)	17822	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Washingtonville	17884	Fixed Wireless	1.024 Gbps

Additionally, one community, Danville 17821 has satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

Northampton County

There are 26 communities that are identified as having residential internet access in the county. There are 22 communities are considered 100 percent served by fixed internet service, and one of them have 100 Mbps satellite service covering 100 percent of the zip code.

Northampton County			
Name	Zip Code	Type of ISP	Maximum Speed
Bangor	18013	Cable	1 Gbps
Bath	18014	Cable	1 Gbps
Bethlehem (1 of 5)	18015	Cable	1 Gbps
Bethlehem (2 of 5)	18016	Cable	1 Gbps
		Cable	940 Mbps
		Fixed Wireless	100 Mbps
Bethlehem (3 of 5)	18017	Cable	1 Gbps
Bethlehem (4 of 5)	18018	Cable	1 Gbps
Bethlehem (5 of 5)	18020	Cable	1 Gbps
Cherryville	18035	Cable	1 Gbps
		Satellite	100 Mbps
Easton (1 of 5)	18040	Cable	1 Gbps
Easton (2 of 5)	18042	Cable	1 Gbps
Easton (3 of 5)	18043	Cable	1 Gbps
Easton (4 of 5)	18044	Cable	1 Gbps
Easton (5 of 5)	18045	Cable	1 Gbps
Hellertown	18055	Cable	1 Gbps
Martins Creek	18063	Cable	1 Gbps
Nazareth	18064	Cable	1 Gbps
Pen Argyl	18072	Cable	1 Gbps
Stockertown	18083	Cable	1 Gbps
Tatamy	18085	Cable (provider 1)	1 Gbps
		Cable (provider 2)	1 Gbps
Wind Gap	18091	Cable	1 Gbps
Mount Bethel	18343	Cable	1 Gbps
		DSL	115 Mbps*
Portland	18351	Cable	1 Gbps
		DSL	115 Mbps*

*Speed estimated based on 2021 reported speeds

Additionally, there are four communities, Danielsville, Northampton, Treichlers and Walnutport, that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage.

The communities of Bethlehem (18016), Cherryville, and Treichlers also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 15 Mbps.

The community of Cammal internet service of any kind over 100 Mbps. The community has 100 percent coverage of satellite service at 50 and 25 Mbps and 15 Mbps DSL service covering 100 percent of the area.

Northumberland County

There are 24 communities that are identified as having residential internet access in the county. Six communities are considered 100 percent served by fixed internet service, and all of them have 100 Mbps satellite service.

Northumberland County			
Name	Zip Code	Type of ISP	Maximum Speed
Dewart	17730	DSL	200 Mbps
Herndon	17830	DSL	100 Mbps
Montandon	17850	DSL	200 Mbps
		Fixed Wireless	100 Mbps
Northumberland	17857	DSL	100 Mbps
Potts Grove	17865	5G Internet	182 Mbps
		Fixed Wireless	100 Mbps
Riverside	17868	Fixed Wireless	100 Mbps

Additionally, 18 communities have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

The communities of Montandon, Potts Grove, and Trevorton also an internet provider offering service in 100 percent of the geographic area at below high-speed threshold with fixed wireless at 3 Mbps. The community of Marion Heights also has DSL service at 15 Mbps in 100 percent of the geographic area.

Perry County

There are 14 communities that are identified as having residential internet access in the county. One community is considered 100 percent served by fixed internet service, and it does not have 100 Mbps satellite service.

Perry County			
Name	Zip Code	Type of ISP	Maximum Speed
New Buffalo	17069	Cable	1 Gbps

Additionally, two communities, Liverpool and Millerstown, have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

The remaining 11 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Philadelphia County

There are 86 zip codes that are identified as having residential internet access in the county. There are 16 zip codes that are considered 100 percent served by fixed internet service, and none of them have 100 Mbps satellite service covering 100 percent of the zip code.

Philadelphia County		
Zip Code	Type of ISP	Maximum Speed
19102	Cable	1.2 Gbps
	Fiber	940 Mbps
19103	Cable	1.2 Gbps
19111	Cable	1.2 Gbps
19119	Cable	1.2 Gbps
19121	Cable	1.2 Gbps
19125	Cable	1.2 Gbps
	Fiber	940 Mbps
19127	Cable	1.2 Gbps
19134	Cable	1.2 Gbps
19135	Cable	1.2 Gbps
	Fiber	940 Mbps
19139	Cable	1.2 Gbps
19141	Cable	1.2 Gbps
19144	Cable	1.2 Gbps
19146	Cable	1.2 Gbps
19147	Cable	1.2 Gbps
19150	Cable	1.2 Gbps
19151	Cable	1.2 Gbps
	Fiber	940 Mbps

The remaining 70 zip codes do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Pike County

There are 14 communities that are identified as having residential internet access in the county. Five communities are considered 100 percent served by fixed internet service, and none of them have 100 Mbps satellite service.

Pike County			
Name	Zip Code	Type of ISP	Maximum Speed
Tamiment	18371	Cable	1 Gbps
Greeley	18425	Cable	1 Gbps
Paupack	18451	Cable	1 Gbps
Rowland	18457	Cable	1 Gbps
		Fiber	1 Gbps
Tafton	18464	Cable	1 Gbps

Additionally, one community, Greentown, has satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage.

The remaining eight communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The communities are Bushkill, Dingmans Ferry, Matamoras, Milford, Millrift, Hawley, Lackawaxen and Shohola.

Potter County (no chart)

There are 11 communities that are identified as having residential internet access in the county.

There are no communities that are considered 100 percent served by fixed internet service.

There are four communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage. They are Roulette, Shinglehouse, Coudersport, and Genesee (16923).

Five of the remaining communities that do not have any high-speed internet service covering 100 percent of the geographic area have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

The communities of Cross Fork and Genesee (16941) both have 100 percent coverage of satellite service at 50 and 25 Mbps. Cross Fork has 1 Gbps of cable covering 8.2 percent and 15 Mbps DSL covering 91 percent, while Genesee has 15 Mbps DSL covering 30.4 percent.

Schuylkill County

There are 57 communities that are identified as having residential internet access in the county. There are 15 communities are considered 100 percent served by fixed internet service, and all of them have 100 Mbps satellite service covering 100 percent of the zip code.

Schuylkill County			
Name	Zip Code	Type of ISP	Maximum Speed
Brockton	17925	Cable	1.2 Gbps
Friedensburg	17933	Cable	1.2 Gbps
Hegins	17938	DSL	115 Mbps*
Mary D	17952	Cable	1 Gbps
		5G Internet	182 Mbps
		DSL	115 Mbps*
New Philadelphia	17959	5G Internet	115 Mbps*
Ringtown	17961	DSL	115 Mbps*
Sacramento	17968	DSL	115 Mbps*
Tremont	17981	DSL	115 Mbps*
Valley View	17983	Cable	1.2 Gbps
		DSL	115 Mbps*
Zion Grove	17985	DSL	115 Mbps*
Coaldale	18218	Cable	1 Gbps
		Fiber	1 Gbps
Delano	18220	DSL	115 Mbps*
Quaquake	18245	DSL	115 Mbps*
Sheppton	18248	DSL	115 Mbps*

*Speed estimated based on 2021 reported speeds.

Additionally, there are 42 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent

coverage. Two of those communities have non-satellite service consisting solely of 1.5 Gbps of cable at 12.1 percent and 15 Mbps of DSL at 80.2 percent for Gordon, and 15 Mbps of DSL at 94.6 percent for Pitman.

Snyder County

There are 15 communities that are identified as having residential internet access in the county. There are 13 communities that are considered 100 percent served by fixed internet service, and all of them also have 100 Mbps satellite service.

Snyder County			
Name	Zip Code	Type of ISP	Maximum Speed
Beaver Springs (1 of 2)	17812	Fixed Wireless	1.024 Gbps
Beavertown	17813	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Freeburg	17827	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Hummels Wharf	17831	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Kreamer	17833	Fixed Wireless	1.024 Gbps
Middleburg	17842	Fixed Wireless	1.024 Gbps
Beaver Springs (2 of 2)	17843	Fixed Wireless	1.024 Gbps
Paxtonville	17861	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Penns Creek	17862	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Port Trevorton	17864	Fixed Wireless	1.024 Gbps
Selinsgrove	17870	Fixed Wireless	1.024 Gbps
Shamokin Dam	17876	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
Troxelville	17882	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps

Additionally, two communities, McClure and Mount Pleasant Mills, have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

The community of Paxtonville also has DSL service at 15 Mbps in 100 percent of the geographic area.

Somerset County

There are 36 communities that are identified as having residential internet access in the county. Six communities are considered 100 percent served by fixed internet service, and one of them has 100 Mbps satellite service.

Somerset County			
Name	Zip Code	Type of ISP	Maximum Speed
Ursina	15485	Cable	1.2 Gbps
		Satellite	100 Mbps
Somerset	15510	Cable	1.2 Gbps
		5G Internet	182 Mbps
Acosta	15520	Cable	1.2 Gbps
Jenners	15546	Cable	1.2 Gbps
Quecreek	15555	Cable	1.2 Gbps
Springs	15562	Cable	1.2 Gbps
		5G Internet	182 Mbps

Additionally, eight communities have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage. They are Addison, Confluence, Somerset (15501), Hidden Valley, Boswell, Fort Hill, Markleton, and Rockwood.

The remaining 22 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. The communities of Boynton and Quecreek also have DSL service at 15 Mbps in 100 percent of the geographic area.

Sullivan County

There are nine communities that are identified as having residential internet access in the county. There are six communities are considered 100 percent served by fixed internet service, and all of them have 100 Mbps satellite service covering 100 percent of the zip code.

Sullivan County			
Name	Zip Code	Type of ISP	Maximum Speed
Eagles Mere	17731	DSL	115 Mbps*
Shunk	17768	DSL	115 Mbps*
Forksville	18616	DSL	115 Mbps*
Laporte	18626	DSL	115 Mbps*
Lopez	18628	DSL	115 Mbps*
Mildred	18632	DSL	115 Mbps*

*Speed estimated based on 2021 reported speeds.

Additionally, there are three communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage. They are Muncy Valley, Dushore, and Hillsgrove.

Susquehanna County

There are 25 communities that are identified as having residential internet access in the county. There are 14 communities are considered 100 percent served by fixed internet service, and nine of them have 100 Mbps satellite service covering 100 percent of the zip code.

Susquehanna County			
Name	Zip Code	Type of ISP	Maximum Speed
Clifford	18413	Fiber	1 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
Forest City	18421	Fiber	1 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
Herrick Center	18430	Cable	250 Mbps
		5G Internet	182 Mbps
Lenoxville	18441	Fiber	1 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
Thompson	18465	Cable	250 Mbps
Union Dale	18470	Fiber	1 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
Great Bend	18821	Cable	250 Mbps
		DSL	115 Mbps*

Susquehanna County			
Name	Zip Code	Type of ISP	Maximum Speed
Harford	18823	Fiber	1 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
Jackson	18825	Cable	250 Mbps
Lanesboro	18827	Cable	250 Mbps
		DSL	115 Mbps*
Little Meadows	18830	DSL	115 Mbps*
		Satellite	100 Mbps
South Gibson	18842	Cable	250 Mbps
South Montrose	18843	Cable	1 Gbps
		DSL	115 Mbps*
Susquehanna	18847	Cable	250 Mbps

*Speed estimated based on 2021 reported speeds.

Additionally, there are 11 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

Clifford has fixed wireless at 50 Mbps covering 100 percent of the geographic area. Herrick Center, Thompson, Jackson and South Gibson also have an internet provider offering service in 100 percent of the geographic area at below high-speed thresholds with DSL at 12 Mbps.

Tioga County

There are 21 communities that are identified as having residential internet access in the county. Five communities are considered 100 percent served by fixed internet service, and two of them have 100 Mbps satellite service.

Tioga County			
Name	Zip Code	Type of ISP	Maximum Speed
Arnot	16911	Cable	1 Gbps
		Fixed Wireless	200 Mbps
		DSL	115 Mbps*
		Satellite	100 Mbps
Elkland	16920	Cable	1 Gbps
Mainesburg	16932	Fixed Wireless	200 Mbps

Tioga County			
Name	Zip Code	Type of ISP	Maximum Speed
Morris Run	16939	Cable	1 Gbps
		Fixed Wireless	200 Mbps
		DSL	115 Mbps*
		Satellite	100 Mbps
Nelson	16940	Cable	1 Gbps
		Fixed Wireless	200 Mbps

Additionally, nine communities have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage. They are Wellsboro, Blossburg, Covington, Liberty, Mansfield, Millerton, Morris, Tioga, and Roaring Branch.

Six of the remaining seven communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code. They are Gaines, Knoxville, Lawrenceville, Middlebury Center, Osceola, and Westfield.

Sabinsville does not have internet service of any kind over 100 Mbps. It has 100 percent coverage of satellite service at 50 and 25 Mbps and 15 Mbps of DSL covering 87.6 percent of the area.

Union County

There are 12 communities that are identified as having residential internet access in the county. All 12 communities that are considered 100 percent served by fixed internet service, and all of them also have 100 Mbps satellite service.

Union County			
Name	Zip Code	Type of ISP	Maximum Speed
Harleton	17829	Fixed Wireless	1.024 Gbps
		DSL	200 Mbps
		Fixed Wireless	100 Mbps
Laurelton	17835	Fixed Wireless	1.024 Gbps
		Fiber	1 Gbps
		5G Internet	182 Mbps
Lewisburg	17837	Fixed Wireless	1.024 Gbps
Mifflinburg	17844	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps

Union County			
Name	Zip Code	Type of ISP	Maximum Speed
Millmont	17845	Fixed Wireless	1.024 Gbps
New Berlin	17855	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps
New Columbia	17856	Fixed Wireless	1.024 Gbps
Swengel	17880	Fixed Wireless	1.024 Gbps
		Cable	1 Gbps
		DSL	200 Mbps
		Fixed Wireless	100 Mbps
Weikert	17885	Fixed Wireless	1.024 Gbps
West Milton	17886	Fixed Wireless	1.024 Gbps
		Fiber	1 Gbps
		Fixed Wireless	100 Mbps
White Deer	17887	Fixed Wireless	1.024 Gbps
Winfield	17889	Fixed Wireless	1.024 Gbps
		Fixed Wireless	100 Mbps

Venango County

There are 14 communities that are identified as having residential internet access in the county. One community is considered 100 percent served by fixed internet service, and it does not 100 Mbps satellite service.

Venango County			
Name	Zip Code	Type of ISP	Maximum Speed
Rouseville	16344	Cable	1.2 Gbps

The remaining 12 communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Warren County

There are 20 communities that are identified as having residential internet access in the county. Two communities are considered 100 percent served by fixed internet service, and they both also have 100 Mbps satellite service.

Warren County			
Name	Zip Code	Type of ISP	Maximum Speed
Chandlers Valley	16312	5G Internet	182 Mbps
Tiona	16352	Cable	200 Mbps

There are 16 communities that have satellite coverage at 100 Mbps but do not have fixed service at full 100 percent coverage.

The remaining two communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code are Garland and Grand Valley.

The community of Chandlers Valley also has fixed wireless service at 0.768 Mbps in 100 percent of the geographic area.

Washington County

There are 57 communities that are identified as having residential internet access in the county. There are 15 communities that are considered 100 percent served by fixed internet service, and they all also have 100 Mbps satellite service.

Washington County			
Name	Zip Code	Type of ISP	Maximum Speed
Atlasburg	15004	Cable	400 Mbps
		Fiber	400 Mbps
		5G Internet	182 Mbps
Joffre	15053	Cable	400 Mbps
Midway	15060	DSL	200 Mbps
Beallsville	15313	DSL	200 Mbps
Cecil	15321	Cable	1.2 Gbps
Hendersonville	15339	Cable	1.2 Gbps
Muse	15350	Fiber	940 Mbps
		5G Internet	182 Mbps
Richeyville	15358	DSL	200 Mbps
Southview	15361	Cable	1.2 Gbps
Strabane	15363	Cable	1.2 Gbps
		Fiber	940 Mbps

Washington County			
Name	Zip Code	Type of ISP	Maximum Speed
Westland	15378	Fiber	400 Mbps
West Middletown	15379	5G Internet	182 Mbps
Allenport	15412	Cable	1 Gbps
Denbo	15429	Cable	1 Gbps
Dunlevy	15432	Cable	1 Gbps

There are 42 communities that have satellite coverage at 100 Mbps but do not have fixed service at full 100 percent coverage.

The communities of Atlasburg, Joffre, and Denbo also have DSL service at 15 Mbps in 100 percent of the geographic area.

Wayne County

There are 23 communities that are identified as having residential internet access in the county. There are 21 communities are considered 100 percent served by fixed internet service, and six of them have 100 Mbps satellite service.

Wayne County			
Name	Zip Code	Type of ISP	Maximum Speed
Damascus	18415	Fixed Wireless	1.024 Gbps
Equinunk	18417	Fixed Wireless	1.024 Gbps
Hamlin	18427	Fixed Wireless	1.024 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
Honesdale	18431	Fixed Wireless	1.024 Gbps
Lake Ariel	18436	Fixed Wireless	1.024 Gbps
		Satellite	100 Mbps
Lake Como	18437	Fixed Wireless	1.024 Gbps
Lakeville	18438	Fixed Wireless	1.024 Gbps
		Satellite	100 Mbps
Lakewood	18439	Fixed Wireless	1.024 Gbps
Milanville	18443	Fixed Wireless	1.024 Gbps
Pleasant Mount	18453	Fixed Wireless	1.024 Gbps
Poyntelle	18454	Fixed Wireless	1.024 Gbps
		Cable	250 Mbps
Preston Park	18455	Fixed Wireless	1.024 Gbps
		Cable	250 Mbps

Wayne County			
Name	Zip Code	Type of ISP	Maximum Speed
Prompton	18456	Fixed Wireless	1.024 Gbps
		Cable	250 Mbps
South Canaan	18459	Fixed Wireless	1.024 Gbps
		Fiber	1 Gbps
		Cable	250 Mbps
		Satellite	100 Mbps
South Sterling	18460	Cable	1 Gbps
		Satellite	100 Mbps
Starlight	18461	Fixed Wireless	1.024 Gbps
Starrucca	18462	Fixed Wireless	1.024 Gbps
		Cable	250 Mbps
Sterling	18463	Fixed Wireless	1.024 Gbps
		Cable	250 Mbps
		5G Internet	182 Mbps
Tyler Hill	18469	Fixed Wireless	1.024 Gbps
Waymart	18472	Fixed Wireless	1.024 Gbps
		Cable	250 Gbps
		Satellite	100 Mbps
White Mills	18473	Fixed Wireless	1.024 Gbps

Additionally, Newfoundland has satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage.

Beach Lake does not have any high-speed internet service covering 100 percent of the geographic area but has at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

Hamlin and South Canaan also have 50 Mbps fixed wireless service covering 100 percent of the area. Poyntelle has 12 Mbps of DSL service and Sterling has 15 Mbps of DSL service covering 100 percent of the area.

Westmoreland County

There are 83 communities that are identified as having residential internet access in the county. There are 30 communities are considered 100 percent served by fixed internet service, and all of them have 100 Mbps satellite service.

Westmoreland County			
Name	Zip Code	Type of ISP	Maximum Speed
Adamsburg	15611	Cable	1.2 Gbps
Bradenville	15620	Cable	1.2 Gbps
Calumet	15621	Fiber	1 Gbps
Claridge	15623	Cable	1.2 Gbps
		DSL	200 Mbps
Crabtree	15624	Cable	1.2 Gbps
Darragh	15625	Cable	1.2 Gbps
		5G Internet	182 Mbps
Donegal	15628	Fiber	1 Gbps
Grapeville	15634	Cable	1.2 Gbps
Herminie	15637	5G Internet	182 Mbps
Hostetter	15638	Cable	1.2 Gbps
		Fiber	1 Gbps
Hutchinson	15640	5G Internet	182 Mbps
Hyde Park	15641	Cable	1.2 Gbps
		DSL	200 Mbps
Jones Mills	15646	Fiber	1 Gbps
Lowber	15660	5G Internet	182 Mbps
Loyalhanna	15661	Cable	1.2 Gbps
Mammoth	15664	Fiber	1 Gbps
Norvelt	15674	Fiber	1 Gbps
Penn	15675	Cable	1.2 Gbps
Pleasant Unity	15676	Fiber	1 Gbps
Rillton	15678	Cable	1.2 Gbps
Salina	15680	Cable	1.2 Gbps
Stahlstown	15687	Fiber	1 Gbps
United	15689	Fiber	1 Gbps
Wendel	15691	Cable	1.2 Gbps
		5G Internet	182 Mbps
Westmoreland City	15692	Cable	1.2 Gbps
Whitney	15693	Cable	1.2 Gbps
		Fiber	1 Gbps
Wyano	15695	Fiber	1 Gbps
Youngstown	15696	Fiber	1 Gbps
Youngwood	15697	Cable	1.2 Gbps
Yukon	15698	Fiber	1 Gbps

Additionally, there are 50 communities that have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full coverage.

Bolivar, New Florence, and Seward do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code.

There are 10 communities that have 15 Mbps DSL service covering 100 percent of the area. Loyalhanna, New Derry, New Stanton, and Torrance have 10 Mbps fixed wireless service covering 100 percent of the area.

Wyoming County

There are eight communities that are identified as having residential internet access in the county. One community is considered 100 percent served by fixed internet service, and it has 100 Mbps satellite service.

Wyoming County			
Name	Zip Code	Type of ISP	Maximum Speed
Lake Winola	18625	Cable	1 Gbps

The remaining seven communities have satellite service at 100 Mbps that covers 100 percent of the geographic area, but no fixed service with full 100 percent coverage.

York County

There are 47 communities that are identified as having residential internet access in the county. Four communities are considered 100 percent served by fixed internet service, and all of them also have 100 Mbps satellite service.

York County			
Name	Zip Code	Type of ISP	Maximum Speed
Loganville	17342	Cable	1.2 Gbps
Railroad	17355	Cable	1.2 Gbps
York New Salem	17371	Cable	1.2 Gbps
		5G Internet	182 Mbps
York (1 of 8)	17407	Cable	1.2 Gbps

There are 36 communities that have satellite coverage at 100 Mbps but do not have fixed service at full coverage.

The remaining seven communities that do not have any high-speed internet service covering 100 percent of the geographic area but have at least one provider offering high-speed internet that covers between 20.1 percent and 99.9 percent of the zip code are Dillsburg, New Cumberland, Etters, Franklinton, Lewisberry, Wellsville, and York Haven.

The communities of Franklinton, Thomasville, and Wellsville also have fixed wireless service at 25 Mbps in 100 percent of the geographic area.

APPENDIX A:
2019 SENATE RESOLUTION 47

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

20190SR0047PN0951

- 3 -

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

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

- s -

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,

20190SR0047PN0951

- 6 -

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

1 this Commonwealth INCLUDING: <--
2 (I) MODERNIZING TELECOMMUNICATIONS POLICIES,
3 REGULATIONS AND STATUTES REGARDLESS OF TECHNOLOGY AND THE
4 ELIMINATION OF OUTDATED AND UNNECESSARY REGULATIONS; AND
5 (II) ELIMINATING BARRIERS TO THE EXPANSION OF
6 BROADBAND AVAILABILITY;
7 and be it further
8 RESOLVED, That the Joint State Government Commission may, as
9 it deems necessary, hold informational meetings to receive
10 testimony from professionals or consumers with expertise or
11 knowledge in the matters described in this resolution; and be it
12 further
13 RESOLVED, That the Joint State Government Commission issue an
14 initial report of its findings and recommendations to the Senate
15 no later than one year after the adoption of this resolution;
16 and be it further
17 RESOLVED, That the Joint State Government Commission issue
18 four additional annual reports of its findings and
19 recommendations to the Senate, each of which shall be issued no
20 later than one year after the issuance of the immediately prior
21 report.

APPENDIX B:
PROVIDERS OFFERING BROADBAND
TO CONSUMERS IN PENNSYLVANIA - 2022

Fixed Providers

Adams CATV Inc.
Always On High-Speed Internet
Armstrong Telecommunications Inc
Armstrong Telephone Company - NO
Armstrong Telephone Company - PA
Armstrong Utilities, Inc.
Atlantic Broadband Finance LLC
Beaver Valley Cable
Bethune Company LLC. dba Freedom
Broadband
Blue Devil Cable
Blue Ridge Communications
Borough of Kutztown
Cablevision
Centre WISP Venture Company
CenturyLink
Charter Communications Inc
Citizens Telecom Solutions LLC
Citizens Telephone Company of Kecksburg
ClearFiber
Comcast
Consolidated Communications
Cove Air
Crowsnest Broadband LLC
D and B Broadband, LLC
DFT Communications/Netsync Internet Services
Double Dog Communications
EagleZip.com
Eastern Time Inc
Frontier Communications Corporation
Getwireless.net, Inc.
GoNetspeed
GreatCommunicationsLLC
HickoryTelephoneCompany
HickoryTelephoneCompany - Legacy Only

Fixed Providers

Hometown Internet
Hotwire Communications Ltd.
Icon Technologies Inc
In The Stix Broadband
Ironton Telephone Co
Jackson Broadband, Inc.
Kuhn Communications, Inc.
LackawaxenTelecommunicationsServices
LanCity Connect
Laurel Highland Telephone Company
Laurel Highland Telephone Company CLEC
Lightgig Communications
Limitedless Mobile
Lumos Networks Inc
MasterVision
MAW Communications Inc.
Morgan Wireless, LLC
NEC Cloud Communications America, Inc.
NEP Telcom Inc
New Horizon Communications Group Inc
NittanyMediaInc
North Penn Long Distance
North Penn Telephone
One Ring Networks
PA.net
Palmerton Telephone CO
Patriot Cable System LLC
Pennsylvania Telephone Company
PennWisp LLC
Prologic Technology Services LLC
Pymatuning Independent Telephone Co
QCOL Inc
RCN
River Valley Internet
Rural Broadband Cooperative

Fixed Providers

Salsgiver
Service Electric Cable TV
Service Electric Cablevision, Inc.
Skypacket
Somersfield Cable
SonicNet Inc.
South Canaan Telephone Company
Southeast MN WIFI
Susquehanna Broadband
T-Mobile
Tailwind Voice and Data
TDS TELECOM
Telegia Communications, Inc.
The Hancock Telephone Company
The North Eastern Pennsylvania Telephone
Company
Tri Co Connections
United States Cellular Corporation
Upward Broadband
VenusTelephone
Verizon Pennsylvania LLC
Verizon Wireless
VITALink LLC
WestcoInternet
WestPANet, Inc.
Windstream Buffalo Valley Inc.
Windstream Conestoga Inc.
Windstream D&E Inc.
Windstream D&E Systems Inc.
Windstream Pennsylvania LLC.
Wire Tele-View Corporation
Xiber, LLC
Xtreme Internet
Yukon Waltz Telephone Company
Zito Media

Mobile Providers

AT&T Mobility
Indigo Wireless
Sprint

Satellite Providers

Hughesnet
Viasat, Inc.