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New York State Public Service Commission
Broadband Assessment Program

**2022 Report on the Availability, Reliability and Cost of High-Speed
Broadband Services in New York State**

June 2022



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Executive Summary

Closing the digital divide and ensuring that high-speed broadband service is available to all New Yorkers is a crucial goal for the State of New York. While the State has made significant progress towards universal deployment, there are still parts of New York, mainly in rural areas, that do not have high-speed broadband available. Moreover, while many New Yorkers have broadband available to them, for some it remains unaffordable. As the COVID-19 pandemic has made clear, access to affordable and ubiquitous high-speed broadband service is critical. New Yorkers with such capacity can receive medical care, work remotely, continue their educations, and connect with family and friends. Conversely, New Yorkers without such capacity can be cut off from the economy, their schools, and other essential services.

Accordingly, on April 16, 2021,¹ the Governor and the Legislature enacted the Comprehensive Broadband Connectivity Act of 2021 (herein referred to as the “Act”),² which directs the Public Service Commission (Commission) to study, on an annual basis, the availability, reliability, and cost of high-speed broadband service in the State to ensure that all New Yorkers have the necessary affordable access going forward. To help make this happen, the Department of Public Service (Department) initiated the Broadband Assessment Program (BAP) to collect data and analyze information. This study marks the BAP’s first iteration of the interactive Map and assessment in accordance with the requirements of the Act.

The Department engaged with partners across the State including county and local governments, the ConnectALL office,³ ECC Technologies, Inc. (ECC),⁴ internet service providers (ISPs), and consumers to develop its findings and recommendations. The Report addresses the current scope of broadband availability and affordability on an address-level basis, and discusses the challenges associated with mapping broadband. Through continued collaboration with interested stakeholders, the Commission and the Department expect to map broadband in New York with greater granularity and increased accuracy moving forward.

Statewide Findings⁵

- Served 97.4%.
- Underserved 0.1%.
- Unserved 2.5%.

¹ The Act’s effective date was May 16, 2021.

² The Act amended the Public Service Law (PSL) by adding a new §224-c.

³ New York’s ConnectALL office, part of the New York State Economic Development Corporation, is the successor to the Broadband Program Office.

⁴ The Department contracted with Penfield, New York based ECC to assist in completing this comprehensive broadband focused project in New York State.

⁵ These terms are defined pursuant to the Act as discussed below.

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While the BAP found that 97.4% of New York State’s primary address points are served by high-speed broadband service, it more importantly reveals where the gaps in high-speed broadband service exist. Although there are 15 counties with 99% broadband coverage, 26 of New York’s 62 counties have served percentages less than 95%, and of that 26, 11 have served percentages less than 90%. In three of New York’s counties, more than 20% of the address points do not have high-speed broadband service available.

Future Recommendations

- Refine mapping going forward based on more precise data.
- Target available funding to areas most in need.
- Consider future policy actions to support universal/affordable high-speed broadband.

Statement from Public Service Commission Chair Rory Christian

Over the last few years, New Yorkers have been asked to move so much of their daily activities online – from work to education, to healthcare, and more. For these reasons, ensuring reliable and affordable high-speed connectivity in every corner of the State is of paramount importance. The only way to do this is by understanding where high-speed broadband infrastructure exists and where it does not. The Report, which will be updated annually, showcases New York’s first-ever, in-depth interactive broadband Map and assessment; detailing the availability and cost of high-speed broadband infrastructure statewide.

On behalf of the Commission, we are pleased to deliver the first Report, so the important work of improving connectivity in those areas with the greatest need can continue. The Commission is also proud to be part of Governor Kathy Hochul’s recently announced ConnectALL Initiative, a transformational investment in New York's communities and digital infrastructure.⁶ As part of the ConnectALL Initiative, the Department is leading the public outreach effort for this multi-agency collaboration that will help ensure affordable high-speed broadband for eligible New Yorkers. Specifically, the Department has worked to encourage participation in the Federal Communication Commission’s (FCC) Affordable Connectivity Program (ACP), which provides discounts to eligible New Yorkers of up to \$30 per month for internet service and more. To date, over 200,000 eligible New Yorkers have enrolled in the ACP to receive affordability benefits since this outreach campaign began. The work does not stop here; the Commission and the Department will regularly update and refine the Map so that it can inform necessary investments to help close the digital divide and will continue working with

⁶ The \$1 billion ConnectALL Initiative, part of the Governor Hochul’s 2022 State of the State, will deliver affordable broadband to millions of New Yorkers and transform the State's digital infrastructure through new investments. Under the new ConnectALL Initiative, New York State will use over \$1 billion in public and private investments to connect New Yorkers in rural and urban areas statewide to broadband.

other partners to ensure all New Yorkers have equal access to affordable and ubiquitous high-speed broadband.

The Comprehensive Broadband Connectivity Act of 2021

The Act directs the Commission, to the extent practicable, to:

- Identify areas at a census block⁷ level that are served by a sole broadband provider and assess any regulatory and statutory barriers related to the delivery of comprehensive statewide access to high-speed internet;
- Review available technology to identify solutions that best support high-speed internet service in underserved and unserved areas as defined therein;
- Identify instances where local governments have notified the Commission of alleged non-compliance with franchise agreements, and instances of Commission or Department enforcement actions that have had a direct impact on internet access;
- Identify locations where insufficient access to high-speed broadband services or persistent digital divide, is causing negative social or economic impacts on the community; and,
- Produce and publish a detailed internet access map of the State, indicating access to internet service by location.

In accordance with the Act, the Map should include download and upload speeds advertised and experienced, the consistency and reliability of download and upload speeds including latency, the types of internet service and technologies, including but not limited to dial-up, broadband, fixed wireless, fiber, coax or satellite, and the number of ISPs and the price of their available internet service. In addition, the Act requires the Commission to provide, to the extent practicable:

- The overall number of residences with access to high-speed internet, identifying which areas are served, underserved and unserved as defined therein;⁸

⁷ A census block is the smallest geographic census unit. Blocks can be bounded by visible features, such as streets, or by invisible boundaries, such as city limits. A block group is a subdivision of a census tract and contains a cluster of blocks. Block groups usually have between 250 and 550 housing units.

⁸ The location fabric database that was applied to the Map is not fully capable of distinguishing single-family residences versus multi dwelling units, therefore, an analysis of overall residences will be reported at a later time.

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- A regional survey of internet service prices in comparison to county-level median income;
- Any relevant consumer statistics; and,
- The detailed map discussed above.

Finally, the Act requires the Commission to hold at least two public hearings - one in an Upstate location and one in a Downstate location - to solicit input from the public and other interested stakeholders.

The Broadband Assessment Program Report

The information contained in this Report and interactive Map (referred to herein as the “Map,” or collectively, the “Report”) has, in part, been collected from ISPs operating in New York who were asked to provide reasonable representations of their respective service areas. Determining each ISP’s service area without a field inspection verification of every address may yield discrete inaccuracies, and while the Department, along with its consultant, conducted field inspections in the most remote areas of the State to corroborate information received from the various ISPs, it was not feasible to verify 100% of the addresses in the field.

The Commission and the Department encourage all consumers to utilize the feedback function in the Map to notify the BAP of any inaccuracies and/or other general feedback for how we can improve the Map through future iterations. Additionally, users are urged to contact ISPs directly to verify service information. In some cases, although an ISP may populate on the map as available to provide service, issues such as building access and line of sight may prevent an ISP from being able to provide service to a particular address location. The Map is intended to depict the current scope of the State’s broadband infrastructure and, therefore, does not include projects currently under construction or future planned infrastructure buildouts.

The Report consists of four parts.

Part One provides an historic overview of the State’s initiatives that have successfully brought broadband availability to 97.4% of address locations in New York and the initiation of several low-income broadband programs; the recent assessment on broadband availability and accessibility conducted by the New York State Office of State Comptroller (OSC); and the relevant federal initiatives to make high-speed broadband available to unserved and underserved rural areas, make such service more affordable and reliable, and map unserved areas nationwide.

Part Two provides an overview of the types of existing broadband services in New York; the BAP’s research and analysis of the data used to outline the scope of high-speed broadband infrastructure in New York; and the detailed mapping of high-speed broadband in New York.

Part Three provides the relevant statistics, such as served, unserved, and underserved address locations, available broadband speeds and pricing; a comparison of internet service pricing and median incomes; an assessment of the negative social and economic impacts on

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communities caused by insufficient availability of high-speed broadband service; the potential barriers to entry; and, whether there were any cable franchise violations during the reporting period that impacted broadband expansion.

Part Four provides next steps and recommendations to refine the mapping exercise moving forward; to support high-speed broadband investments to address the remaining unserved or underserved gaps in coverage; and, to consider future policy actions.

Part One – Historic Overview

The State and federal governments have undertaken several initiatives to facilitate universal high-speed broadband deployment. In addition to the \$1 billion ConnectALL Initiative discussed above, the ConnectALL office administers grant programs to support high-speed broadband expansion. The Commission also pursues targeted opportunities for high-speed broadband expansion. These actions, in conjunction with the many federal programs, have and are expected to continue to benefit New Yorkers in the coming years.

The Public Service Commission

Over the last several years, the Commission has implemented several targeted initiatives to improve the availability and affordability of high-speed broadband in the State. These actions include statewide telecommunications reviews, oversight over transactions involving regulated cable and telecommunication providers, enforcing service quality standards, and promoting measures to improve broadband affordability as follows:

- In the Charter Communications, Inc. (Charter) – Time Warner Cable, Inc. merger, the Commission required Charter to, among other things, deploy an additional 145,000 high-speed broadband passings to unserved or underserved areas of the State, upgrade its speeds across its network, and offer a low-income internet plan to all its eligible customers.⁹
- In the Verizon New York Inc. (Verizon) service quality matter, the Commission required Verizon to, among other things, extend its fiber-based broadband service to additional households within or near the census blocks for which the Broadband Program Office (BPO) at ESD (now under the ConnectALL Office) had awarded grants (approximately 20,500 additional households benefitted from this expansion) and to provide its fiber-based broadband service to 10,000-12,000 additional residential and business customer premises on Long Island and within its Upstate reporting regions.¹⁰

⁹ Case 15-M-0388, Joint Petition of Charter Communications, Inc. and Time Warner Cable Inc., Order Granting Joint Petition Subject to Conditions (issued January 8, 2016).

¹⁰ Case 16-C-0122, Proceeding on Motion of the Commission to Consider the Adequacy of Verizon New York Inc.'s Retail Service Quality Processes and Programs, Order Adopting Terms of Joint Proposal (issued July 12, 2018).

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- In the Altice N.V. (Altice) - Cablevision Systems Corporation merger, the Commission required Altice to, among other things, deploy network infrastructure to all unserved or underserved residential and non-residential premises in the Town of Milan, Dutchess County, create a line extension promotion fund to defray residential and commercial customer line extension fees, expand high-speed internet service to other underserved or unserved areas, upgrade speeds on existing networks, and offer a discounted internet services to its eligible low-income customers.¹¹

The Commission also monitors its processes and procedures to address broadband deployment concerns as they emerge. Since 2004, the Commission has had a comprehensive framework for pole attachments.¹² The Commission's framework has been updated to reflect technological changes. In 2019, the Commission incorporated wireless attachments into its framework.¹³ Additionally, the Legislature recently directed the Commission to consider refining its processes and procedures to encourage further broadband deployment and on March 1, 2022, the Commission initiated a case to examine methods to streamline the pole attachment processes and procedures to facilitate broadband deployment.¹⁴

[The ConnectALL Office](#)

The BPO was established in 2008 with its primary function of implementing the State's universal broadband initiatives. The BPO initially distributed investments made available to New York through the 2009 federal American Recovery and Reinvestment Act (ARRA) to expand availability and adoption of broadband service statewide. Through that process, the BPO facilitated the submission of 263 statewide grant applications which resulted in \$160 million awarded directly to New York State project sponsors.¹⁵

In 2015, the New NY Broadband Program was created.¹⁶ The New NY Broadband Program was primarily responsible for issuing state grants that dedicated \$500 million, complimented by matching funds from ISPs, resulting in over \$728 million in infrastructure investment – the most in the nation at the time – towards extending broadband to unserved and underserved areas of the State. These investments supported infrastructure capable of providing

¹¹ Case 15-M-0647, Joint Petition of Altice N.V. and Cablevision Systems, Order Granting Joint Petition Subject to Conditions (issued June 15, 2016).

¹² Case 03-M-0432, Proceeding on Motion of the Commission Concerning Certain Pole Attachment Issues, Order Adopting Policy Statement on Pole Attachments (issued August 6, 2004) (the 2004 Pole Order).

¹³ Case 16-M-0330, Petition of CTIA - The Wireless Association to Update and Clarify Wireless Pole Attachment Protections, Order Approving Petition in Part and Continuing Proceeding (issued March 14, 2019).

¹⁴ Case 22-M-0101, Proceeding to Review Certain Pole Attachment Rules, Notice Seeking Comments (issued March 1, 2022).

¹⁵ The Broadband Program Office, 2011-12 Annual Report, p. 33.

¹⁶ Also, part of the New York State Empire Development Corporation.

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100 Megabytes-per-second (Mbps) service in most areas, reaching over 256,000 previously unserved or underserved homes and businesses, and at least 25 Mbps service in remote areas of the State.

[The Office of State Comptroller](#)

In September 2021, the OSC issued its assessment on the scope of broadband availability in New York.¹⁷ The OSC assessment looked at the state of broadband availability through a population-based assessment. That assessment relied upon available FCC and U.S. Census Bureau data to analyze broadband availability and affordability within the various geographic and demographic segments of New York. While differing methodologies were used in the OSC's analysis as compared to the BAP's, both studies highlight that broadband infrastructure deployment lags predominantly in rural New York counties.¹⁸ Among the OSC's findings were:

- At 98.7%, New York ranked second among states in the percentage of the population within areas served by broadband that meet the FCC benchmark 25/3 Mbps broadband speed available at home;
- More than 98% of New York's population had at least one provider available that offers 250/25 Mbps;
- Broadband deployment lagged predominantly in rural New York areas, where the share of the population without broadband was as high as 23% in certain counties;
- More than one million, or 13.8%, of New York households did not have subscriptions to broadband internet, and many of those households earned less than \$20,000 annually;
- The digital divide disproportionately impacted low-income households during the pandemic;
- New York should pursue federal funding opportunities; and,
- New York should assist the FCC in mapping efforts and use the data to inform its broadband strategies.

[Federal Broadband Initiatives](#)

The federal government and the FCC have undertaken several initiatives to facilitate the universal, deployment of high-speed broadband as follows:

- In 2011, the FCC established the Connect America Fund (CAF) and initially allocated up to \$1.98 billion for broadband support in rural areas over 10 years. Additionally, the

¹⁷ See: <https://www.osc.state.ny.us/reports/availability-access-and-affordability-understanding-broadband-challenges-new-york-state#idTextAnchor000>.

¹⁸ <https://www.osc.state.ny.us/reports/broadband-map>.

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FCC allocated \$170.4 million to the New NY Broadband Program through the CAF II program, bringing the total grant program to \$2.15 billion.

- In 2019, the FCC established the Rural Digital Opportunity Fund (RDOF). A total of \$20.4 billion is available to expand broadband service over 10 years. Of this sum, the FCC is expected to make up to \$16 billion available in census blocks that are unserved, with the remainder allocated to census blocks that are partially served. To date, the FCC has awarded over \$4 billion. In New York, 10 ISPs were awarded a total of \$99,891,715 to serve 46,647 locations to date.
- In 2021, the American Rescue Plan Act (ARPA) was enacted. ARPA includes a \$10 billion dollar fund administered by the United States Treasury to expand access to broadband.
- The ARPA also created the Emergency Connectivity Fund, which provides \$7.17 billion to help schools and libraries with remote learning during the pandemic. To date, the FCC has committed \$4.69 billion in program funding to connect over 12.5 million students with broadband connections and equipment. The FCC awarded New York State \$505,143,214.
- In 2021, the Infrastructure Investment and Jobs Act provided \$42.5 billion for the Broadband Equity, Access, and Deployment program, which will allocate formula grants to states to deploy broadband infrastructure, primarily in unserved and underserved areas. New York's allocation will be based on its share of unserved households in the United States.

Regarding mapping, since 2009,¹⁹ the FCC has endeavored to map broadband availability nationwide, relying primarily on Form 477 data which reports the availability of broadband service at a census-block level. Form 477 data, however, does not distinguish between census blocks with robust broadband availability and those with only partial or minimal coverage. As a result, broadband mapping methodologies historically have not identified unserved locations within a discrete census block level.

To improve broadband mapping, the FCC recently established the Digital Opportunity Data Collection program. This new process seeks to collect fixed geospatial broadband data and incorporate public input on the accuracy of ISP broadband coverage.²⁰ Since then, the FCC has taken steps to implement a Broadband Serviceable Location Fabric,²¹ a common dataset of all locations in the United States where fixed broadband internet access is readily available.

¹⁹ <https://broadbandmap.fcc.gov/#/>.

²⁰ <https://www.fcc.gov/document/fcc-improves-broadband-mapping-0>.

²¹ <https://www.fcc.gov/document/access-preliminary-broadband-serviceable-location-fabric-announced>.

Part Two - Overview of the Broadband Assessment Program

The Department's BAP is a key component in meeting the requirements of the Act. Among other things, the Act requires the Commission to develop a current roster of ISPs that are capable of meeting New York's standard for high-speed broadband service defined as "a minimum throughput or speed of 100 Mbps downstream and 10 Mbps upstream,"²² and demonstrate through mapping, ISP serviceability areas, along with speeds and prices.²³

The BAP gathered data from four primary sources, described in detail below. By applying appropriate analysis to this data, the BAP compared, confirmed, and contrasted information from these various sources. The ability to overlay the data aided in corroborating information or, alternatively, leading the BAP to further assess certain discrepancies. Going forward, the Commission and the Department through the BAP will update the Report annually to help ensure universal deployment of high-speed broadband throughout the State, and significant work will be done to refine the data for the Map's next iteration.

Types of Broadband Infrastructure in New York

Infrastructure capable of providing broadband service is available over various wireline and wireless networks. Each has unique characteristics which can impact the capacity, speed, and latency of the service offering. To varying degrees, these networks are capable of providing high-speed broadband service. In New York, wired broadband service is predominantly deployed using hybrid fiber-coaxial cable and all fiber networks. These networks are costly to build, and lower population densities in rural areas makes it more difficult for ISPs to recover their investments. The BAP will endeavor to study what network infrastructure is best capable of delivering high-speed broadband service to the most remote areas of the State through future iterations of the Report.

- **Twisted-pair copper networks** are ubiquitously deployed throughout New York. Originally designed to provide telephone service, these networks are the oldest internet access technology. They are capable of providing dial-up internet access and broadband Digital Subscriber Line (DSL) service. There are various types of DSL service, and available data transmission speeds will vary depending upon the number of copper lines used for the service, the condition of the lines, and the length of the copper lines from the telephone company's central office (or remote switch) to the customer's premises.
- **Coaxial cable networks** were originally used to deliver cable television service over coaxial copper cables. Modern cable networks operate on **hybrid fiber-coaxial networks** that combine the coaxial connection to the customer's premises, with a fiber optic backbone to the cable company's head-end office, and are capable of providing telephone, video, and high-speed broadband services.

²² PSL §224-c(1)(d).

²³ Id.

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- **All-fiber networks** use fiber optic cable for point-to-point connectivity to the customer's premises and are capable of providing voice, video, and high-speed data services. Their maximum data speed is limited by the electronic equipment placed within the network, which is routinely upgraded to provide "next generation" data speeds.
- **Fixed wireless networks** combine fiber optic cable backhaul from the switching office to an antenna array or base station with radiofrequency wireless connectivity to a customer's premises. Fixed wireless networks are more commonly deployed outside urban areas where DSL, coaxial cable, and fiber networks may not be available. Fixed wireless networks commonly provide speeds between 10 and 50 Mbps (averaging around 25 Mbps), and transmission speeds can be impacted by factors such as the weather, line of sight clarity between the base station and customer's antenna, and signal interference from other radio frequency devices.²⁴
- **Mobile wireless networks** use licensed radio frequencies to complete phone calls, send text messages, and transmit data from the nearest cell tower to the receiving device, which can be mobile. Cellular signals can be impacted by distance of the receiving device from the tower, building wall thickness, hills, or other obstructions. Clear line of sight is not necessary for cellular service to work but will increase call clarity and data transmission speed.²⁵
- **Satellite networks** have generally been available to the mass market in more recent years. Multiple companies have launched satellites delivering a minimum of 25Mbps throughput. Others are capable of higher speeds. Satellite networks are considered ubiquitously available throughout New York.

Broadband Availability Data Resources

The BAP utilized the following four data sets to complete its mapping and analyses:

- The New York State Street and Address Maintenance (SAM) Program as a location fabric;
- New York ISP-provided data;
- The Fiber Optic and Coaxial Asset Inventory Program; and,
- Stakeholder input.

1. The State and Address Maintenance Program

The New York State GIS Program Office's SAM Program maintains a regularly updated statewide street and address point database. Its database is publicly available, was built to

²⁴ See <https://www.bandwidthplace.com/fixed-wireless-internet/>.

²⁵ For purposes of the BAP's analysis, and in meeting the requirements of the Act, mobile wireless networks were not a part of the first iteration of the Report and Map.

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support Next Generation 9-1-1 (NG9-1-1) and is compliant with National Emergency Number Association (NENA) address standards.²⁶

The BAP utilized the SAM Program address point database to populate address locations on the interactive Map. The SAM Program address points applied to the Map reflect valid, primary addresses throughout New York State. However, the SAM Program database does not delineate address points as residential or commercial, nor does it fully distinguish address points as single-family homes or multi-dwelling units across the State (e.g., the SAM database may classify a single large apartment building as a single address point although it may contain more than one dwelling unit).

A total of 5,277,633 address points were geocoded into the interactive Map. These points include “Primary Points”²⁷ which reflect rooftop-level, or individual structures/buildings, or may reflect driveway entrances. The BAP also maintained address points called “Parcel Centroids.”²⁸ Parcel Centroids are primarily address points placed for vacant but validly addressed parcels. These points represent 230,747 address points in the Map. The BAP found that due to the frequency of new construction, Parcel Centroids may be homes and, therefore, the decision was made to maintain the use of Parcel Centroids in the Report’s analysis. The BAP did not include most²⁹ address points representing parks, cemeteries, boat launches, bridges, and fuel sources. These address points are known as “Miscellaneous Points.”³⁰

2. Internet Service Provider Data

An ISP is any person, business or organization qualified to do business in the State that provides individuals, corporations, or other entities with the ability to connect to the internet.³¹ The BAP attempted to collect serviceability data from every ISP reporting to the FCC pursuant to its Form 477 that have operations in New York. In 2020, 108 ISPs reported to the FCC as having internet operations in New York. Of that, 65 ISPs reported having consumer connections. The BAP received data from 60 ISPs. While each of the identified ISPs are capable of providing high-speed broadband access, they differ greatly in the extent of their coverage. Some may have a service area limited to several census blocks, a single zip code, or a single community, whereas others may provide service to a far greater geographic area. The 60 identified ISPs provided data in one of three formats:

²⁶ The NENA address standard is used nationwide for accurate and up-to-date geocoded street centerlines and address points required in NG9-1-1 systems.

²⁷ <https://gis.ny.gov/gisdata/supportfiles/Address-Points-Data-Dictionary.pdf>.

²⁸ Id.

²⁹ To the extent counties did not categorize these types of location as Miscellaneous Points they were not eliminated due to how counties reported them to the GIS Program Office.

³⁰ <https://gis.ny.gov/gisdata/supportfiles/Address-Points-Data-Dictionary.pdf>.

³¹ PSL §224-c(1)(g).

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- **Polygons**, representing reasonable depictions of serviceable areas, by broadband technologies and speeds;
- **Line data**, representing where network infrastructure is located, along with standard and non-standard³² installation distances, which were then applied to the line data to create polygons representing reasonable depictions of serviceable areas by broadband technologies and speeds; and,
- **Serviceable and/or customer addresses** with standard and non-standard installation distances, which were then applied to each address to create polygons representing reasonable depictions of serviceable areas by broadband technologies and speeds.

While significant refinement of ISP data took place throughout the course of the BAP's initial work, additional data refinement will be necessary. As explained in Part Four, the Commission and the Department request the help of all stakeholders, including, but not limited to, ISPs operating in New York, county and local governments, and consumers, to aid in this process.

3. The Fiber Optic and Coaxial Asset Inventory Program

The BAP also relied upon the Fiber Optic and Coaxial Asset Inventory Program, which is comprised of data collected through various field inspections of New York's existing broadband infrastructure, namely wireline fiber optic and coaxial cable. As part of this Fiber Optic and Coaxial Asset Inventory Program, the BAP drove over 81,000 miles of roads to identify where high-speed broadband infrastructure exists. To narrow this effort to areas with little or no expected broadband coverage, cities, towns, and villages with denser populations were not included in these initial field inspections. The Fiber Optic and Coaxial Asset Inventory Program data was then used to fact-check the above-referenced ISP-provided data.

Once ISP-provided data was submitted to the BAP, the data retrieved from the Fiber Optic and Coaxial Asset Inventory Program was overlaid on the ISP-provided data. The overlaying of the two data sets provides an opportunity to reach a deeper level of precision and understanding of the scope of infrastructure. In most cases, ISPs were reporting reasonable representations of their serviceability in a particular area based on the field inventory results collected. However, there were several instances that necessitated the ISPs to refine their data due to significant over or understatements of serviceability.

Additionally, there were instances where field inspectors were not able to access certain remote, private roads. Thus, ISP data played a critical role in assessing the location of such infrastructure. There were also some instances where a field inspector was sent out to an area more than once in order to corroborate ISP-provided data. Overall, field inspections aided the

³² The BAP interprets a standard installation to mean one where there is no or a nominal installation charges, and non-standard installation to mean one where the customer is required to pay an additional installation charges due to the distance from the network to the customer's premises (e.g., a long driveway).

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BAP in significantly refining the Map's results. As mentioned in Part Four, the BAP expects to use field inspections to further refine the Map, particularly in more rural areas.

4. Consumer Survey, Public Hearings and Filed Comments

The BAP established an interactive process for New Yorkers to provide information related to broadband infrastructure. Stakeholders participated by taking a survey, either online or by calling a toll-free number (1-855-BBMAP) to request a paper copy in the mail. With the help of county and local governments, community-based organizations, and the State's legislators, over 27,000 New Yorkers responded to the survey from every corner of the State.

Among all respondents, 22,606 (83%) completed the survey in its entirety, while 4,417 (16%) of respondents only partially completed the survey. Of respondents who chose to describe their address locations, 17,884 (70%) described their address locations as "Rural," while 5,879 (23%) described their address locations as "Suburban," and 1,648 (6%) as "Metro/Urban."

Survey questions were tailored to residential respondents (90%) or non-residential respondents/businesses (10%), and, among other things, whether respondents had active internet service. A total of 2,852 (10%) survey respondents stated that they did not have active internet access at their respective addresses.

Of additional note, 1,469 respondents commented on the need for more ISP competition in their areas, particularly from respondents in the following counties: Suffolk (129 comments), Schenectady (79 comments), Ontario (78 comments), Orange (77 comments), Ulster (75 comments), and Saratoga (70 comments). 427 survey respondents also commented on excessive infrastructure installation costs in their areas, particularly from respondents in the following counties: Genesee (31 comments), Steuben (28 comments), Sullivan (28 comments), and Wyoming (26 comments).

The BAP also provided an opportunity for respondents to conduct a speed test as a part of the survey. Many factors can lead to speed degradation such as how far away a person is from their router, the age of one's device or computer, how many applications are running at the same time, and how many devices are connected or operating at the time of the speed test. A total of 7,995 respondents took the speed test. The results displayed below indicate that almost half of the speed test participants experienced slower speeds based on respondents' stated subscriptions.

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	Respondents	SPEED TEST RESULTS in Mbps				ST COMPARISON		MONTHLY CHARGES FOR SERVICE						
		Slowest	Average	Average at 95th Percentile*	Fastest	No. Respondents Receiving Less than Plan *	Pct. Of Subs Receiving Lower Avg. Download Speed Compared to Subscriber Service	G.T. \$100 / month	\$76 - 100 / month	\$51 - 75 / month	\$25 - 50 / month	L.T. \$25 / month	Don't Know	
RESIDENTIAL														
Paying for 100 Mbps or more	2,004	0.30	175.31	153.91	941.11	1,039	55%	285	715	198	468	13	65	
Paying for 51-99 Mbps	616	1.07	79.91	72.29	935.37	492	80%	77	215	233	68	3	21	
Paying for 25 - 49 Mbps	422	0.81	47.36	36.76	632.84	305	72%	69	124	229	116	11	15	
Paying for 10 - 24 Mbps	657	0.36	36.78	24.85	572.24	474	72%	91	21	19	7	25	4	
Paying for less than 10 Mbps	561	0.16	11.69	6.11	316.96	464	83%	0	7	20	0	2	2	
Respondent did not indicate speed	3064	0.02	104.99	65.32	651.53	N/A	M/A	447	996	1049	395	0	197	
COMMERCIAL														
Paying for 100 Mbps or more	1	255.35	255.35	255.35	255.35	1	100%	0	1	0	0	0	0	
Paying for 51-99 Mbps	38	61.92	175.34	171.70	480.69	4	11%	4	21	6	3	0	1	
Paying for 25 - 49 Mbps	13	9.88	61.13	58.86	88.39	1	8%	3	8	2	0	0	0	
Paying for 10 - 24 Mbps	20	7.39	35.26	24.75	234.88	2	10%	8	5	5	2	0	0	
Paying for less than 10 Mbps	561	0.36	6.32	4.63	31.71	464	83%	0	7	20	0	2	2	
Respondent did not indicate speed	38	5.82	75.73	65.57	472.59	N/A	M/A	0	15	2	0	0	5	

* 95th percentile of count from lowest speed - excluding fastest 5%

Download speeds were sorted from slowest to fastest. Excluded from the 95th percentile average were the fastest 5% of the speeds recorded by the Ookla Speed Test Application

** Percentage and count of subscribers receiving L.T. speed as indicated in "Category" column

This represents those percentages of respondents who did not measure a Speed Test in excess of the MAXIMUM tier speed, where the percentage was 1% to 94%. The maximum tier speeds utilized were 100 Mbps, 49.9 Mbps, 24.0 Mbps and 9.9 Mbps

The BAP plans on maintaining the consumer survey (adjusting it where necessary) and speed test functionality as a vehicle to continue obtaining consumer input throughout New York State and to corroborate the information in the Map. Both can be found on the interactive Map by clicking the “Consumer Survey” button on any page of the Map.

The Commission also conducted eight virtual public hearings.³³ In total, 38 stakeholders provided comments at the public hearings. The BAP also received 86 written comments in the Document and Matter Management system³⁴ under Matter #21-02182. A diverse array of stakeholders provided input, including state and local representatives, large and small ISPs,

³³ The Act only requires two public hearings.

³⁴ [Document and Matter Management system](#)

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business and economic development organizations, community and public interest groups, and individuals from across the State. The comments addressed the following:

- High-speed broadband is as critical as electric, gas, and water service for participation in modern society.
- Unaffordable, unreliable, or inadequate (*i.e.*, download speeds under 100 Mbps) broadband service is as much an issue as the lack of broadband service.
- While some commenters encourage a technology-neutral approach to broadband expansion, with no preference for wired, wireless, or satellite internet, many commenters strongly preferred fiber-optic internet.
- Many individuals noted that they are in a census block considered served, but could not readily receive internet, even at inadequate speeds or an unaffordable price.
- Commenters called for the Commission to produce an accurate map and make this map available to all.

[Applying the Act and Mapping Broadband](#)

This section describes how the BAP studied the availability of broadband service, determined the status of each address location, and created an interactive map to illustrate the “served,” “underserved,” and “unserved” locations in the State.

The BAP applied the Act’s definition of “location” to study the availability of broadband service in the most granular and practical manner to assist policy makers and the public. The Act defines “location” as “a geographic area smaller than a census tract.”³⁵ This definition is broad, meaning the study could have been conducted at various subdivisions of a census tract. The BAP determined that the address-level information in the SAM Program database would provide the most granular results. Therefore, for the purposes of the Report and Map a **location is an address point in the SAM Program database.**

The Act defines a location as “served” if it is a “location with at least two [ISPs] and at least one such [ISP] offers high-speed internet service.”³⁶ For purposes of the Report, the BAP assumed that satellite internet service is universally available throughout New York. The BAP therefore determined that all locations were considered to have at least one ISP to fulfill the number of ISPs required under the Act’s definition of served. However, due to the difficulty of determining the speed of satellite service at any given location, the BAP did not consider the speed of satellite service for purposes of categorizing a location as served, underserved, or unserved. Additionally, the BAP concluded that the Act emphasized wired or fixed-wireless internet service, as discussed in more detail below.³⁷ Based on the foregoing, the BAP

³⁵ PSL §224-c(1)(f).

³⁶ *Id.*, §224-c(1)(a).

³⁷ See, *e.g.*, PSL §224-c(1)(c).

determined that a **served location is an address point with at least one wired or fixed-wireless high-speed ISP** for the purposes of the Report.

The Act defines a location as “underserved” if it is a “location which has fewer than two internet service providers, or has internet speeds of at least 25 [Mbps] download but less than 100 Mbps download available.”³⁸ The Act also defines a location as “unserved” if it is a “location which has no fixed wireless service or wired service with speeds of less than 25 Mbps download available.”³⁹ The BAP’s assumptions that satellite internet service is ubiquitous and the Act’s focus on wired or fixed-wireless internet availability apply equally to these respective definitions. When read together, they could yield conflicting results. More specifically, locations in the State with only satellite service available could satisfy the definitions of both underserved and unserved, since the definition of underserved includes locations with only one ISP, while the definition of unserved includes locations with no fixed wireless or wired service (with speeds of less than 25 Mbps download available). Accordingly, the BAP determined that an **underserved location is an address point with at least one wired or fixed-wireless ISP offering download speeds of at least 25 Mbps but less than 100 Mbps**, and an **unserved location is one with no wired or fixed-wireless providers offering speeds of at least 25 Mbps download available**.

Turning to the Map, the BAP used ISP-provided data to create polygons depicting reasonable representations of each providers’ serviceable areas by technology type(s) and speed(s). The BAP reviewed these polygons against other data, namely the Fiber Optic and Coaxial Asset Inventory Program and stakeholder input.⁴⁰ The BAP then met with the vast majority of ISPs operating in New York to confirm that the polygons were reasonable representations of their respective serviceability areas.

The mapping program then compared each address point in the SAM Program database to the providers’ polygons to generate a list of ISPs by technology type(s) and speed(s) available at each address location. This list was ultimately used to determine if the address location should be categorized as served, underserved, or unserved.

The refined data was then used to create the interactive Map. The interactive Map⁴¹ allows users to explore the State’s broadband availability. Users are able to search an address and see what ISPs are available, what type of technology providers are using, what potential speeds are being offered, and explore the links to the ISPs’ websites to see current offers and pricing. Users are also able to search at the county, city/town/village, and school district-levels

³⁸ *Id.*, §224-c(1)(b).

³⁹ *Id.*, §224-c(1)(c).

⁴⁰ Other information included previous Department analysis and audits, including the Charter 145,000 Broadband Expansion Plan, see f.n. 9, *supra*.

⁴¹ The Department engaged VHB, a civil engineering consulting and design firm to assist in creating the interactive Map.

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to obtain the percentages of served, underserved, or unserved at each discrete level. The Map can be found at <https://mapmybroadband.dps.ny.gov>.

Part 3 - BAP Study Findings

Served, Underserved and Unserved

Based on the foregoing analyses, the BAP determined that 97.4%, 0.1%, and 2.5% of locations in the State are served, underserved, and unserved, respectively. While the BAP found that 97.4% of New York State’s primary address points are served by high-speed broadband service, it more importantly reveals where the gaps in high-speed broadband service exist. For example, only 70.2% and 73% of address points in Hamilton and Lewis counties, respectively, are considered served. The table below shows the percent served, underserved, and unserved in each of New York’s 62 counties.

County	Served Address Points	%	Underserved Address Points	%	Unserved Address Points	%
Albany	114,676	98.051%	8	0.007%	2,271	1.942%
Allegany	23,960	94.390%	45	0.177%	1,379	5.433%
Bronx	105,235	99.885%	0	0.000%	121	0.115%
Broome	83,888	95.164%	5	0.006%	4,258	4.830%
Cattaraugus	30,303	74.533%	1,639	4.031%	8,715	21.435%
Cayuga	38,911	95.478%	11	0.027%	1,832	4.495%
Chautauqua	58,578	94.455%	1,200	1.935%	2,239	3.610%
Chemung	38,158	97.828%	13	0.033%	834	2.138%
Chenango	22,971	87.243%	152	0.577%	3,207	12.180%
Clinton	35,514	96.871%	64	0.175%	1,083	2.954%
Columbia	29,577	95.852%	230	0.745%	1,050	3.403%
Cortland	18,111	96.166%	13	0.069%	709	3.765%
Delaware	27,634	95.378%	19	0.066%	1,320	4.556%
Dutchess	106,386	96.049%	62	0.056%	4,314	3.895%
Erie	350,172	98.916%	561	0.158%	3,277	0.926%
Essex	22,507	85.419%	25	0.095%	3,817	14.486%
Franklin	21,518	89.438%	3	0.012%	2,538	10.549%
Fulton	23,185	93.507%	73	0.294%	1,537	6.199%
Genesee	22,247	94.604%	32	0.136%	1,237	5.260%
Greene	26,901	90.457%	1	0.003%	2,837	9.540%
Hamilton	5,617	70.204%	111	1.387%	2,273	28.409%
Herkimer	29,537	92.840%	49	0.154%	2,229	7.006%
Jefferson	50,762	95.451%	11	0.021%	2,408	4.528%
Kings	308,356	99.964%	0	0.000%	112	0.036%
Lewis	12,618	73.017%	74	0.428%	4,589	26.555%

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County	Served Address Points	%	Underserved Address Points	%	Unserved Address Points	%
Livingston	23,538	89.159%	186	0.705%	2,676	10.136%
Madison	29,439	94.133%	40	0.128%	1,795	5.740%
Monroe	299,935	99.124%	52	0.017%	2,600	0.859%
Montgomery	18,932	92.297%	93	0.453%	1,487	7.249%
Nassau	418,846	99.879%	0	0.000%	506	0.121%
New York	61,916	99.197%	0	0.000%	501	0.803%
Niagara	93,063	98.722%	0	0.000%	1,205	1.278%
Oneida	84,497	95.493%	97	0.110%	3,891	4.397%
Onondaga	184,572	98.868%	2	0.001%	2,111	1.131%
Ontario	46,400	95.031%	123	0.252%	2,303	4.717%
Orange	129,144	96.571%	670	0.501%	3,915	2.928%
Orleans	17,305	94.640%	0	0.000%	980	5.360%
Oswego	52,395	97.067%	18	0.033%	1,565	2.899%
Otsego	27,921	85.681%	71	0.218%	4,595	14.101%
Putnam	40,243	98.729%	0	0.000%	518	1.271%
Queens	360,059	99.943%	0	0.000%	204	0.057%
Rensselaer	63,327	98.905%	36	0.056%	665	1.039%
Richmond	129,654	99.979%	0	0.000%	27	0.021%
Rockland	93,752	98.350%	0	0.000%	1,573	1.650%
Saratoga	97,173	97.905%	3	0.003%	2,076	2.092%
Schenectady	54,653	99.523%	0	0.000%	262	0.477%
Schoharie	16,749	94.901%	0	0.000%	900	5.099%
Schuyler	9,236	89.722%	3	0.029%	1,055	10.249%
Seneca	13,941	95.297%	0	0.000%	688	4.703%
St Lawrence	48,546	92.351%	0	0.000%	4,021	7.649%
Steuben	47,644	90.061%	21	0.040%	5,237	9.899%
Suffolk	526,909	98.952%	0	0.000%	5,579	1.048%
Sullivan	49,613	95.564%	22	0.042%	2,281	4.394%
Tioga	19,596	93.062%	14	0.066%	1,447	6.872%
Tompkins	33,419	95.795%	24	0.069%	1,443	4.136%
Ulster	84,137	96.936%	3	0.003%	2,656	3.060%
Warren	36,294	95.553%	19	0.050%	1,670	4.397%
Washington	27,003	93.933%	3	0.010%	1,741	6.056%
Wayne	36,171	93.323%	2	0.005%	2,586	6.672%
Westchester	229,392	99.339%	0	0.000%	1,527	0.661%
Wyoming	14,604	86.872%	69	0.410%	2,138	12.718%
Yates	11,651	85.087%	37	0.270%	2,005	14.643%

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Census Blocks Served by a Sole Provider

It was not possible at this time to determine what census blocks are served by a sole provider, but an analysis was performed to determine, on a county level basis, the number of address points served by a sole provider. The following chart provides, by county, the total number of address points, the number of address points served, the number of address points served by one high-speed wired or fixed wireless provider, and the number of address points served by more than one high-speed wired or fixed wireless provider. Statewide, approximately 55% of address points are served by only one wired or fixed wireless high-speed provider while approximately 42% of address points are served by more than one provider.

County Name	Total Address Points	Total Served Address Points	%	Served Address Points - More Than One Provider	%	Served Address Points - One Provider	%
Albany	116,955	114,676	98.05%	92,909	79.44%	21,767	18.61%
Allegany	25,384	23,960	94.39%	11,323	44.61%	12,637	49.78%
Bronx	105,356	105,235	99.89%	101,479	96.32%	3,756	3.57%
Broome	88,151	83,888	95.16%	18,748	21.27%	65,140	73.90%
Cattaraugus	40,657	30,303	74.53%	8,210	20.19%	22,093	54.34%
Cayuga	40,754	38,911	95.48%	20,672	50.72%	18,239	44.75%
Chautauqua	62,017	58,578	94.45%	33,632	54.23%	24,946	40.22%
Chemung	39,005	38,158	97.83%	8,532	21.87%	29,626	75.95%
Chenango	26,330	22,971	87.24%	1,818	6.90%	21,153	80.34%
Clinton	36,661	35,514	96.87%	23,791	64.89%	11,723	31.98%
Columbia	30,857	29,577	95.85%	14,034	45.48%	15,543	50.37%
Cortland	18,833	18,111	96.17%	4,848	25.74%	13,263	70.42%
Delaware	28,973	27,634	95.38%	8,604	29.70%	19,030	65.68%
Dutchess	110,762	106,386	96.05%	47,808	43.16%	58,578	52.89%
Erie	354,010	350,172	98.92%	168,563	47.62%	181,609	51.30%
Essex	26,349	22,507	85.42%	5,969	22.65%	16,538	62.77%
Franklin	24,059	21,518	89.44%	6,102	25.36%	15,416	64.08%
Fulton	24,795	23,185	93.51%	444	1.79%	22,741	91.72%
Genesee	23,516	22,247	94.60%	6,968	29.63%	15,279	64.97%
Greene	29,739	26,901	90.46%	6,579	22.12%	20,322	68.33%
Hamilton	8,001	5,617	70.20%	1,604	20.05%	4,013	50.16%
Herkimer	31,815	29,537	92.84%	4,324	13.59%	25,213	79.25%
Jefferson	53,181	50,762	95.45%	16,187	30.44%	34,575	65.01%
Kings	308,468	308,356	99.96%	301,945	97.89%	6,411	2.08%
Lewis	17,281	12,618	73.02%	418	2.42%	12,200	70.60%
Livingston	26,400	23,538	89.16%	3,072	11.64%	20,466	77.52%

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County Name	Total Address Points	Total Served Address Points	%	Served Address Points - More Than One Provider	%	Served Address Points - One Provider	%
Madison	31,274	29,439	94.13%	3,135	10.02%	26,304	84.11%
Monroe	302,587	299,935	99.12%	87,911	29.05%	212,024	70.07%
Montgomery	20,512	18,932	92.30%	578	2.82%	18,354	89.48%
Nassau	419,352	418,846	99.88%	412,709	98.42%	6,137	1.46%
New York	62,417	61,916	99.20%	56,264	90.14%	5,652	9.06%
Niagara	94,268	93,063	98.72%	165	0.18%	92,898	98.55%
Oneida	88,485	84,497	95.49%	6,267	7.08%	78,230	88.41%
Onondaga	186,685	184,572	98.87%	139,607	74.78%	44,965	24.09%
Ontario	48,826	46,400	95.03%	17,101	35.02%	29,299	60.01%
Orange	133,729	129,144	96.57%	35,561	26.59%	93,583	69.98%
Orleans	18,285	17,305	94.64%	0	0.00%	17,305	94.64%
Oswego	53,978	52,395	97.07%	9,447	17.50%	42,948	79.57%
Otsego	32,587	27,921	85.68%	3,101	9.52%	24,820	76.17%
Putnam	40,761	40,243	98.73%	27,351	67.10%	12,892	31.63%
Queens	360,263	360,059	99.94%	173,849	48.26%	186,210	51.69%
Rensselaer	64,028	63,327	98.91%	32,163	50.23%	31,164	48.67%
Richmond	129,681	129,654	99.98%	128,797	99.32%	857	0.66%
Rockland	95,325	93,752	98.35%	85,112	89.29%	8,640	9.06%
Saratoga	99,252	97,173	97.91%	13,560	13.66%	83,613	84.24%
Schenectady	54,915	54,653	99.52%	29,824	54.31%	24,829	45.21%
Schoharie	17,649	16,749	94.90%	6,209	35.18%	10,540	59.72%
Schuyler	10,294	9,236	89.72%	4,745	46.09%	4,491	43.63%
Seneca	14,629	13,941	95.30%	8,295	56.70%	5,646	38.59%
St Lawrence	52,567	48,546	92.35%	14,216	27.04%	34,330	65.31%
Steuben	52,902	47,644	90.06%	19,632	37.11%	28,012	52.95%
Suffolk	532,488	526,909	98.95%	411,746	77.32%	115,163	21.63%
Sullivan	51,916	49,613	95.56%	166	0.32%	49,447	95.24%
Tioga	21,057	19,596	93.06%	3,976	18.88%	15,620	74.18%
Tompkins	34,886	33,419	95.79%	5,092	14.60%	28,327	81.20%
Ulster	86,796	84,137	96.94%	5,378	6.20%	78,759	90.74%
Warren	37,983	36,294	95.55%	8,362	22.02%	27,932	73.54%
Washington	28,747	27,003	93.93%	14,466	50.32%	12,537	43.61%
Wayne	38,759	36,171	93.32%	3,031	7.82%	33,140	85.50%
Westchester	230,919	229,392	99.34%	209,750	90.83%	19,642	8.51%
Wyoming	16,811	14,604	86.87%	1,443	8.58%	13,161	78.29%
Yates	13,693	11,651	85.09%	3,377	24.66%	8,274	60.43%
Totals	5,277,615	5,138,991	97.37%	2,900,969	54.97%	2,238,022	42.41%

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Regional Survey of Internet Service Pricing vs. County Median Income

As part of the Act’s requirements,⁴² the BAP collected pricing and service level data for the 62 New York counties, shown in detail in the attached Appendix. These pricing and service level results can be grouped by county median income, as shown in the table below, which separates them into three categories, those with median income levels from \$41,895 to \$54,883 (the lowest 25th percentile), those with incomes between \$54,884 and \$65,306 (the 25th to 75th percentile), and those counties with incomes between \$65,306 to \$120,036 (the highest 25 percent). In general, the 16 counties in the lowest 25th income percentile, on average, face the highest prices and are provided with the lowest speeds. The 30 counties with incomes in the middle percentiles receive slightly lower prices, and significantly greater speeds. Finally, the 16 counties with the highest incomes, those in the top 25th percentile, benefit from the lowest prices and the greatest speeds. Notably, the number of ISPs, on average, increase as county-level incomes increase.

Median Income	Average Price in Counties	Average Speed in Counties	Average Number of ISPs in Counties	Number of Counties in Category
\$41,895 - \$54,883	\$60.73	177.16	3.5054	16 ⁴³
\$54,884 - \$65,306	\$59.38	204.98	4.20	30 ⁴⁴
\$65,307 - \$120,036	\$46.80	222.69	4.94	16 ⁴⁵

⁴² PSL §224-c(3)(b)

⁴³ Allegany, Bronx, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Delaware, Franklin, Fulton, Jefferson, Montgomery, Orleans, Schuyler, Seneca and St. Lawrence counties.

⁴⁴ Cayuga, Clinton, Cortland, Erie, Essex, Genesee, Greene, Hamilton, Herkimer, Kings, Lewis, Livingston, Madison, Monroe, Niagara, Oneida, Onondaga, Ontario, Oswego, Otsego, Schoharie, Steuben, Sullivan, Tioga, Tompkins, Warren, Washington, Wayne, Wyoming and Yates counties.

⁴⁵ Albany, Columbia, Dutchess, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Suffolk, Ulster and Westchester counties.

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Assessment of Negative Social or Economic Impact on Communities Caused by Insufficient Access to Broadband Service

The Act requires the Commission to identify locations where insufficient access to high-speed broadband services or persistent digital divide, is causing negative social or economic impacts on the community.⁴⁶ Areas identified in the Report as unserved, or underserved, are considered to be at an economic and social disadvantage. This is evident, because broadband access in the 21st century has become one of the foundational resources allowing communities to compete and thrive. Broadband enables business, education, medicine, government, and public safety to perform their functions efficiently. Availability of high-speed broadband is also a critical component of economic development and a community's ability to attract and retain industry. Rural areas without broadband infrastructure - and households and businesses that cannot afford broadband - simply cannot thrive in the modern economy.

Overcoming Potential Barriers to Broadband Deployment

The Act further directs the Commission to “assess any state regulatory and statutory barriers related to the delivery of comprehensive statewide access to high-speed internet.”⁴⁷ While the BAP did not identify any current State regulatory or statutory barriers, the BAP is aware of some potential barriers to entry that require further review, as discussed below.

At the outset, pursuant to federal law, the Commission has limited jurisdiction over broadband.⁴⁸ The Federal Telecommunications Act of 1934, as amended by the Telecommunications Act of 1996, grants the FCC broad jurisdiction to regulate interstate services.⁴⁹ The FCC has classified broadband as an interstate information service. State law that conflicts with the FCC's approach is preempted.⁵⁰ Therefore, the Commission does not have the same statutory authority over ISPs that it does over regulated telephone, cable, electric, gas, water, and steam corporations.⁵¹

Turning to State law, some commenters maintain that the prior New York State Department of Transportation (DOT) fiber optic fee in State-owned rights-of-way acted as an impediment to broadband deployment. Specifically, Highway Law §10(24-e) and Transportation Corporations Law §7 allowed the DOT to assess a fee for use and occupancy of State-owned

⁴⁶ PSL §224-c(2)(d).

⁴⁷ PSL §244-c(2)(a).

⁴⁸ American Lib. Assoc'n v. F.C.C., 406 F.3d 689, 692-93 (D.C. Cir. 2005); see also, Louisiana Pub. Serv. Comm'n v. F.C.C., 476 U.S. 355, 368-69 (1986).

⁴⁹ In re Restoring Internet Freedom, 33 FCC Rcd. 311, 318-321 (2018).

⁵⁰ Mozilla Corporation v. F.C.C., 940 F.3d 1, 80-81 (D.C. Cir. 2019) (rejecting the FCC's claim to expressly preempt all inconsistent state regulation of aspects of broadband service).

⁵¹ As conflict preemption is a fact-specific inquiry, 940 F.3d at 81-82, the precise bounds of what state laws FCC regulation preempts are still being determined. C.f. New York State Telecomm. Assoc'n, Inc. v. James, 544 F.Supp.3d 269, 284-285 (E.D.N.Y. 2021).

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rights-of-way.⁵² The 2022-2023 Budget repealed DOT's authority to assess this fee.⁵³ Other commenters, however, maintain that certain DOT and municipal survey requirements for occupying rights-of-way can be onerous.⁵⁴

Commenters also argued that some owners of multiple dwelling units impose access restrictions on providers looking to upgrade their existing copper networks to fiber. Formerly, only cable television companies had a process to prevent unreasonable interference from owners or managers under PSL §228.⁵⁵ With the recently enacted PSL §104, landlords and owners are now prohibited from unreasonably restricting access when an existing telephone line is upgraded to fiber.⁵⁶ The BAP notes, however, that no comparable protections exist for providers of stand-alone internet service.

The Commission also continuously refines its processes and procedures to make it easier to attach telecommunication and cable infrastructure (in some instances also capable of providing broadband) on utility poles. In 1997, the Commission issued a standard rate methodology for pole attachments in Case 95-C-0341.⁵⁷ In 2004, the Commission adopted its Policy Statement on Pole attachments in Case 03-M-0432.⁵⁸ The Commission's framework has been updated to reflect technological change as well: in 2019, the Commission issued an order in Case 16-M-0330 that incorporated wireless attachments into this framework.⁵⁹ Finally, on March 1, 2022, the Commission initiated Case 22-M-0101 pursuant to amended PSL §119-a to examine further methods and procedures to streamline the pole attachment process to facilitate broadband deployment.⁶⁰

⁵² See, New York State Department of Transportation, NYSDOT PERM 75 Questions and Answers 1 (updated March 2022).

⁵³ L. 2022, Ch. 58, Part JJ.

⁵⁴ See, Matter 21-02182, Comments of Verizon, filed March 18, 2022, pp. 3-4.

⁵⁵ PSL §228(1)(a) and (b) (limiting when and how a landlord may interfere with installation of cable facilities); 16 N.Y.C.R.R. Part 898 (codifying rules and procedures for the ability of landlords to limit installation of cable facilities).

⁵⁶ PSL §104(2) (directing claims for just compensation to use the Commission's procedural rules at 16 N.Y.C.R.R. Part 898).

⁵⁷ Case 95-C-0341, In the Matter of certain Pole Attachment Issues, which arose in Case 94-C-0095, Opinion and Order Setting Pole Attachment Rates (issued June 17, 1997).

⁵⁸ Case 03-M-0432, Proceeding on Motion of the Commission Concerning Certain Pole Attachment Issues, Order Adopting Policy Statement on Pole Attachments (issued August 6, 2004).

⁵⁹ Case 16-M-0330, Petition of CTIA - The Wireless Association to Update and Clarify Wireless Pole Attachment Protections, Order Establishing Updated Pole Attachment Rates with Modifications (issued November 18, 2019).

⁶⁰ Case 22-M-0101, Proceeding to Review Certain Pole Attachment Rules, Notice Seeking Comment (issued March 1, 2022).

Allegations of Franchise Violations

The Act further requires the Commission to review allegations of franchise agreement non-compliance and related enforcement actions that have impacted internet access during the year of the assessment.⁶¹ The BAP, by letter to every municipality in the State, inquired about potential violations of franchise agreements. The BAP did not receive any responses of allegations of noncompliance, and thus neither the Commission nor Department have taken any related enforcement action during the study year. The Department and the Commission will investigate any such allegations going forward.

Part Four - Future Actions & Recommendations

The BAP expects the Report and Map to materially assist the State's efforts to expand availability and affordability of broadband to all New Yorkers. In order to achieve universal and affordable broadband, additional funding will be necessary. As population density plays a big role in where broadband infrastructure has already been deployed, the areas identified by the Report and Map as under and/or unserved are in the more rural, less densely populated areas of the State that will presumably have a higher cost to construct. Therefore, the BAP has identified the following actions and recommendations.

Improve Broadband Mapping

The interactive Map improves upon previously produced FCC maps that used a classification methodology that relied on ISP-provided data at the census-block level. Unlike these previous maps, the BAP's address location-based methodology incorporates additional data sources, such as the SAM Program database, field inventories, and consumer input, to produce a more granular depiction of broadband availability, technology types, and pricing in New York. These efforts mark a major step forward in the mapping of broadband availability. Refining the data further will be necessary to achieve greater precision. As such, in its annual updates, the BAP will explore the following refinements:

- Review, analyze, and incorporate consumer input, including information generated by the feedback function, to further assess discrepancies.
- Provide additional data submission guidance to all ISPs operating in New York.⁶²
- Conduct additional field inventories.
- Monitor the FCC's Broadband Data Collection (BDC) Program.

⁶¹ PSL §224-c(2)(c).

⁶² Under PSL §224-c(5), all ISPs operating in New York are reminded that they are required to continue their efforts to conform to the BAP's information requests and provide data in a format that can be used to fulfill the Act's requirements.

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- Challenge BDC Program findings where necessary.
- Consider incorporating the FCC's Broadband Serviceable Location Fabric (part of the BDC) should it become publicly available.

Target Funding

The BAP Report and Map should serve to enhance New York's ability to target State and federal funding for future broadband expansion in the areas of greatest need and, as discussed in Part One of the Report, there are several programs that are expected to provide funding for this stated purpose.⁶³ Therefore, the BAP recommends the following:

- Use the Map as a central resource for the efficient deployment of State and federal funding.
- Consider a fund to mitigate the impact of non-standard broadband installation charges for those consumers most in need of assistance.

Future Policy Actions

To address remaining broadband availability and affordability concerns, other programs and policy initiatives should be considered as follows:

- Identify the best technologies capable of reaching the remaining unserved/underserved address locations.
- Consider strategies to expand broadband assistance to those not eligible for either the FCC's ACP discount or the ISP provided low-income offerings.
- Continue consumer outreach to increase awareness of the FCC's ACP discount available to eligible households and promoting other such programs that foster accessibility to in-need families.

⁶³ See, <https://broadbandusa.ntia.doc.gov/news/latest-news/ntia-launches-updated-federal-broadband-funding-guide>.

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Appendix A – Regional Survey of Internet Service Pricing vs. County Median Income

The table below shows the average price and average speed offered by the ISPs in each county as collected by the BAP. These county averages are matched up with the median income level for each county as reported in the Census Bureau’s 2020 American Community Survey.

	Average Price	Average Speed (Mbps)	Competitors	Median Income
Albany	\$56.67	179	7	\$68,327
Allegany	\$52.47	175	2	\$51,227
Bronx	\$45.71	200	6	\$41,895
Broome	\$57.98	170	5	\$52,237
Cattaraugus	\$44.78	150	5	\$50,700
Cayuga	\$39.98	267	3	\$57,985
Chautauqua	\$57.79	170	5	\$48,315
Chemung	\$52.00	183	3	\$54,883
Chenango	\$56.98	160	5	\$51,756
Clinton	\$60.45	125	4	\$59,510
Columbia	\$59.11	157	6	\$68,750
Cortland	\$54.00	133	2	\$59,194
Delaware	\$81.40	143	6	\$49,945
Dutchess	\$51.23	225	7	\$81,842
Erie	\$53.79	240	5	\$59,464
Essex	\$89.51	189	7	\$58,109
Franklin	\$80.61	133	3	\$52,905
Fulton	\$49.99	200	1	\$51,663
Genesee	\$50.00	225	2	\$60,635
Greene	\$67.81	143	6	\$56,681
Hamilton	\$80.93	217	3	\$60,625
Herkimer	\$67.72	213	4	\$58,438
Jefferson	\$86.63	200	3	\$54,726
Kings	\$45.33	167	7	\$63,973
Lewis	\$74.35	160	4	\$56,192
Livingston	\$51.65	200	3	\$60,248
Madison	\$51.98	260	5	\$61,176
Monroe	\$62.50	263	4	\$62,087
Montgomery	\$49.99	200	1	\$50,146
Nassau	\$38.16	183	5	\$120,036

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County	Average Price	Average Speed (Mbps)	Providers ⁶⁴	Median Income
New York	\$44.90	360	9	\$89,812
Niagara	\$44.99	250	2	\$57,252
Oneida	\$65.23	263	4	\$59,113
Onondaga	\$55.82	342	6	\$62,668
Ontario	\$55.99	250	5	\$64,795
Orange	\$44.99	267	3	\$80,816
Orleans	\$49.99	200	1	\$52,958
Oswego	\$58.31	183	3	\$59,070
Otsego	\$68.64	142	6	\$56,171
Putnam	\$38.49	250	4	\$107,246
Queens	\$41.66	200	5	\$72,028
Rensselaer	\$43.58	180	4	\$72,510
Richmond	\$44.99	250	2	\$85,381
Rockland	\$44.99	267	3	\$94,840
Saratoga	\$43.58	180	4	\$85,224
Schenectady	\$56.11	171	6	\$66,488
Schoharie	\$64.17	130	4	\$58,926
Schuyler	\$62.49	225	4	\$53,291
Seneca	\$54.97	150	2	\$54,865
St. Lawrence	\$87.94	175	4	\$52,071
Steuben	\$52.41	200	6	\$55,349
Suffolk	\$39.74	200	3	\$105,362
Sullivan	\$78.72	138	4	\$60,433
Tioga	\$51.19	230	5	\$61,965
Tompkins	\$51.88	239	8	\$61,361
Ulster	\$54.98	280	5	\$65,306
Warren	\$70.58	167	3	\$64,658
Washington	\$59.95	200	2	\$59,613
Wayne	\$49.98	233	3	\$62,003
Westchester	\$45.56	214	6	\$99,489
Wyoming	\$51.65	200	3	\$58,746
Yates	52.00	183	3	\$55,307

⁶⁴ The presence of multiple providers in one county does not always mean that the providers are competing with each other and consumers have competitive alternatives, as the providers' service territories within the county may not overlap.