

Empire State Development

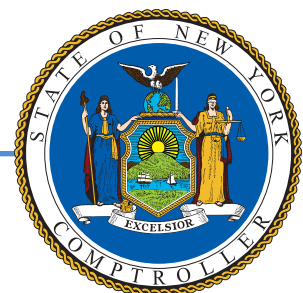
New NY Broadband Program

Report 2020-S-19 | July 2022

OFFICE OF THE NEW YORK STATE COMPTROLLER

Thomas P. DiNapoli, State Comptroller

Division of State Government Accountability



Audit Highlights

Objective

To determine whether Empire State Development (ESD) has effectively monitored and managed the New NY Broadband Program and whether the Program has achieved its overall goals. The audit covered the period from January 2016 through November 2021.

About the Program

In 2015, New York State established the \$500 million New NY Broadband Program (Program). The goal of the Program was to achieve statewide broadband availability by the end of 2018. ESD's Broadband Program Office (BPO) is responsible for managing the Program, which includes identifying census blocks eligible for funding, establishing grant disbursement agreements with Internet service providers (ISPs), verifying completed work, and creating a statewide broadband availability map. BPO made a total of 53 Program awards, consisting of 126 individual projects totaling \$487.2 million, with \$301.6 million disbursed as of November 2021. Currently, BPO states that broadband Internet is available to 98.95% of the State.

Key Findings

- BPO established adequate internal controls to effectively monitor and manage the Program, including establishing agreements with ISPs outlining Program requirements, using external entities to assist in identifying eligible census blocks, reviewing project proposals, validating project construction, and reviewing project expenditures.
- While the Program, once fully implemented, will have connected 255,994 housing units across the State, the Program fell short of achieving its overall goal of providing statewide broadband availability. According to BPO officials, as of March 2021, there were over 14,000 households that remain either unserved or underserved.
- The Program connected 78,690 of 255,994 housing units (31%) using satellite technology. Satellite service offers a maximum download speed of 25 megabits per second (Mbps), making it a less viable option to meet the needs of today's Internet users.
- Over half of the 126 projects experienced some type of delay, ranging from 1 to 48 months. As of January 2022, nine projects have yet to complete network construction. Specifically, four projects for a single ISP affecting about 12,400 housing units are not expected to be completed until December 2022.
- BPO's assertion that broadband is available to 98.95% of the State is overstated as it's based, in part, on Federal Communications Commission (FCC) Form 477 Broadband Deployment data. The FCC data has known limitations regarding broadband availability within census blocks as it considers an entire census block served if at least a single location within that block has broadband availability. (The FCC only requires the minimum download speed of 25 Mbps to consider a census block served.)

Key Recommendations

- Work with ISPs to complete outstanding projects as soon as practical.
- Ensure any future State-funded projects are based on reliable and accurate broadband availability data and utilize technologies providing reliable high-speed Internet.



**Office of the New York State Comptroller
Division of State Government Accountability**

July 1, 2022

Hope Knight
Commissioner, President and CEO
Empire State Development
633 3rd Avenue
New York, NY 10017

Dear Ms. Knight:

The Office of the State Comptroller is committed to helping State agencies, public authorities, and local government agencies manage their resources efficiently and effectively. By so doing, it provides accountability for the tax dollars spent to support government operations. The Comptroller oversees the fiscal affairs of State agencies, public authorities, and local government agencies, as well as their compliance with relevant statutes and their observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving operations. Audits can also identify strategies for reducing costs and strengthening controls that are intended to safeguard assets.

Following is a report of our audit entitled *New NY Broadband Program*. This audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 and Article X, Section 5 of the State Constitution; Article II, Section 8 of the State Finance Law; and Section 2803 of the Public Authorities Law.

This audit's results and recommendations are resources for you to use in effectively managing your operations and in meeting the expectations of taxpayers. If you have any questions about this report, please feel free to contact us.

Respectfully submitted,

Division of State Government Accountability

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Glossary of Terms

Term	Description	Identifier
BPO	Broadband Program Office	<i>Auditee Office</i>
Broadband	Internet download speeds greater than or equal to 25 Mbps	<i>Key Term</i>
CAF	Federal Connect America Fund	<i>Key Term</i>
ESD	Empire State Development	<i>Auditee</i>
FCC	Federal Communications Commission	<i>Federal Agency</i>
Form 477	FCC Form 477 Broadband Deployment data	<i>Key Term</i>
ISP	Internet service provider	<i>Key Term</i>
Mbps	Megabits per second	<i>Key Term</i>
Program	New NY Broadband Program	<i>Program</i>
PSC	Public Service Commission	<i>Agency</i>
REDC	Regional Economic Development Council	<i>Council</i>
RFP	Request for Proposals	<i>Key Term</i>
Served	BPO's definition of census blocks with Internet download speeds of at least 100 Mbps	<i>Key Term</i>
Underserved	BPO's definition of census blocks with Internet download speeds of at least 25 Mbps but less than 100 Mbps	<i>Key Term</i>
Unserved	BPO's definition of census blocks with Internet download speeds of less than 25 Mbps	<i>Key Term</i>

Background

Broadband is a critical aspect of economic growth and job creation and, increasingly, an essential part of how we conduct our everyday life. Across all industries, broadband has reimagined how we provide education and health care, manage energy, and ensure public safety, as well as how information is stored, accessed, and shared. In 2015, about 30% of all New Yorkers lacked access to broadband Internet, including 65% of the upstate New York region.

The COVID-19 pandemic further exposed that high-speed broadband remains unavailable and/or too costly for many New Yorkers. Moreover, equity remains an issue, with Black and Hispanic households in New York being less likely to have a subscription than white households.

During the pandemic, many New Yorkers were forced to rely on high-speed Internet to work, attend school and medical appointments, and connect with family and friends from their homes. These activities are not possible without reliable high-speed Internet service. Additionally, according to a Reuters article published in June 2021, the average U.S. household has as many as 25 devices connected to the Internet, including laptops, smartphones, streaming devices, smart TVs, headphones, and gaming consoles. Increased usage and reliance on these types of devices means the demand for high-speed reliable broadband service has never been greater.

Closing this remaining digital divide is critical because having universal access to high-speed broadband in our digital economy is as essential as having heat, clean water, and reliable electricity. Connectivity helps New Yorkers attend school, work remotely, find a job, start a business, access health care, and communicate with loved ones.

Recognizing the importance of reliable high-speed Internet, New York State created the New NY Broadband Program (Program) to close this digital divide. According to the Program's website, launched in 2015, the Program was designed to ensure that every New Yorker had access to high-speed broadband at Internet download speeds of at least 100 megabits per second (Mbps) by the end of 2018, except in the most remote areas of the State where such speeds were not feasible. In those areas, download speeds of 25 Mbps were deemed acceptable. The Program included \$500 million in State funds and secured additional private and federal matching investments of \$235 million, bringing the total investment to about \$735 million. The funding supported expanding broadband availability to areas of the State that lacked or had limited access to broadband Internet.

The Broadband Program Office (BPO), a division of Empire State Development (ESD), is responsible for managing the Program. BPO's mission is to increase economic and social opportunities through universal broadband deployment, and it serves as the State's single point of contact for broadband development and deployment. This includes identifying census blocks eligible for funding and establishing grant disbursement agreements with Internet service providers (ISPs).

BPO implemented the Program in three phases between January 2016 and March 2017, with each phase having ISPs submit proposals to serve specific eligible unserved and underserved census blocks using a reverse auction process (i.e., lowest State subsidy per unit served). For Phase 1, BPO accepted applications between March 1, 2016 through April 15, 2016, and prioritized unserved areas with projects that could be quickly initiated serving the most readily identifiable housing units. For Phase 2, BPO accepted applications between October 17, 2016 and November 30, 2016, and opened up additional service areas – such as unserved and underserved housing units not counted by the Federal Communications Commission’s (FCC) data methodology; and allowed ISPs the opportunity to address a much larger universe of housing units than in Phase 1. Lastly, BPO launched Phase 3 in March 2017, which focused on all remaining unserved and underserved areas, and included census blocks eligible for funding through the FCC’s Connect America Fund (CAF), a federal initiative to bring broadband access to rural communities. For Phase 3, BPO conducted two separate evaluations of submitted applications – one for Program funding and another for CAF funding. In total, BPO made 53 Program awards to 33 ISPs, totaling \$487.2 million, to provide broadband to 255,994 housing units, which represents approximately 3% of New York’s 8.1 million housing units (see table below). As of November 2021, a total of \$301.6 million in Program funds have been expended.

Currently, BPO states that broadband Internet at speeds of 100 Mbps or greater is available to 98.95% of the State.

BPO Program Awards by Phase

Program Phase	Number of Awards	Number of Housing Units	Program Funding	Federal/Private Matching Investments	Total Investment
Phase 1	12	36,171	\$54,163,873	\$21,660,665	\$75,824,538
Phase 2	25	85,066	202,734,762	53,987,074	256,721,836
Phase 3	16	134,757	230,343,589	159,026,593	389,370,182
Totals	53	255,994	\$487,242,224	\$234,674,332	\$721,916,556

Audit Findings and Recommendations

Having a fast and reliable Internet connection is no longer a luxury but rather a necessity. Broadband has been increasingly important in just about every aspect of our lives, especially due to the impact of the COVID-19 pandemic.

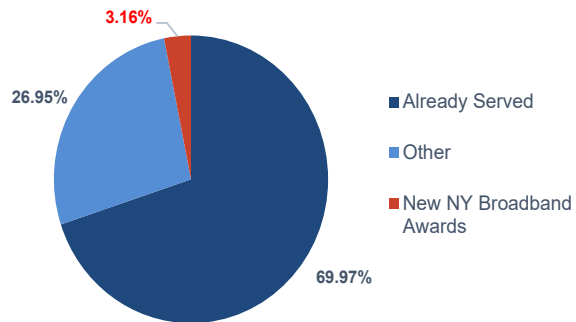
The Program effectively utilized State funds and other investments in its efforts to increase broadband availability to about 3% of the State, or 255,994 households, that were unserved or underserved (see Figure 1). However, the Program fell short of achieving its overall goal of statewide universal broadband access. As of March 2021, there were 14,070 households that remained either unserved (10,196 households) or underserved (3,874 households). Further, as of January 2022, nine projects remain in the construction phase; four of the projects affect as many as 12,400 households that have yet to gain broadband access. The COVID-19 pandemic most certainly impacted a portion of these households.

Additionally, almost one-third of the Program awards went toward satellite technology, which offers a maximum download speed of 25 Mbps. Although this met the Program’s speed goal in more remote areas, it fails to meet the needs of today’s Internet users.

Further, the State’s contention that almost 99% of households have broadband availability is overstated. BPO’s calculation of availability is based, in part, on the FCC’s Broadband Deployment data. Although this is the only available granular data of its kind, it overstates broadband availability as it considers an entire census block as served if only a single location within that block has availability. (The FCC only requires the minimum download speed of 25 Mbps to consider a census block served.) Recognizing the need for more accurate, address-level broadband availability data, in September 2021, the Executive announced the launch of a mapping survey in the State to examine the quality and availability of broadband access.

To assist the State in reaching its goal of broadband for all, ESD should work with ISPs with outstanding projects to expedite completion wherever possible, acknowledge the limitations in the FCC data when reporting statewide broadband availability, and ensure that future State investments to expand broadband availability and access are based on accurate and reliable data and provide Internet speeds commensurate with users’ needs.

Figure 1 – Percentage of Housing Units With Broadband by Source



Note: “Other” includes Charter Communications upgrade and build-out areas, as well areas served by the State’s Connect NY grant program.

New NY Broadband Program Administration

To provide State grant funding to expand broadband availability in unserved and underserved areas of the State, the Program called for funding applications to expand the availability of broadband at download speeds of at least 100 Mbps in most areas and 25 Mbps in the most remote unserved areas of the State. BPO issued Requests for Proposals (RFPs) in three phases between 2016 and 2017. Prospective ISPs were required to submit proposals that addressed only eligible unserved and underserved areas, included a co-investment, provided download speeds consistent with the Program's goals, and expected to be completed by December 31, 2018.

BPO hired a consultant to review each submitted proposal for conformity to RFP guidelines and verify that submitted proposals addressed all RFP requirements and that the materials had been submitted in the manner required by the RFP. BPO then ranked proposals and forwarded recommendations for awards to ESD's Board of Directors for approval.

For all three phases of the Program, BPO made 53 Program awards to 33 ISPs, consisting of 126 individual projects, totaling \$487.2 million in Program funds, with an additional \$234.7 million in federal and private investments. In total, the Program invested approximately \$722 million to connect 255,994 housing units across the State.

Identifying Eligible Census Blocks for Program Funding

The FCC requires all ISPs to file Form 477 Broadband Deployment data on a semi-annual basis, detailing the census blocks that they provide service to and the speeds at which service is provided. Form 477 data is known to be the only data of its type and generally the only census block-level data source on availability. However, the data is known to be flawed as it considers an entire census block as served if an ISP reports that it has made broadband available to a particular block, even if service is not necessarily available to every location or dwelling on that block.

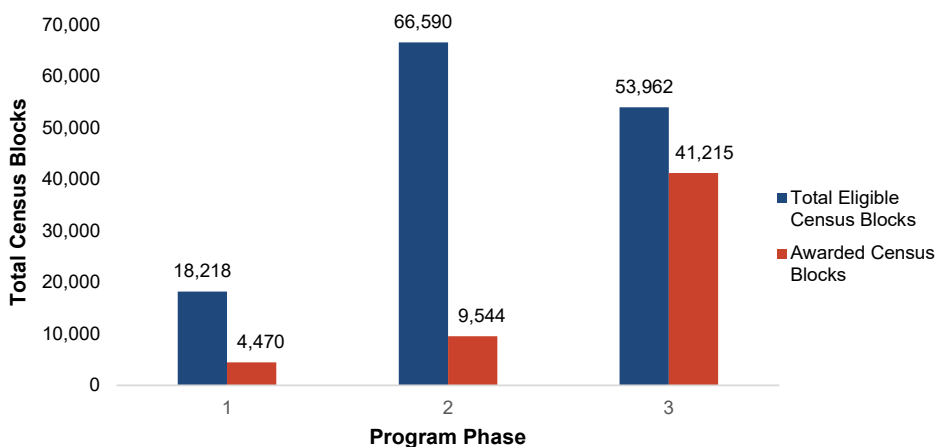
For each phase of the Program, BPO used FCC Form 477 data as the basis for determining eligible unserved and underserved census blocks for Program funding. Additionally, BPO worked with a telecommunications modeling and data analysis firm to verify that the FCC data made logical sense and included all viable census blocks. BPO removed certain census blocks for each phase, such as those included in other build-out plans (e.g., Charter Communications' agreement with the New York State Public Service Commission [PSC]) and those funded by other sources, including: the federal CAF program, which expanded access to broadband service to unserved areas at download speeds of 10 Mbps; the Connect NY grant program, which provided grants to expand high-speed Internet access in rural upstate and underserved urban areas; and other non-Program State-funded projects such as those funded through Regional Economic Development Council (REDC) awards.

BPO recognized the limitations of the Form 477 data and the possibility that additional unserved or underserved housing units could be located within census blocks classified as served. BPO encouraged applications that proposed to serve such housing units within these blocks and provided a list of these census blocks to potential ISPs for Program Phases 2 and 3. Additionally, BPO offered census blocks with no housing units. Although these blocks could be unoccupied and not require service, they were included as eligible Program blocks in case of new development, business presence, or other need.

Furthermore, BPO allowed ISPs, when submitting proposals, to include additional service areas where they could demonstrate unserved or underserved locations within a census block. BPO also included a challenge period where ISPs could provide more refined data, allowing for an additional layer of granularity to contend with the limitations within the Form 477 data. According to BPO officials, the challenge process effectively removed 1,600 census blocks from Program eligibility because service was already being provided to these blocks.

Consequently, the Program offered 138,770 census blocks and ultimately awarded 55,229 census blocks (see Figure 2).

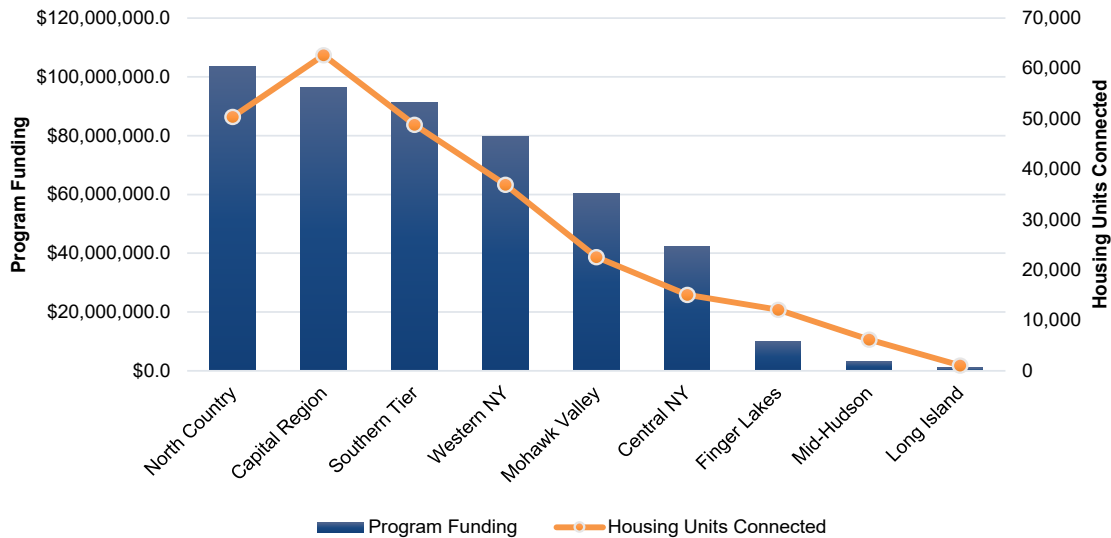
Figure 2 – New NY Broadband Program Eligible and Awarded Census Blocks by Phase



New NY Broadband Program Awards and Disbursements

Across all three Program phases, the BPO made 53 awards to 33 ISPs to provide broadband Internet availability to 255,994 households. This included 126 individual projects totaling \$487.2 million in Program funding plus an additional \$234.7 million in federal and private funding. See Figure 3 below for a breakdown of Program funding and households connected by ESD’s REDC region. For similar information by county (excluding those in the New York City metropolitan area), refer to the [Exhibit](#).

Figure 3 – New NY Broadband Program State Funding by REDC Region



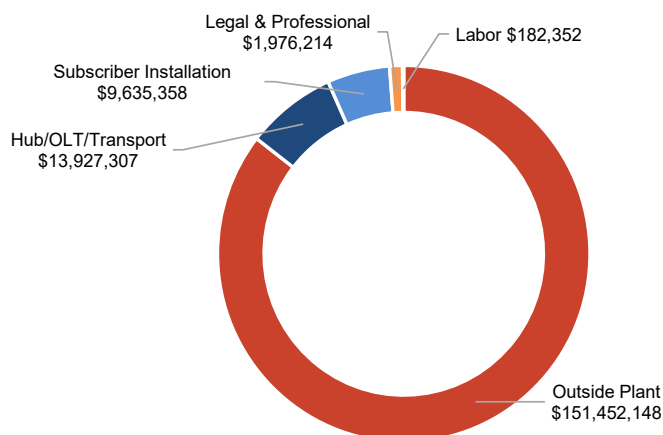
BPO authorized payment to ISPs quarterly when certain project milestones were met (e.g., permits/licenses, material delivery, network construction and testing, network operation). BPO hired a consultant to perform technical validation and field audits of broadband deployment projects funded by the Program to ensure that these projects were implemented and that funds were used in a manner consistent with each ISP’s approved proposals. These reviews occur upward of a year after network construction is completed. Validation reviews include examining capital expenditures, verifying assigned census blocks, and conducting on-site validations to ensure compliance with system design and industry standards. Part of the validation review process entails ISPs submitting project cost summaries. Initially, ISPs submitted these summaries without a standardized reporting format, resulting in non-uniform reporting of costs. This affected eight projects with total costs of \$12 million. BPO then standardized the reporting format and included five main cost categories:

- **Outside Plant:** Costs for labor/materials relating to outside plant (e.g., equipment, cables, and infrastructure outside a building), including network extension from Central Office or remote hub to multi-port service terminal.
- **Hub/Optical Line Transport (OLT)/Transport:** Costs relating to construction and/or improvement of the Central Office or remote hub. OLT is a gateway that communicates with customer equipment and acts as a link to the transport network.
- **Subscriber Installation:** Costs of labor/materials related to installation equipment.
- **Legal & Professional:** Costs of required professional services such as lawyers, accountants, and/or engineers.

- **Labor:** Costs of in-house labor required to complete projects. Note: This cost was ultimately assumed by other cost categories.

As of November 2021, 46 projects, totaling nearly \$177.2 million, had technical validations completed using the BPO’s standardized reporting format (see Figure 4).

Figure 4 – Cost Breakdown by Category for Projects With Completed Project Validations



We reviewed completed technical validations for five projects, totaling \$15.5 million, and found the process to be thorough, identifying issues that required action and verifying that corrective actions were taken prior to approval of final payment. Of the \$15.5 million in project costs, \$12.1 million (78%) was attributed to labor, materials (e.g., cables and equipment), and permit fees for network expansion (Outside Plant). The remaining costs included: \$1.6 million (10%) related to subscriber installations; \$1.4 million (9%) related to labor and materials for network hubs (Hub/OLT/Transport); and \$0.4 million (2%) for professional and legal fees. When comparing project costs across all network components, \$9.1 million (59%) was attributed to labor; \$4.8 million (31%) was for materials; \$1.2 million (8%) was for permit fees; and \$0.4 million (2%) was for legal and professional fees.

Program Performance and Outcomes

When the Program was announced in 2015, it was touted by the Executive as the nation’s single largest investment in broadband deployment that, when fully implemented, would result in the State having universal broadband coverage. However, the Program fell short in reaching that goal. Furthermore, as of January 2022, nine projects had not completed network construction, four of which affect about 12,400 housing units that have yet to be connected.

Remaining Unserved and Underserved Housing Units

Once fully implemented, the Program will have connected 255,994 housing units – or roughly 3% of the State. According to BPO officials, as of March 2021, there remained 14,070 housing units (0.17%) either unserved (10,196 units) or underserved (3,874 units) out of the 8.1 million housing units in the State. BPO officials stated that the 10,196 unserved units were largely downstate locations initially classified as served according to Form 477 data but that, between Phases 2 and 3 of the Program, were reclassified as lacking broadband Internet. BPO addressed these locations in its Phase 3 offering, allowing potential applicants to submit proposals addressing such locations; however, BPO did not receive any proposals to address these units. Additionally, BPO informed us that a review of current Form 477 data indicates only 1,518 housing units remain unserved in New York City and Long Island due to ISPs external to the Program offering service in those areas. Therefore, according to BPO officials, there are currently 5,392 housing units either unserved (1,518 units) or underserved (3,874 units) in the State, representing 0.02% and 0.05%, respectively, of the total 8.1 million housing units in the State.

Project Delays

The 126 individual projects included 111 requiring network construction and 15 satellite projects. Of the 111 projects requiring network construction, 72 (64.9%) experienced delays ranging from 1 to 48 months. According to BPO officials, these delays were caused by a variety of reasons including: ISPs experiencing unforeseen issues such as poor weather, difficulties obtaining permissions from utility pole owners to attach fiber, surveying delays, and replacement of utility poles in disrepair. Specifically, four projects for a single ISP affecting about 12,400 housing units are not expected to be completed until December 2022. Two of the four projects affected 10,839 housing units in the western part of the State, where individuals were severely impacted by the onset of the COVID-19 pandemic and the State's mandate to work and attend school from home. Some individuals and families lacked reliable broadband Internet and struggled to do their work, and people were forced to drive to parking lots of buildings that had Internet and utilize their cell phones as hot spots.

In response to the findings, BPO officials stated that, as of January 2022, there remained nine projects in active construction and cited the COVID-19 pandemic as a cause for continued delays. At the end of our fieldwork, BPO expected a majority of these projects to be completed within the next few months, and noted that several only have minor issues, which are impacting the larger network due to the interconnection of broadband networks.

Satellite Broadband Technology

Of the awards granted to connect 255,994 households, 78,960 housing units (30.8%) were awarded to a satellite provider with a maximum download speed of 25 Mbps. (The Program allowed for 25 Mbps in the most remote areas of the State as 25 Mbps

met the FCC’s definition of broadband.) While satellite technology is relatively more easily deployed in rural areas, there are limitations that make satellite a less viable option to meet the needs of today’s Internet users. For instance, satellite technology is subject to latency issues, data caps, and service interruptions in inclement weather.

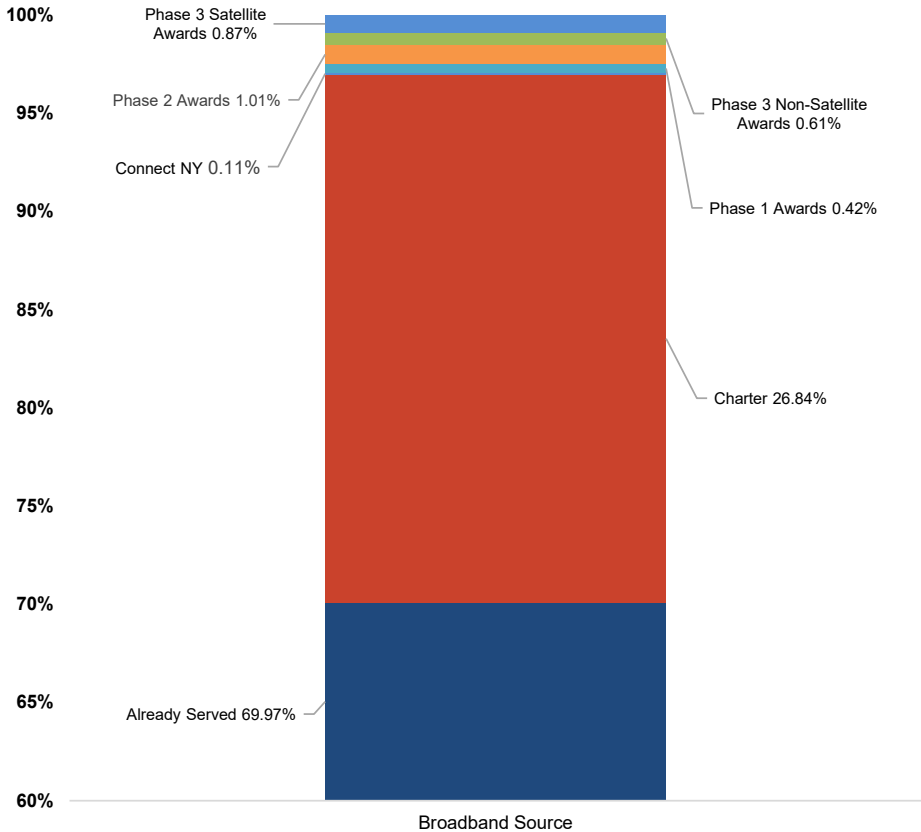
According to media reports, the average U.S. household has 25 devices connected to the Internet, including laptops, smartphones, streaming devices, smart TVs, headphones, and game consoles. Furthermore, the COVID-19 pandemic required New Yorkers to telecommute, attend school, and attend medical appointments from home, as well as connect with family and friends while maintaining social distancing. These activities are only possible with sufficient high-speed and reliable Internet.

The FCC’s definition of broadband Internet as a minimum of 25 Mbps download speed and 3 Mbps upload speed has been in place since 2015. However, this has not kept pace with today’s digital landscape where 25 Mbps isn’t suitable, and users’ needs, as well as advances in technology, will continue to drive the demand for higher broadband speeds. According to the FCC’s own guidance, having three users or devices connected at a time using basic functions (email, web browsing, basic video, Voice over Internet Protocol) plus more than one high-demand application at the same time (e.g., streaming high-definition video, video conferencing, online gaming, telecommuting) requires download speeds greater than 25 Mbps. Consequently, for individuals connecting to their physician via telemedicine, farmers attempting to unlock the benefits of precision agriculture, students receiving livestream instruction, or families with multiple individuals working and attending school remotely, networks delivering 25 Mbps fail to come close to meeting high-speed Internet needs. In March 2021, four U.S. Senators jointly submitted a letter to the FCC requesting that future broadband spending projects be limited to projects delivering at least 100 Mbps.

Statewide Broadband Availability

As of March 2021, BPO indicated that 98.95% of the State had broadband Internet connections of at least 100 Mbps. This calculation excludes the Program’s satellite awards, which represent 0.87% of the State’s broadband availability (see Figure 5). However, a portion of the Program’s determination of broadband availability throughout the State was based on Form 477 data, which is known to be flawed for several reasons. ISPs self-report information, potentially resulting in data entry errors and/or errors completing Form 477. Additionally, the data overstates broadband availability as ISPs may classify an entire census block as served if the ISP could offer service to at least one location within that census block. In October 2021, BroadbandNow, a company that provides independent broadband research and data, estimated that 42 million households nationally lack Internet speeds of at least 25 Mbps, compared to 14.5 million based on FCC data. Specifically, BroadbandNow estimates that the FCC data for New York was off by 20% and that 1.3 million New Yorkers lack access to high-speed Internet.

Figure 5 – Percentage of New York State Broadband Availability



BPO officials acknowledged that Form 477 is flawed; however, it remains the only granular and most trusted broadband availability data source. Furthermore, BPO officials believe Form 477 data is the only transparent, non-proprietary data source that can be used publicly to confirm, verify, and contest broadband coverage and is currently the only tangible metric for assessing the Program’s success. The State’s broadband coverage, as reported by BPO, is based, in part, on the Form 477 data. BPO also used data from other sources, including Charter Communications’ build-out plans per its agreement with the PSC and past ESD grant programs (e.g., Connect NY).

Recognizing the need for more accurate, address-level broadband availability data, in September 2021, the Executive announced the launch of a mapping survey in the State to examine the quality and availability of broadband access. Further, in January 2022, the Executive announced the State’s ConnectALL initiative. This will be a \$1 billion public–private partnership to deliver affordable broadband to millions of New Yorkers. Overall, the initiative aims to ensure equitable access to broadband and will provide an interactive broadband map detailing the availability and reliability of broadband infrastructure statewide, grant programs supporting local efforts to expand broadband, and a \$30 per month broadband subsidy for low-income households.

Additionally, as enacted as part of the 2021-2022 Budget, the PSC will study the availability, reliability, and affordability of broadband Internet service. PSC is expected to publish a detailed Internet access map of the State by address on its website and will publicly issue its report and recommendations by May 2022. Finally, both the Executive and federal government announced funding for broadband initiatives that will further address infrastructure, increased speeds, and affordability.

Recommendations

- 1.** Work with ISPs to complete outstanding projects as soon as practical.
- 2.** Include a disclaimer when reporting the percentage of broadband availability in the State that it is based on FCC data that has known limitations.
- 3.** Ensure that future State-funded projects are based on accurate broadband availability data and utilize technologies that provide high-speed and reliable Internet that meets users' needs.

Audit Scope, Objective, and Methodology

The objective of our audit was to determine whether ESD effectively monitored and managed the New NY Broadband Program and whether the Program achieved its overall goals. The audit covered the period from January 2016 through November 2021.

To accomplish our objective and assess related internal controls, we interviewed BPO officials, and reviewed consultant contracts, RFPs for all three Program phases, ESD Board of Directors meeting minutes for project approvals, and grant disbursement agreements. We obtained project statuses as of August 2021 and project expenditures for completed projects as of November 2021. Additionally, we reviewed five of 47 completed project verifications, as of August 2021, and found the process was thorough, identified issues, and verified that ISPs addressed these issues and took corrective actions prior to approval for final payment. We reviewed various media and other reports related to general broadband availability and access, including reports related to the COVID-19 pandemic. Finally, we interviewed a New York State Assembly member to discuss issues their constituents were experiencing with broadband availability.

We obtained a list of all New York State census blocks including the maximum advertised download speeds for Internet service from ESD for identification of eligible census blocks. We selected a random sample of 50 census blocks from ESD's eligible census blocks list. Additionally, we obtained Form 477 data, specifically the December 2014 version 2 file, from the FCC's website. We compared our sample of 50 census blocks to the Form 477 data and verified that the maximum advertised download speeds from our sample matched those in the FCC data. In our opinion, the data presented to us was reliable for purposes of our audit objective. However, as noted in our audit report, Form 477 data is known to be flawed for purposes of identifying broadband availability.

Our findings and conclusions are limited to the review of sampled items and are not projected to the entire populations from which they were selected.

Statutory Requirements

Authority

The audit was performed pursuant to the State Comptroller's authority as set forth in Article V, Section 1 and Article X, Section 5 of the State Constitution; Article II, Section 8 of the State Finance Law; and Section 2803 of the Public Authorities Law.

We conducted our performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

In addition to being the State Auditor, the Comptroller performs certain other constitutionally and statutorily mandated duties as the chief fiscal officer of New York State, including some duties on behalf of public authorities. For ESD, these include operating the State's accounting system, reporting ESD as a discrete component unit in the State's financial statements, and approving selected contracts. These duties could be considered management functions for purposes of evaluating organizational independence under generally accepted government auditing standards. In our professional judgment, these duties do not affect our ability to conduct this independent audit of ESD's oversight and management of the New NY Broadband Program.

Reporting Requirements

A draft copy of the report was provided to ESD officials for their review and comment. Their comments were considered in preparing this final report and are attached in their entirety to the end of it, along with our own State Comptroller's Comments addressing certain ESD statements. ESD officials agreed with all three recommendations and indicated actions they would take to implement them.

Within 180 days after final release of this report, as required by Section 170 of the Executive Law, the Commissioner, President and CEO of Empire State Development shall report to the Governor, the State Comptroller, and the leaders of the Legislature and fiscal committees, advising what steps were taken to implement the recommendations contained herein, and where recommendations were not implemented, the reasons why.

Exhibit

New NY Broadband Program Awards by County*

County	Awardees	Housing Units Connected	State Funding	REDC Region
Albany	5	5,372	\$4,912,934	Capital Region
Allegany	2	11,459	\$29,562,511	Western NY
Broome	5	7,973	\$11,159,143	Southern Tier
Cattaraugus	2	18,082	\$32,636,318	Western NY
Cayuga	5	7,516	\$25,988,049	Central NY
Chautauqua	5	4,339	\$16,589,170	Western NY
Chemung	2	1,948	\$1,343,699	Southern Tier
Chenango	6	4,266	\$10,310,142	Southern Tier
Clinton	6	12,904	\$36,915,164	North Country
Columbia	5	20,886	\$29,878,845	Capital Region
Cortland	5	2,803	\$10,712,110	Central NY
Delaware	7	15,339	\$32,730,789	Southern Tier
Dutchess	2	260	\$267,869	Mid-Hudson
Erie	2	1,910	\$622,309	Western NY
Essex	5	7,412	\$9,432,396	North Country
Franklin	2	4,408	\$4,725,864	North Country
Fulton	3	2,423	\$5,437,209	Mohawk Valley
Genesee	1	630	\$139,080	Finger Lakes
Greene	4	19,917	\$18,193,864	Capital Region
Hamilton	3	7,326	\$7,731,846	North Country
Herkimer	5	5,034	\$14,444,976	Mohawk Valley
Jefferson	6	4,612	\$10,832,067	North Country
Lewis	3	4,718	\$6,226,927	North Country
Livingston	2	2,356	\$2,783,121	Finger Lakes
Madison	4	1,620	\$1,381,220	Central NY
Monroe	1	1,103	\$174,690	Finger Lakes
Montgomery	4	2,095	\$4,488,255	Mohawk Valley
Niagara	1	1,169	\$197,820	Western NY
Oneida	5	3,513	\$8,554,450	Mohawk Valley
Onondaga	3	1,753	\$690,999	Central NY
Ontario	1	1,236	\$209,814	Finger Lakes
Orange	1	572	\$94,185	Mid-Hudson
Orleans	1	154	\$36,699	Finger Lakes

County	Awardees	Housing Units Connected	State Funding	REDC Region
Oswego	3	1,423	\$3,467,611	Central NY
Otsego	5	4,722	\$12,219,955	Mohawk Valley
Putnam	1	313	\$55,282	Mid-Hudson
Rensselaer	5	3,229	\$10,154,584	Capital Region
Rockland	1	14	\$3,780	Mid-Hudson
Saratoga	3	1,561	\$806,906	Capital Region
Schenectady	4	606	\$2,803,590	Capital Region
Schoharie	5	4,809	\$15,273,380	Mohawk Valley
Schuyler	5	4,840	\$5,674,196	Southern Tier
Seneca	3	1,416	\$753,023	Finger Lakes
St. Lawrence	5	9,029	\$27,570,716	North Country
Steuben	4	7,848	\$22,627,526	Southern Tier
Suffolk	2	1,087	\$983,989	Long Island
Sullivan	3	2,727	\$1,117,592	Mid-Hudson
Tioga	4	5,418	\$5,139,571	Southern Tier
Tompkins	4	1,235	\$2,199,363	Southern Tier
Ulster	2	2,258	\$1,571,139	Mid-Hudson
Warren	3	3,719	\$8,421,104	Capital Region
Washington	4	7,358	\$21,132,571	Capital Region
Wayne	2	1,397	\$1,005,296	Finger Lakes
Westchester	1	31	\$4,882	Mid-Hudson
Wyoming	3	1,997	\$2,015,933	Finger Lakes
Yates	3	1,849	\$2,835,701	Finger Lakes

*Excluding counties in the New York City metropolitan area.

Agency Comments



May 6, 2022

Scott Heid
Audit Supervisor
Office of the State Comptroller
State Government Accountability
110 State Street
Albany, NY12236

RE: Response to OSC’s Audit Findings Regarding ESD’s New NY Broadband Program

Dear Scott Heid:

Thank you for the opportunity to comment on the Office of the State Comptroller’s (“OSC”) Draft Audit Report 2020-S-19 (“Draft Audit Report”) regarding Empire State Development’s (“ESD”) New NY Broadband Program (the “Program”).

Background

The Draft Audit Report states, and it is widely accepted, that broadband is a critical aspect of economic growth and fundamental to how New Yorkers conduct everyday life. Indeed, Governor Kathy Hochul encapsulated broadband’s importance in her 2022 State of the State Book: “Closing this remaining digital divide is critical, because having universal access to high-speed broadband in our digital economy is as essential as having heat, clean water, and reliable electricity.”

And in fact, New York State was the first state to make a significant investment in the future of broadband. In 2016, ESD established the \$500-million New NY Broadband Program. At the time it was the largest state broadband program in U.S. history, an order of magnitude larger than most other state programs. The Program utilized the best available data to make broadband available to nearly 256,000 homes and businesses for the first time. To highlight a few accomplishments of the Program: approximately 174,000 homes and businesses gained access to wireline broadband; and, over 90 percent of total grant funding was directed to high-speed, “future-proof” fiber optic technology, considered by many to be the industry’s gold standard. Not only did the Program set ambitious project timelines, but it established a forward-looking speed standard of 100 Mbps, four times the speed standard established by the Federal Communications Commission (“FCC”) in 2015.

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The Program operated in conjunction with Charter Communications’ Broadband Expansion Plan (“BEP”), overseen by the Department of Public Service. The BEP deployed high-speed wireline broadband to an additional 145,000 previously unserved homes and businesses in New York. Together, these efforts were instrumental to increasing broadband availability in Upstate New York. As noted in the Draft Audit Report, in 2015, an estimated 65 percent of upstate New Yorkers lacked access to high-speed broadband. Today, using the same metric, that figure has decreased to just 2.1 percent. Acknowledging the limitations of the FCC 477 data, this reduction reflects a significant improvement in broadband availability. Without this pioneering investment, hundreds of thousands of New Yorkers would have faced the COVID-19 pandemic without high-speed broadband available.

Program Impacts

The Program was statutorily designed to target rural areas of the state and did not make any awards in urban centers where a majority of the population resides.

Initially, it was important to properly categorize all of New York’s census blocks to understand those that were either unserved or underserved. OSC’s Draft Audit Report states that the Program made 138,770 census blocks available in the reverse auction and ultimately awarded 55,229. Notwithstanding, in many cases a census block may not have any housing units or may be comprised entirely of water. For example, the list of unserved census blocks eligible for reverse auction bids in Phase 3 of the Program included 19,948 census blocks without any housing unit or business – just one of four lists of eligible census blocks included in Phase 3. This context is essential to understanding why more census blocks were not awarded.

It is also worth reiterating that the Program was designed to complement meaningful conditions won by New York State in approving the merger of Time Warner Cable and Charter Communications in 2016. This merger resulted in the expansion of high-speed, wireline service to 145,000 previously unserved locations as well as service upgrades impacting an estimated two million locations across the state.

The below figures demonstrate the tremendous impact of these interdependent initiatives:¹

- When combined with the 145,000 households connected through Charter Communications’ BEP, 10 percent of all New York households outside of New York City and Long Island gained access to new broadband service.

¹ These figures only depend on census data and do not utilize FCC 477 data.

- **North Country:** When combined with Charter Communications' 145,000-location BEP, more than 23 percent of all households in the North Country gained access to high-speed, wireline service for the first time. With enhanced satellite service included, 30 percent of all households in the region directly benefited from the Program.
- **Southern Tier:** When combined with Charter Communications' 145,000-location BEP, nearly 20 percent of all households in the Southern Tier gained access to high-speed, wireline service for the first time. With enhanced satellite service included, 22 percent of all households in the region directly benefited from the Program.

Viewed in this perspective, the Program was transformative for unserved and underserved communities. It is rare that an infrastructure initiative has such far-reaching impacts for the communities that it is designed to benefit.

Nevertheless, Governor Hochul and ESD recognize that for too many New Yorkers broadband still remains out of reach because it is not available at their home or business, they cannot afford the service, or any number of additional obstacles. For these reasons, Governor Hochul established the ConnectALL initiative, the largest investment ever in New York's digital infrastructure. Not only will this effort expand on the tremendous successes of the New NY Broadband Program and close the deployment gap in remaining unserved and underserved areas, but it will also tackle issues of equity, affordability, and competition in rural and urban communities across the State. Further investment in this vital public infrastructure will not only strengthen the progress of New York's initial investment, it will also boost economic growth and local innovation far into the future.

OSC's Recommendations

Following this audit process, OSC made three recommendations.

A. Work with ISPs to complete outstanding projects as soon as possible.

ESD shares OSC's concern that project delays impact the availability of reliable broadband internet to individuals who increasingly depend on this vital tool for work and education purposes and agrees with OSC's recommendation to work with ISP's to accelerate the completion of projects outstanding.

ESD also appreciates OSC’s recognition that project delays were driven by causes beyond ESD’s control such as weather, difficulties obtaining permissions from utility pole owners to attach fiber, new survey or permit requirements, and the extensive need to replace aging utility poles, among other factors. In addition to these findings, ESD also notes the following:

- ESD established ambitious project timelines of only two years to encourage Program participants to act swiftly to deploy broadband infrastructure to communities in need. In comparison, the recent FCC Rural Digital Opportunity Fund (RDOF) established a six-year timeline for participants to complete rural broadband deployments. Had ESD established timelines consistent with the FCC’s RDOF program, all projects would have been completed on time.
- Across the Program, project delays typically impacted only a limited number of uniquely challenging-to-reach locations while the majority of the project was delivering high-speed service. The extremely rural nature of some project Service Areas combined with strict Program service requirements could mean that a Program participant may have to, for example, utilize seasonal dirt roads that are inaccessible much of the year or attach fiber optic cable to pole lines traversing dense forest with no road access at all.
- The Draft Audit Report states on more than one occasion that six projects for a single ISP affecting approximately 25,500 housing units are not expected to be completed until December 2022. ESD notes that two of these projects completed network construction on April 21, 2021. Only four projects by this ISP remain ongoing and are expected to be completed before December 2022. Furthermore, a majority of the housing units impacted by these projects currently have high-speed broadband service available.
- In certain cases, ESD provided project extensions to allow participants to remediate deficiencies identified during the project validation process though the participant initially provided an affidavit of completion attesting to an on-time completion. These deficiencies typically impacted a limited number of units overlooked in construction or were related to other improvements necessary to ensure a high standard of craftsmanship.

[Comment 1](#)

In evaluating the delays in the projects, it is important to note that the Program employed a nation-leading, detailed project validation process to ensure New York’s broadband investments were held to the highest standard and to support public confidence in their success.

To further contextualize the need for a year in some cases to complete the review, the project validation process consists of four highly detailed review segments: Census Block Audit,

Technical Audit, Spending Analysis, and Field Verification. After each segment, ESD and its third-party auditor communicates any identified irregularities or deficiencies to a grantee for remediation. To progress through the audit process, each successive segment must be complete with all findings remediated. Because this process requires a grantee to supply extensive documentation demonstrating the proper use of public funds and a high level of craftsmanship and construction as well as to perform any and all required remediation, which may require new permitting or related construction activities, project validation can take significant time to fully complete. In fact, OSC “found the process was thorough, identified issues, and verified that ISPs addressed these issues and took corrective actions prior to approval for final payment.” ESD is proud to have established the most rigorous and complete broadband project validation process in the U.S.

B. Include a disclaimer when reporting the percentage of broadband availability in the State that is based on FCC data that has known limitations.

While ESD has sought to be consistently open and transparent about the limitations of its use of FCC 477 data as it applies to the implementation of State broadband initiatives, it recognizes OSC’s recommendation to include appropriate disclaimers when reporting on the status of such efforts has utility. ESD would, however, highlight the following salient points for OSC’s consideration:

ESD has always recognized the limitations of FCC 477 data. As noted in the Draft Audit Report, from the inception of the Program, ESD recognized the limitations of FCC 477 data and developed mechanisms to challenge the data and encourage program applicants to seek grant funding to extend broadband service to areas that were misclassified by the FCC as “served.” Moreover, wherever feasible, ESD sought to supplement the FCC 477 data with other reliable data sources, such as Charter Communications’ BEP.

At the time of the establishment of the Program, the FCC 477 data was the most granular, publicly available broadband availability data in the U.S. As such, the FCC 477 data was the only means to publicly confirm, verify, and contest broadband coverage or to measure Program success. Nevertheless, in every instance, ESD actively aimed to procure and utilize the best available data to direct funding. The Program’s development of “Adjoining Service Areas” (Phase 1) or “Additional Service Areas” (Phase 2 and 3), illustrate ESD’s commitment to making funding available to any eligible unserved or underserved location. ESD’s Phase 3 RFP included the following language:

Recognizing the limitations of the FCC’s one-served/all-served methodology, the BPO encourages applicants to seek Phase 3 funding to address identified Unserved or Underserved Units within any Served CB on the BPO’s list of eligible CBs where an applicant can demonstrate - to the satisfaction of the BPO - that such Units are, in fact, Unserved or Underserved.

Moreover, ESD has sought to be forthcoming regarding its use of FCC 477 data. A representative of ESD made this point clear in a public media interview in 2021: “We use a combination of data sources. We use the FCC data, we try to challenge that wherever possible, we use private provider data so that we’re supplementing it, we use our own data that we’ve generated through our program.”²

To address concerns with the FCC 477 data and ensure effective broadband deployment in the future, in 2021, Governor Hochul announced the launch of a Broadband Mapping Consumer Survey to identify the availability, reliability and cost of high-speed broadband services across the state. Unlike the FCC 477 maps, New York’s detailed interactive map will focus on the status of broadband service at the address level. This granular broadband mapping initiative will ensure that ESD continues to depend on the best available data when directing funding, a key recommendation of OSC.

C. Ensure that future State-funded projects are based on accurate broadband availability data and utilize technologies that provide high-speed and reliable internet that meets users’ needs.

ESD agrees – and Governor Hochul’s ConnectALL program will ensure – that future broadband programs prioritize and maximize the use of technologies that provide high-speed and reliable internet that meets users’ needs. The New NY Broadband Program shared these same goals.

ESD established a speed standard of 100Mbps from the inception of the Program for all of New York even though the FCC standard at the time was 25Mbps. In 2016, ESD formulated an ambitious, forward-looking speed standard of 100 Mbps for all of New York. The Phase 1 Request for Proposals (RFP), released only one year after the FCC established a 25 Mbps speed standard for the U.S., stated:

² <https://www.wgrz.com/article/news/local/new-york-state-broadband-answers-our-tough-questions/71-68c5baca-e0e1-4032-a2ac-557a5254d0ab>

Projects addressing Eligible Unserved [Census Blocks]’s should offer Internet download speeds of at least 100 Mbps. Applications proposing download speeds below 100 Mbps will only be considered for funding where no commercially-reasonable bids at 100 Mbps are submitted to address the same proposed Service Area.

The Program’s strong preference for proven, high-speed wireline technologies is further illustrated in the below excerpt from the Phase 1 RFP:

Proposed technology solutions must be designed to meet the Program’s goals, particularly the Governor’s target download speed goal of at least 100 Mbps. Based on each technology’s proven speed capacity and scalability, the following technologies are pre-approved for use in Phase 1:

1. Fiber-to-the-Home (FTTH);
2. Cable/Hybrid Fiber-Coaxial (HFC), deploying DOCSIS 3.0 modems or higher

Additionally, while Phase 1 will accept applications offering the following technology solutions, in light of the greater performance variability of these technologies in different settings, proposals offering such technologies will only be considered where no commercially-reasonable applications using Fiber or Cable/HFC are submitted to address the same proposed Service Area. Applications offering such technologies must submit supporting documentation demonstrating, to the satisfaction of the Program, that such technology solutions can achieve the Program’s speed goals in the proposed Service Area:

1. Digital Subscriber Line (DSL);
2. Fixed Wireless

The Draft Audit Report incorrectly states that only Phase 2 and Phase 3 of the Program “opened up additional service areas - such as unserved and underserved housing units not counted by the Federal Communications Commission’s (FCC) data methodology; and allowed ISPs the opportunity to address a much larger universe of housing units than in Phase 1.” In fact, Phase 1 of the Program authorized applicants to propose to serve Adjoining Service Areas: “Where an applicant identifies Unserved or Underserved Units outside an Eligible CB, the applicant may, as part of their application, propose to include such Units (Adjoining Service Areas) in their project.”

[Comment 2](#)

In total, over 90 percent of grant funding made available by the Program was directed to projects deploying fiber optic technology, considered by many to be the industry’s gold standard. Putting enhanced satellite service aside (discussed below), only four small projects impacting 2,388 locations did not utilize high-speed fiber optic or cable/hybrid fiber-coaxial technology (3 fixed wireless and 1 ADSL project).

ESD used grant funding to provide enhanced satellite service only where the cost of building wireline infrastructure was considered prohibitively high or where no other bids were received. Overall, only 3 percent of all Program funding was allocated to providing enhanced satellite service. Furthermore, funding allocated for enhanced satellite service is only released by ESD on a reimbursement basis for actual expenses incurred by the grantee in installing customer premise equipment and cannot exceed \$315.00 per location.

ESD elected to use grant funding to support enhanced satellite services to ensure that New Yorkers living in areas with no other broadband options benefited from the Program, including the requirement that basic service be offered at no more than \$60.00 per month with an installation fee of no more than \$49.00. Without this support, these areas would have no broadband services available. Instead, these areas had enhanced satellite services available at reduced prices throughout the COVID-19 pandemic.

Ultimately, even with an available State funding match of 80 percent, in most instances, no wireline broadband provider proposed to extend service in these remote and rural areas. Many rural and remote areas can be incredibly expensive to reach and even with substantial state funding available for capital expenses, revenues are not sufficient to cover ongoing operating expenses incurred by the private provider. Notably, the Program was not statutorily designed to provide ongoing operating subsidies.

In 2022, Governor Hochul established the pioneering ConnectALL initiative, the largest-ever investment in New York's digital infrastructure, extending the promise of affordable, reliable broadband statewide. Catalyzing over \$1 billion in new public investments, ConnectALL will transform and expand New York’s digital infrastructure in rural and urban areas and continue the state’s leadership in the 21st-century connected economy.

In addition to establishing a new broadband mapping and data collection program and investing significant new resources in wireline rural broadband deployment, including areas awarded to enhanced satellite under the New NY Broadband Program, ConnectALL will improve service and affordability by increasing competition and consumer choice; support digital equity and access initiatives; and build accessible public broadband infrastructure to drive innovation and



economic growth. Many of the challenges that ConnectALL will address were outlined in OSC’s report *Availability, Access and Affordability: Understanding Broadband Challenges in New York States*. Not only is ConnectALL the largest ever investment in New York’s digital infrastructure, it is a comprehensive solution that tackles the full range of connectivity and broadband challenges faced by our diverse state.

Conclusion

ESD is committed to ensuring all New Yorkers can access high-speed, reliable broadband and is proud of its work to make broadband available to hundreds of thousands of New Yorkers at such a critical time.

Thank you for the opportunity to comment on the Draft Audit Report.

Sincerely,

Felisa Hochheiser

Felisa Hochheiser
Director of Compliance

State Comptroller's Comments

1. We updated our report to reflect ESD's comment and adjusted the number of projects from six to four and the number of housing units from 25,500 to 12,400.
2. Our report cites wording directly from BPO's RFP that describes all three phases of the Program.

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