New York State Broadband Strategy Development Toolkit

Presented by the
NYS Broadband Program Office,
in partnership with the
Fiber to the Home Council

NEW YORK STATE OF OPPORTUNITY | Broadband Program Office

FTTH FIBER TO THE HOME COUNCIL

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EXECUTIVE SUMMARY

Access to broadband provides greater economic opportunities and a better way of life for all New Yorkers. By harnessing the power of the Internet, citizens have increased ability to connect to educational and workforce development resources; communities can foster economic development; businesses can access new markets and create more jobs; and our schools, colleges and universities can conduct high-tech research and development to build an innovative and talented high-tech workforce.

Our communities cannot thrive without the essential infrastructure needed for manufacturers, retailers, farms, and service industries. Residents cannot fully participate in the digital economy without access to affordable broadband and the ability to use it.

Access to affordable broadband is particularly important for the economic development of rural areas because it enables individuals and businesses to participate fully in the online economy, regardless of geographical location. Aside from enabling existing businesses to remain in their rural locations, broadband access attracts new business enterprises drawn by lower costs and a more desirable lifestyle. Broadband allows businesses and individuals in rural America to live locally while competing globally. While the introduction of broadband networks to rural areas will not bring immediate economic transformation, areas of the state, which lack access, will be unable to compete in the digital economy. As Internet connectivity increasingly becomes more imperative for many political, consumer, financial, and social transactions, a lack of broadband access limits opportunities for unserved rural areas.

New York State, in partnership with the Fiber to the Home Council (FTTH Council), has developed this **Broadband Strategy Development Toolkit** in effort to help guide community leaders in building a comprehensive broadband strategy for their regions. The goal is to assist communities who seek to expand broadband networks, capitalize on the strengths of the region and enhance quality of life for the residents of the community.

The Toolkit will provide an overview on how to help deploy high-speed Internet in your community. The Toolkit provides a step-by-step guide that will help local officials:

- Develop goals for building a broadband network
- Identify stakeholders and community champions
- Develop asset lists and collect data
- Identify potential partners to leverage existing infrastructure
- Follow business models
- Build community consensus
- Fund broadband projects
- Develop the appropriate business model to generate a request for proposals (RFP)

It's a basic principle that knowledge is power. Making sure you have information before you invest will improve the power of your investment, giving your community a greater chance of success. Building a local action plan is not easy, or done overnight, but this reference guide will assist local leaders in making the best decision for your community.

TIME SAVING TIPS

Using the New York State Broadband Planning Toolkit and the resources and sample documents that are available, will reduce the time between initiating a broadband planning process and actually "flipping the switch."

Some key points to remember:

- Use the NYS Broadband Planning Toolkit and NYS Mapping Website to guide you through the entire planning process. Both the Toolkit and NYS Mapping Website are updated regularly.

- Assemble a team of committed individuals who are passionate, supportive, flexible and are willing to help expand broadband in your community.

- Make sure your policy and procedures are in order. Comprehensive plans, community zoning regulations and process, policies, fees, etc. should be broadband "friendly."

- Leverage state and federal resources. The NYS Broadband Program Office is willing to help your community by spearheading an initial planning meeting, matching communities with potential provider partners, providing availability data, and more!

STARTING FROM ZERO; WHERE SHOULD MY COMMUNITY BEGIN?

Whether just beginning or continuing the journey, communities without broadband all face the daunting task of how to develop and execute a strategy that best delivers the services the district needs and wants. Forward-thinking communities gather relevant information to help craft and guide their decision on technology investment. Armed with relevant broadband and local data, these areas are then able to develop and implement plans to accelerate broadband deployment.

Communities deploy broadband networks for a variety of reasons. Some seek to accomplish a specific objective such as increased economic development opportunities, citizen empowerment, enhanced quality of life, or community revitalization.

Is your community actively pursuing broadband communications to (check all that apply):

- ☐ Improve public safety (police, fire and EMS)
- ☐ Increase government productivity
- ☐ Foster digital inclusion
- ☐ Improve educational opportunities
- ☐ Enhance economic development
- ☐ Create jobs and attract new business
- ☐ Enable employees to telecommute
- ☐ Enable businesses to compete globally
- ☐ Attract new economic development investments
- ☐ Enable advanced health care
- ☐ Encourage local tourism activity
- ☐ Other: _____

Identify:

1. Consequences of no or limited access to broadband:_____

_____

_____

_____

_____

2. Roadblocks to further deployment of broadband:_____

_____

_____

_____

_____

3. Elements that may limit adoption and use:_____

_____

_____

_____

_____

WHAT ARE MY GOALS?

DETERMINE GOALS TO DEVELOP A CLEAR BROADBAND PLAN

One of the first tasks that community leaders must perform prior to launching into a full-fledged broadband initiative is to decide exactly "*what*" is to be accomplished by deploying a network and "*who*" will receive service. The plan should discuss how the community will directly benefit from broadband deployment, including connectivity and use of the network at public institutions. It should consider how individuals' use of broadband at home can improve access to, and use of, relevant civic services. That way there can be broader commitment to the project from within the community at-large. Community leaders should begin by defining local broadband needs and create goals for broadband development.

Like other major community infrastructure projects, construction of a broadband network is a major undertaking, with high costs incurred up front, prior to any service being provided and revenues flowing. As such, communities need to have a clear vision about the nature of the undertaking and, once committed, develop a culture to support this effort — one that will last as community leadership changes over time and unexpected circumstances arise.

Once you have defined the goals for providing broadband, the types of technology and the amount of bandwidth required will give the project focus. For example, if your main purpose for broadband development is to revitalize your community, create jobs, lure business and enhance economic opportunities, you will need a network with enough capacity to deliver ultra-high speeds. Most economic development experts believe speeds above100 Mbps are required to impact economic development. Gigabit Networks offer ultrafast speeds to embrace innovation and research, while meeting the demands institutional users place on broadband networks.

List your main goals for broadband deployment:

1. _____

2. _____

3. _____

4. _____

5. _____

The following links demonstrate examples of county broadband goals:

Loudoun County, VA	http://www.loudoun.gov/index.aspx?NID=94
Clare County, MI	http://connectmycommunity.org/project-view/clare-county-mi/
Schoolcraft County, MI	http://www.connectmycommunity.org/project-view/schoolcraft-county-mi/

MY LEADER - DETERMINE WHO IS GOING TO SPEARHEAD YOUR BROADBAND INITIATIVE

From initial conception and contract negotiations, to construction and operation of the network, community leadership — government officials, community leaders, and business owners alike – play a crucial role at every step of the deployment process.

Ensure commitment of community stakeholders, including local government personnel. It is essential to have key community stakeholders, especially local government decision-makers and relevant personnel, available throughout the deployment process. Appointing a government official as a point of contact to be responsible for all parts of the project is one way to facilitate deployment. Local governments also should designate a team responsible for developing, implementing and championing your broadband plan.

Important elements of leadership development include:

- Recruitment of individuals with the interest, energy and time needed to provide leadership. Recruitment can come from within local government institutions or from the broader community.
- Empowering leaders by providing official sanction and support from elected and other key community organizations. Leadership without support from key stakeholders greatly reduces the chances of success. Official support may take the form of an official committee or management team.
- A mechanism for leadership accountability back to the organizations that provides support.
- Educational and learning opportunities for leadership to acquire the knowledge and skills required for developing goals and proposals related to the digital divide. An effective approach is to encourage participation in formal opportunities (statewide or regional workshops), while also supporting participation in networks that provide peer-to-peer support and technical advice.
- Institutional support from organizations with the capacity for organizing meetings, ensuring effective communications, and providing logistical support.

Development of local leadership is not necessarily limited to key individuals. Leadership may also come from a local stakeholder organization that is willing to take on, some or most, of the responsibility of initiating and maintaining local broadband efforts. In practice, a mix of key individuals and local institutions is often the most effective form of leadership.

Checklist for Developing Strong Broadband Community Leadership

Individual Leadership

- ☐ Community leaders and elected officials understand benefits and impacts of broadband
- ☐ At least three leaders are committed to follow through with broadband initiatives
- ☐ Leaders have the influence needed to enlist community support
- ☐ Leaders are committed to obtaining the resources required for implementation

Organization Leadership

- ☐ One or more lead organizations have been identified
- ☐ The lead organization(s) is willing and able to develop partnerships for broadband implementation and operation
- ☐ Personnel within the lead organization have been identified and are available to provide leadership and support

List all your Community "Champions" that might help:

- ☐ Elected officials: _____
- ☐ Government employees: _____
- ☐ Business owners: _____
- ☐ Chambers of Commerce: _____
- ☐ Non-profit organizations, foundations, adoption partners: _____

  _____
- ☐ Community leaders, retired officials: _____
- ☐ Downtown and Industrial Development Authorities (IDA's): _____
- ☐ School and university officials: _____
- ☐ Hospital/Medical administrators: _____
- ☐ Other community members: _____

  _____

NEEDS ASSESSMENT AND EXISTING INFORMATION REVIEW

In the first phase, it will be important to understand the current broadband climate in your area. This will help develop an understanding of the broadband-related strengths and weaknesses in the community and provide a baseline for future evaluation of progress.

You must also understand the broadband landscape, including where broadband exists and where it does not, and where it is insufficient to support the needs of your community. You will also need to know the broadband providers in your community, or neighboring districts, and the broadband services and speeds available.

WHICH SECTORS OF THE COMMUNITY WILL UTILIZE BROADBAND, AND WHAT DO THEY NEED?

By expanding access and promoting adoption of broadband across all segments of society, and across a range of industries – agriculture, education, government, healthcare, or public safety – vast economic benefits are realized.

The Internet is the great equalizer and having access to high-speeds can offer substantial advantages for each sector. For example, with access to sell goods online, a small company in rural New York has the ability to immediately become a global company – *a benefit that at one time could be felt only by larger businesses in metropolitan areas.*

When building a broadband plan, communities need to determine which sectors will utilize broadband. If multiple sectors are determined, a model should be adopted that eliminates a siloed approach to network building. Experience demonstrates that subsidized networks that utilized a siloed approach by providing funding for networks for just one particular sector were often found underutilized networks with excess capacity that could not be shared with other users.

Below are some uses of broadband for each sector. Check all the sectors in your community that would benefit from broadband:

Agriculture

- ☐ Crop Analysis and Prices
- ☐ Access to Global Markets
- ☐ Remote Veterinary Services

Education

- ☐ Distance Learning
- ☐ Online Textbooks

Government

- ☐ Citizen Portal
- ☐ Open Meetings
- ☐ Payment Processing
- ☐ Tourism

Healthcare

- ☐ Electronic Medical Records
- ☐ Telemedicine
- ☐ E-Prescribing
- ☐ Emergency Medicine

Public Safety

- ☐ Interoperable Network
- ☐ Voice, Data and Video Transmission
- ☐ Building Blueprints
- ☐ Diagnostic Medical Information Transmission

Utility

- ☐ SmartGrid
- ☐ Conservation

Here are some questions to consider about each sector and broadband:

1. Are the right tools in place for the [sector] to leverage broadband? If yes, what tools are in place? If no, what hardware, software, and equipment do you need?

2. Do current processes and procedures encourage the use of broadband? What could you do differently with broadband that would promote use in the [sector]?

3. Does broadband availability meet minimum standards for effective use in the [sector]? If yes, how? If no, what are the locations that need broadband enhancements and what are the challenges to get there?

4. Is broadband technology cost prohibitive? If so, what are some cost saving measures that could be implemented?

You may consider meeting with representatives from each sector to discuss key issues surrounding broadband. There are a number of different approaches you can use to reach out to these groups.

- **Use an existing meeting to discuss broadband needs.** If you have standing meetings with

members that represent the different sectors in your community, ask to add broadband to the agenda.

- **Conduct a survey via email or host a conference call**.

- **Host a forum on broadband in your community**. Hosting a meeting is a great way to engage sector representatives in a focused discussion about broadband and community needs. To see a sample Broadband Forum Flyer from an event New York Congressman Chris Gibson hosted in Columbia County, New York, refer to **Appendix A**.

SURVEY THE COMMUNITY FOR USE AND WILLINGNESS TO PAY

A significant hurdle to achieving universal broadband is the perception that sparsely populated areas may not have enough subscribers to justify costs of extending broadband services to those regions. One effective method for determining demand (existing and projected) is conducting a demand aggregation assessment.

At its most basic level, an effective demand assessment categorizes the location and type of user; information on current broadband services (cost/type) and bandwidth requirements of applications currently in use and applications being considered (and their bandwidth requirements); and level of satisfaction and need directly from the citizen.

New York State Demand Assessment: New York State launched a survey designed to determine the highest concentrations of broadband demand throughout the State. This demand aggregation model is helping New York gain a clearer picture of potential subscriber adoption, particularly in rural regions of the State, and will assist in driving new broadband investments and increasing private investment to these areas. The NYS Broadband Program Office would be pleased to share survey results of your municipality with community leaders.

To direct your constituents to the **NYS Broadband Survey** visit http://www.nysbroadband.ny.gov/Your-Internet-Access.

If you prefer to conduct a survey of your targeted community to decide what type of service residents want and how much they are willing to pay for it, planning and organization prior to conducting the survey is important.

The following steps may aid communities in developing and conducting assessments:

1. Appoint a community Survey Chairman to help.

2. Prepare a letter to be sent from Municipal Leaders encouraging residents to participate in the survey. Refer to **Appendix B** for a sample letter.

3. Adapt the questionnaire to determine broadband needs of the community. Refer to **Appendix C** for a sample questionnaire.

4. Determine the method for survey delivery/results collection (mailing, phone calls, door to door). Mailing the survey may be the most cost-effective. When considering an online survey, take into account that many unserved residents may not have access to the Internet in any capacity, therefore participation levels may be low.

5. Consider dividing your municipality into sections and use a random sample of households in each section.

6. Designate a time to conduct the survey and a deadline to collect results.

It is important not to overlook the demand aggregation assessment. By doing so, you run the risk of underestimating community bandwidth (current/future) needs and deploying a technology that, over the long term, may not support the needs of the community.

SIZE OF THE NETWORK (OR NUMBER OF SQUARE MILES/PROJECT FOOTPRINT)

No "one-size-fits-all" approach will guarantee greater broadband deployment and adoption in New York State. Factors such as economic conditions, technological resources, and the geographical terrain vary widely across New York State. Some areas have well-established providers that can support broadband deployment if economically feasible for the company. Other regions have various barriers to entry that may prevent providers from offering broadband services or building broadband networks.

Once you determine the need goals and demand, you will need to establish the size and capacity of your network or the footprint of the community you would like to focus on. If public safety is your focus, then your coverage area will need to be expanded out to the boundaries of your local government, and the technology may include a wireless 4G/LTE component. If the goal is to provide more economic development in your downtown or business park, then a much smaller, network area may be required, but a wireline (fiber or cable) may be the best solution. Most communities will have multiple goals for broadband networks, including access for all citizens, and will need to lay out a coverage area to encompass all of the project goals. Additionally, the size of the network is often determined by the demand:

Some sample questions to consider when determining the size of your projected network and service area:

1. Are there key anchor institutions in your community that will likely become customers?

2. Are there specific areas where demand aggregation is high (this information can be obtained from your survey)?

3. Does your community have a business park or a concentrated area of businesses who would likely become customers?

4. Does your community have seasonal residents? For example, on a lake or campground that may likely stay longer, or even full-time, if broadband services were available.

5. If all of your constituents cannot be served initially, are there community access points (libraries, community centers, parks) that can be connected to facilitate public access?

TECHNOLOGY TYPE

Physical access to broadband is obviously the most important factor in gaining entry to the Internet. However, broadband is delivered via different technologies, and the type of technology determines the range of speeds. As applications continue to demand increasingly higher speeds, broadband networks must continue to keep pace. New York State is encouraging higher broadband speeds. In 2012, New York State raised minimum speed thresholds to 6 Mbps download and 1.5 Mbps upload. This speed established the minimum threshold for Connect NY projects. These new standards, which are above the FCC minimum standards of 4 Mbps download and 1 Mbps upload, are the basis for measuring broadband availability in New York State.

Not all broadband technologies are available in every community. The Internet Service Provider (ISP) will determine the type of broadband technology they can provide and the locations they serve. There are approximately 80 broadband providers in NYS, offering a variety of technologies. To view a list of New York State providers and the types of technology they use, refer to Appendix D.

The list below defines the different types of broadband services and some key benefits and challenges to each one:

- Fiber to the Premises (FTTP): Fiber is considered the "Gold Standard" of broadband technology carrying information at lightning-fast speeds. All major networks use fiber to move data back and forth (including cable and wireless), but some providers use it all the way to the home or premise. FTTP is the most expensive to deploy, but can deliver consistently high speeds reaching 1 Gigabit (1,000 Mbps) and higher.

- Cable Modems: are modems that send and receive data over a digital cable network. Cable modems deliver download speeds ranging from 6 Mbps to over 100 Mbps.

Bandwidth is managed by the provider through shared connections. Therefore, although broadband is widely available by cable throughout New York State, advertised speeds may not always be maintained during peak usage times.

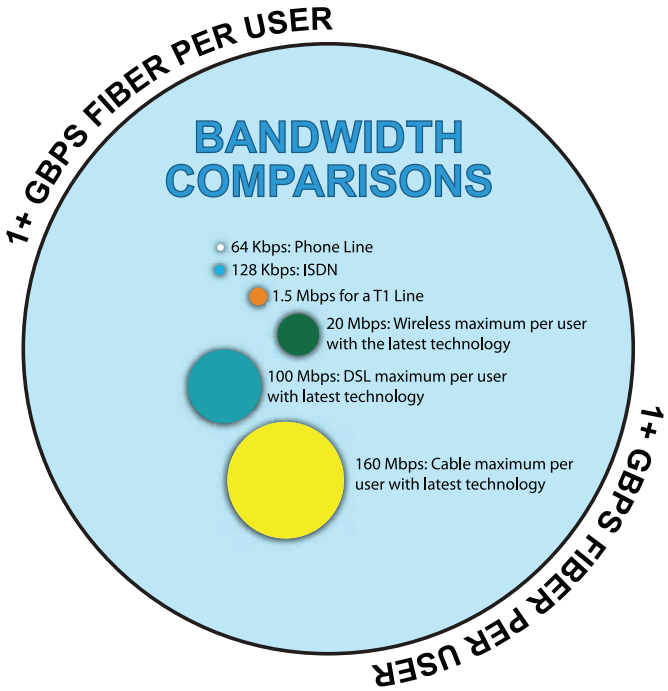
- **Digital Subscriber Line (DSL):** uses copper telephone lines to deliver broadband. DSL systems come in many different levels and tiers, but generally can only deliver download speeds up to 10 Mbps. The further you live from the telephone exchange, the less speed you get.

- **Fixed Wireless/WiMax:** uses a combination of a fiber backbone and wireless towers to deliver broadband at speeds comparable to DSL, but many plans have data usage caps that limit bandwidth. Deployment time is quick and costs are generally lower.

- **Mobile Wireless Broadband:** is a combination of cellular and data service generally used for mobile devices. Mobile wireless broadband networks travel through a fiber backbone, and some companies provide home broadband service delivered over mobile broadband networks. Most mobile wireless plans have data caps that limit usage. New York State does not consider the availability of mobile broadband when measuring statewide broadband availability due to the data cap provision.

- **White Space:** is a new and emerging technology that uses the empty fragments of TV spectrum scattered between frequencies. White space broadband is less expensive to deploy in areas lacking existing infrastructure, and has the ability to travel through physical obstacles, such as trees and mountains, without diminished signal.

ISPs usually advertise broadband by download speeds; or as a download speed "up to" in Mbps; or megabits per second. Therefore, understanding the actual technology may not be as important as the broadband speed. However, some basic knowledge of the different broadband technologies, and the pros and cons for each is important when comparing plan features and investing in a broadband service plan. As demonstrated in the illustration, one gigabit of information is equal to 1,000 megabits.



The NYS 2012-13 Annual Report, http://nysbroadband.ny.gov/sites/default/files/documents/2012_13BBAnnualReport_43014.pdf, (page 4 & 5) provides further detail on the different types of broadband technology available and the connection speed needed to run specific applications.

In June 2012, CTC Technology and Energy prepared a business case for the Town of Holly Springs, North Carolina. The report presented the business case for a public investment in a fiber-optic network to serve the Town of Holly Springs, its local schools, enhance public safety, and potentially enable the private sector to serve local businesses and residences. This strategy was designed to further the Town's plans to use advanced communications infrastructure to provide world-class government services, promote economic development, and to ensure that broadband infrastructure in Holly Springs evolves over time to meet the needs of its residents, businesses, and public institutions. The report can be found by visiting http://www.ctcnet.us/wp-content/uploads/2014/01/HollySprings.pdf.

EXISTING SERVICES AND INFRASTRUCTURE

INVENTORY YOUR ASSETS

In the midst of planning broadband build-out, many times communities forget to leverage assets that are readily available and easily obtainable. Taking time to compile a list of all publicly-owned (and quantify the value of) assets belonging to the community, or that are municipality controlled, can have a dramatic (positive) effect on the amount of financing necessary to complete a network build-out as well as having the potential to extend the reach of the deployment with little/no incremental cost.

Assets can be used to support broadband hardware, such as wireless antennas and other network infrastructure, and to trade with Internet service providers for free or reduced-rate government access to the network. Private assets from local agricultural businesses should also be included as potential sites for towers and antennas. For example, a local farming community may swap silos and grain elevators for free or reduced-rate broadband services. Identify all potential assets in your community regardless of who owns the property or towers. Also, be sure to check all local ordinances and policies that may restrict your access to local public assets.

Assets to inventory include, but are not limited to the following. Check all the assets your community has.

- ☐ **Towers** – if municipally owned, lease payments can be reduced/suspended to spur deployment
- ☐ **High Structures** – silos, water tanks, buildings for placement of wireless equipment
- ☐ **Rights of Way** – can be used to expedite/reduce cost of conduit placement
- ☐ **Ongoing or Pending Capital Projects** – water, road construction, new subdivisions, main street revitalization, etc.
- ☐ **Municipally Owned Utilities** – assets, customer base and back office operations can be leveraged for partnerships
- ☐ **Existing Vendor Relationships** – existing relationships can often be leveraged to provide enhanced and expanded services
- ☐ **Land** – that can be used for tower construction/locating points of presence, etc.
- ☐ **Ongoing/Planned First Responder Communication Upgrades** – many of these projects involve the construction of infrastructure and upgraded communication services. If activities can be aligned it is often possible to achieve economies of scale
- ☐ **Franchise Agreements/Contracts** – those nearing expiration or that can be re-negotiated can provide an outstanding platform for obtaining services

- ☐ **Commercial Carrier Construction** – negotiate dark fiber or conduit during permitting or franchise negotiations

- ☐ **IT Professionals** – source of project advisors and volunteers

- ☐ **Existing Mapping (GIS) Resources** – to provide a visual representation of the current state and planned deployments

- ☐ **Educational Institutions** – source of student labor and/or expertise

- ☐ **Civic Groups/Volunteers** – source of support and labor for community oriented activities

IDENTIFY EXISTING INFRASTRUCTURE AND HELP ENSURE ACCESS

The ability to access existing infrastructure can dramatically reduce the costs of broadband deployments. It is crucial to ensure all prospective providers can secure rapid and uninterrupted access to this infrastructure at a reasonable and predictable cost in a timely manner.

- **Publish data about existing infrastructure:** For providers to make use of infrastructure they need to know what is available. To remain consistent with public safety, welfare, and related concerns, local governments should seek to provide data to providers regarding conduits, ducts and other public or proprietary rights-of-way it owns or controls, as well as local government poles and buildings to which providers can attach equipment.

- **Upstate Fiber Optic Network:** New York State has among the finest telecommunications infrastructures in the world. Many businesses in New York are already benefiting from this vigorous marketplace, and now have considerable choices. Inter-model forms of competition are quickly gaining acceptance and are creating substantial facility-based competition. Traditional cable providers are offering digital services, while wireless services are being used as basic telephone service by an increasing number of New Yorkers. In addition, advanced broadband is widely available in New York State and emerging applications, such as Voice over Internet Protocol (VoIP), provides telecommunications services to both residences and business users.

  The **NYS Thruway Authority** has a fiber optic backbone system maintained by the Authority's fiber optic contractor, G4S. This fiber consists of 550 miles of duct and fiber along the Thruway. The Fiber Facilities include fiber optic cables, ducts, conduits, hand holes, manholes, pull boxes, and regeneration facilities. The Authority's agreement with G4S allows them to enter into agreements with third parties to use the facilities.

  This electronic communications network consists of a "digital backbone" of eight extremely high-capacity fiber optic cables with network access points in all regions of the state. NYS government currently employs only four of these fibers for the **NYeNet**, with the others held in reserve for future growth.

  To inquire about access, the existing availability of conduit or fiber on the existing NYS Thruway Authority Fiber Route, contact Andrew McAdoo at Andrew.mcadoo@usa.g4s.com, or Joe Mulder at joe.mulder@USA.G4S.com.

  The **NYeNet backbone** is a "digital backbone" of high-capacity fiber optic cables with network access points (NAP) across New York State. The NYeNet current backbone configuration operates at a speed of 10 Gbs, or approximately 10 billion bits per second.

Organizations connected to the NYeNet are able to share information and access common applications via a connection between two fiber channel controls. The NYeNet can provide your organization with statewide connectivity at competitive speeds and prices to meet your needs.

For more information contact the Office of Information Technology Services at customer.relations@its.ny.gov or 1-866-789-4638.

- **Contribute to NYS Fiber Data Collection Project**: New York State launched a new program to collect data to determine the availability of fiber optic broadband infrastructure. Understanding the location and capacity of fiber-optic availability statewide is a two-fold value proposition: marketing the availability of high-speed fiber networks to national and global companies, and determining priority areas for potential funding to deploy new networks and connect existing ones.

  A rich fiber inventory database will significantly help planning efforts to expand broadband services into New York's unserved communities, and will improve business attraction and retention as New York demonstrates our commitment to driving high-tech economic growth and job creation. Additionally, high-tech businesses that seek to relocate to New York State will have the necessary information to determine if fiber infrastructure is available to support their business. **For more information on NYS Fiber Data Collection Project you may contact the NYS Broadband Program Office's agent Nathan Roberts at nroberts@nystec.com or (518) 265-9144.**

- **Make all rights-of-way available on clearly defined, reasonable terms, through a rapid approval process:** Local governments should make available standard forms related to all rights-of-way and easements they own or control. Providers should be able to see clear, predictable rules and reasonable terms for all providers to attach fiber to any utility poles that are within the public right-of-way. The price for access should be commensurate with the actual cost imposed by the provider, and incurred by the local government.
  Pricing and terms should be published and offered on a fair and reasonable and competitively neutral basis. As with permitting, generally, any on-going approvals should occur within 5 business days.

- **Make poles available on clearly defined, reasonable terms through a rapid approval process:** Running fiber aerially along utility poles is often significantly cheaper (and less intrusive) than running fiber underground. Poles can be controlled by local governments or their affiliated entities, cooperatives, or privately-owned utilities. Where local governments or their affiliates own or control poles, they should adopt clear, predictable rules for providers to attach their wires and equipment across to these poles on a fair, reasonable, and competitively neutral basis. In addition, local governments should endeavor to work with cooperatives and private utilities to facilitate access by providers to their infrastructure on fair and reasonable terms.

  The FCC's rules enable providers of telecommunications services and cable services (and broadband service offered in combination with one or both of these services) to attach equipment to poles owned/controlled by private utilities at just and reasonable rates, and a schedule for the application, survey, and make-ready process. Since this right might not apply where a provider only offers standalone Internet service, local governments should seek to ensure that these providers have attachment rights on equitable terms comparable to those covered by the FCC's rules. As permitted by the federal statute, many states have adopted their own pole attachment statutes or regulations, which may not only apply to private utilities but to government utilities and cooperatives that own/control poles.

  Ensure make-ready work is performed expeditiously. Rearranging existing attachments, and other steps necessary to make a pole ready for an additional attacher can add significant delay and cost to broadband deployment. In general, and subject to government oversight, pole owners are responsible for this work and should complete it in a reasonable amount of time. If pole owners (and, where relevant, other attachers) are not complying, prospective attachers should have the right to complete

the work themselves. For poles owned/controlled by local governments, there should be established prices and timelines for these services that are comparable to those provided for in the FCC's rules.

- **Coordinate all pole maintenance and make-ready work with the new provider to save costs:** Every pole is maintained by its owner on a periodic basis, although this period may be in excess of ten years. Where possible, a local government should seek to align pole maintenance that benefits itself, and all attachers, with a provider's deployment schedule so make-ready work can be done at the same time. To facilitate this process, providers should identify the set of poles that they intend to use first, and these should be prioritized as part of maintenance cycles. This way, rather than having two sets of crews work on the pole – one for the regular maintenance and one to make it ready for fiber – there need only be one set of work on the pole and thus one set of labor costs. (Providers attaching to poles should only pay for the portion of the work directly related to their attachment.)

- **Allow prospective attachers to perform all make-ready work themselves through the use of independent, approved contractors**: To facilitate an even faster deployment process, local governments should enable prospective attachers to perform surveys and make-ready work themselves by working with a set of pre-approved contractors, without having to get further permissions from the existing attachers. For instance, by setting clear standards for companies to become approved make-ready contractors, the local government can help drive down the timeline for surveys, make-ready work and speed fiber deployment. Moreover, having contractors work directly with prospective attachers aligns incentives in ways that can make the process move along faster.

PROACTIVELY IMPROVE EXISTING INFRASTRUCTURE

Some of the more significant cost reductions can come from communities instituting a forward-looking program to improve existing infrastructure. While some of these actions require investments, it will provide a more conducive environment for providers in the long run and has the added benefit of reducing the government's construction and maintenance costs.

- **Provide space on all poles for new attachers**: Where they have authority, local governments can take pole maintenance one step further by proactively arranging space on the pole for providers. One way to do this is by expediting standard maintenance work and performing make-ready work at the same time.

- **Install ubiquitous fiber conduit**: By installing conduit for fiber with enough space for additional networks, local governments can limit the need for providers to engage new construction, further expediting fiber projects. For instance, government could adopt a "dig once" policy, such that fiber conduit is installed any time road construction occurs. By doing so, the cost of that construction is amortized over all projects that later utilize the conduit, reducing costs and minimizing disruption to drivers. This can significantly minimize deployment expenses along roadways, while adding less than one percent to the cost of the road construction.

- **Use building codes and community development plans to drive fiber deployments**: It is common for local governments to set basic standards regarding minimum levels of service for homes, residential planned communities, and residential and commercial buildings. Local governments should require that new construction and substantial renovations for buildings and new community plans include structured wiring that allows fiber to be run easily to each room within a home or multiple dwelling unit.

INVENTORY YOUR PROVIDERS

For a community to know your options, you must understand where the nearest fiber assets are, where the closest middle-mile projects are, and who your local broadband providers are. Take an inventory of your broadband providers in nearby communities. There may be one or more broadband providers within your community. Providers serving adjacent areas may be willing to work with your community to expand infrastructure.

To understand New York State's broadband landscape, where broadband service is available and where it is not, New York has undertaken a massive effort to build the NYS Broadband Map. The map allows users to explore their communities and will help leaders determine which areas are currently served, which areas are unserved, the providers serving the area and the speeds available. **A Quick Reference Guide** is attached as **Appendices E**. This Guide will help you easily navigate the NYS Broadband Map.

While fiber is considered the "gold standard" of broadband technology, when identifying Internet Service Providers, it is important to consider all types of technology. This includes fixed wireless providers (WISPs) and new and emerging technologies like white space. While these technologies are still maturing, they may prove to be good options. There is an increasing number of WISPs that are very agile, and provide high speeds and good quality services. New and emerging technologies like white space are good options for very densely populated areas that are geographically challenged. White space, although a relatively new technology, can be less expensive to deploy in areas without a lot of existing infrastructure, and has the ability to travel through physical obstacles, such as trees and mountains, without diminished signal.

Mobile wireless, on the other hand, while a highly desirable service, at this point is not generally considered an alternative to a dedicated broadband service due to issues with reliability and data usage caps. Due to issues with quality, cost, latency issues and data caps, satellite providers are also not considered a preferred option.

PARTNERSHIPS

WHO SHOULD OWN THE NETWORK?

Many different types of business models have been used in various archetypes. In fact, one of the components of the Connect NY Broadband Grant Program was to promote private/public partnerships. The New York State Broadband Program Office believes that the most effective strategies to address broadband deployment and adoption challenges result from collaborative efforts among government and broadband providers. Public/Private partnerships have proven to be an effective model for expanding the availability of broadband and increasing Internet usage. However, to help determine the right business model for your community, consider the following:

1. **Government-Owned and Operated**. The county or municipality contracts, builds and pays for the capital and operating expenses.

   Advantages:

   - Local government has full control over the network, including access, charges, use, bandwidth and more.
   - Local government earns revenue generated by the network

Disadvantages:

- Local governments are responsible for all costs including the build out, staff, maintenance and repair of the network
- Local government is responsible for administration of the network including customer billing, installation, and maintenance issues.

There are several different models that exist when looking at a government-owned or public fiber network.

- Retail Service: The government builds the network and offers retail services such as phone, video, and Internet services to businesses and residences. This is the riskiest model because of the upfront capital commitment needed and the ongoing operating costs. Competition can be high, and often obtaining sufficient market penetration can be a challenge, particularly when well-resourced incumbent providers can aggressively market or discount services in response to the entry of a public provider.

- Open Access: The local government builds, owns, and maintains the network, but rather than becoming a provider serving the public, it leases access to private providers who then offer services directly to the public. Under the open access model, the community can operate and maintain the network or contract these tasks to a private sector partner. Private providers then lease access to the infrastructure, which they use to deliver phone, video, and Internet services. The risks can be high in respect to recovery of the initial capital investment, and the network revenues are often based on the private provider's ability to market and sell services.

  Examples of Open Access Models in New York State:

  - Southern Tier Network, Inc: has built a dark fiber broadband ring throughout Steuben, Schuyler, and Chemung Counties. The network will enable access to the highest speed broadband connectivity available in the three-county region. The new open access network ultimately will connect to other regional open access networks, serving as a catalyst for future economic development in the region. To learn more about Southern Tier Network's open access model visit http://www.southerntiernetwork.org/.

  - Axcess Ontario: is a not-for-profit development corporation created to develop an manage an open-access fiber-optic backbone initially in Ontario County. With an open-access dark fiber infrastructure and a non-profit approach, Axcess Ontario offers broadband providers the ability to expand their footprint and subscriber base by connecting to 16,000 fiber strand miles of dark fiber with greater capabilities and cost savings for customers. To learn more about Axcess Ontario's open access model visit http://www.axcessontario.com/.

- Institutional/Middle-Mile: the local government builds a network focused on connecting government and community anchor institutions, but leases out excess capacity to private providers offering services to the public. This model requires a smaller capital investment. This model requires less involvement in operations because it does not require local government to go into the business of providing services to the public. Below are some examples of local governments, school districts, or other anchor institutions that were able to realize substantial cost savings by shifting their broadband services from private providers to local options.

2. **Provider-Owned and Operated.** The Broadband Provider owns and operates the broadband network.

Advantages:

- No or little cost to local government. Broadband Provider is responsible for costs to build and operate the network.
- The provider is responsible for administration costs including billing customers, and maintenance and repair of the network.

Disadvantages:

- Local Government has no control over the network including subscriber rates and/or bandwidth
- Provider determines most profitable regions to deploy into, and where to expand networks
- Local Government would likely have to pay for use of the network

3. **Government-Owned and Privately-Operated.** The county or municipality owns the network, but the broadband provider operates the network.

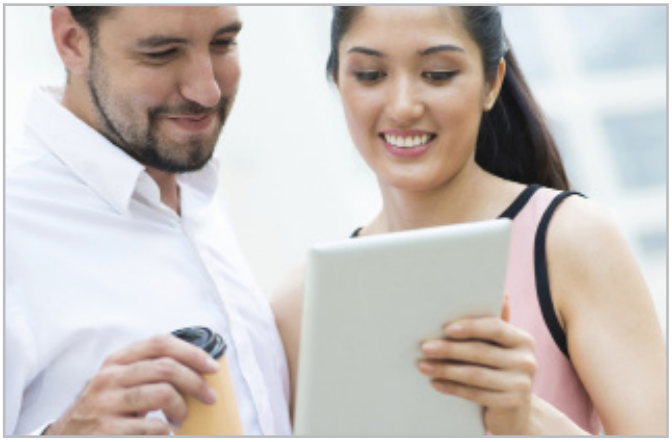
Advantages:

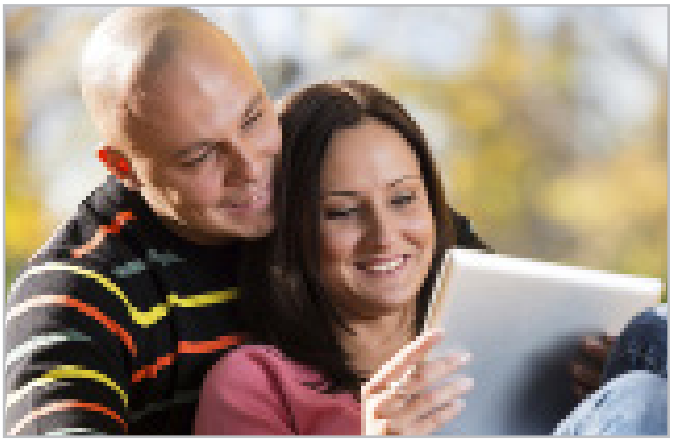
- Local government owns the network and has the option to take it back at any time
- Local government receives free use of the network
- Local government receives some revenue generated by the network
- Local government does not have to pay for maintenance or repairs, and is not responsible for the administration of the network such as billing and assistance

Disadvantages:

- Local government is responsible for costs incurred to build the network.
- The local government only receives a portion of the revenue generated by the network.

CTC Technology & Energy published an ***Overview of Public Broadband Options,*** which provides an introduction to the different types of ownership and governance models, and the risk and rewards associated with each type of model. The document can be found by visiting http://www.ctcnet.us/wp-content/uploads/2014/05/ArtofPossible-OverviewPublicBroadband_NAFOTI-CTC1.pdf.





ENSURE YOUR POLICY AND PROCEDURES ARE IN ORDER

The best way to increase competition and choice in broadband expansion is to reduce or remove barriers that keep private sector providers from building infrastructure. These include high franchise fees; unnecessary regulatory red tape pertaining to the approval of cable rights-of-way and construction; and rules designed to inhibit construction of cell towers. Community leaders need to ensure that your community zoning regulations, and processes, policies, and fees are "broadband friendly."

This section provides a list of best practices as they relate to community zoning regulations and processes:

- **Streamline "Makeready" Activities**: To successfully implement a broadband deployment project, a provider must place equipment and cabling across multiple geographic boundaries and jurisdictions where permitting requirements and procedures vary greatly across cities, right-of-way owners, and projects – increasing cost and deployment time.

  Access to Rights of Way (ROW), tower siting, local regulations, and the pole attachment process varies from municipality to municipality. Often the "makeready" process is complicated and time-consuming. New York State has been exploring ways to standardize the entire makeready process, including uniform procedures to access state-owned property. To the highest degree possible, counties and municipalities should seek to implement formal processes for broadband and should publicize these standards to the industry. Having standards in place may incentivize providers to build broadband networks, resulting in faster installations at lower costs.

  Congress has directed this "FCC and each State commission with regulatory jurisdiction over telecommunications services to encourage the deployment on a reasonable and timely basis of broad band to all Americans" by working to "remove barriers to infrastructure investment" in a manner consistent with the public interest, convenience, and necessity.

  The Fiber to the Home Council released a paper advocating that state and local governments "condition use of public rights-of-way to require incumbent users of this space to share their poles, ducts, and conduits on a non-discriminatory basis and at reasonable (cost-based) rates, terms, and conditions." Access to the paper "State and Local Government Role in Facilitating Access to Poles, Ducts, and Conduits in Public Rights-of-Way," can be found at http://www.ftthcouncil.org/p/cm/ld/fid=47&tid=79&sid=1249.

  By working together on these issues, both fixed and mobile costs required for broadband deployment can be reduced. Not only will this decrease deployment time, but will help unleash private investment for infrastructure, and increase efficient use of scarce public resources.

- **Permitting Process**: New York State is working with the NYS Public Service Commission to look at ways to streamline regulatory approval process for tower siting, pole attachments, and access to rights-of-way.
- **Pole Attachment**: Before pole construction can begin, the existing utilities frequently need to be moved on the poles, and poles may need to be modified. This includes raising, lowering, and re-tensioning of existing aerial cables. In most communities the poles are privately owned by phone and electric companies. However, the make-ready work to prepare the poles for the new facilities and associated costs is at the expense of the broadband provider seeking to expand service. Crowded poles turn make ready into a time-consuming and costly matter for an entity seeking to attach for the first time.

  Localities, however, should have relationships with the pole owners that frequently allow them some influence. Localities can use that influence on behalf of their broadband goals by working with the pole owners, either directly or through the state. This influence can be used to encourage pole

owners to facilitate rather than obstruct the process of the new broadband provider attaching to the poles.

- **Enact a 'Dig Once' Policy for your Municipality**: Laying fiber optic cable is an expensive proposition because of the cost of labor and regulatory approvals required to gain access and dig the trenches required to install fiber. In order to help build key assets such as conduit and fiber in your community, consider enacting policies that facilitate and encourage their construction. "Dig-once" policies require a thoughtful analysis of the opportunities to lay fiber when road and bridge projects commence, but by digging trenches, providing conduits, and laying fiber during the road construction process, over 90% of the total cost is avoided. These policies also protect roads and sidewalks from frequent, life-shortening cuts and minimize traffic and other disruption from utility construction.

An excellent resource is the **Technical Strategies for Facilitating Public or Private Broadband Construction in Your Community** paper, prepared by the engineers and analysts of CTC Technology & Energy during the summer and fall of 2013. The paper presents strategies by which local governments can encourage broadband expansion, with a goal of becoming communities with gigabit speed networks – over 100x faster than most connections today. The document shows how communities can facilitate construction of gigabit-capable networks through a range of technical and process strategies that support such network deployment – whether the network is built by a private partner or by the locality itself. You can access the paper by visiting http://www.ctcnet.us/wp-content/uploads/2014/01/GigabitCommunities.pdf.

Additional Questions to Consider:

Does your community have (or are you willing to create) a process for expediting zoning and permitting processes? Local zoning requirements, permitting fees, and processes critical elements that can "make or break" the deployment of broadband services. Communities who take time (up front) to review and update their current policies and convert them into "fast-track," broadband friendly formats stand to greatly reduce the amount of time, cost, (and frustration) it takes to move from network design to service availability.

_____

_____

Does your community have standards that differ from best practices indicated above? (Detail what your city's existing requirements or process are):

_____

_____

_____

List any ideas or suggestions to improve efficiency, speed and predictability of the permitting process with your community?

_____

_____

_____

Google Fiber developed a checklist document specifically for the cities they are currently working with. However, the items on this checklist are a collection of best practices recommended by the Fiber to the Home Council, the Gig U report and the U.S. Conference of Mayors, and can help any fiber provider or community that's thinking of building a new network. To view the checklist visit: https://fiber.storage.googleapis.com/legal/googlefibercitychecklist2-24-14.pdf.

The following sample communities, published in the Google Fiber document above, have developed local ordinances that have helped ensure access to existing infrastructure for all providers.

Lee County, FL:

"To enhance the public convenience and to minimize the placement of poles and wire holding structures within public ways, the franchisee shall enter into agreements for the joint or common use of poles or other wire holding structures where poles or other wire holding structures already exist for the use in serving the county or serving the public convenience. Where reasonable terms and conditions cannot be negotiated with the owners of such poles and wire holding structures, the franchisee shall demonstrate the unreasonableness of the negotiations and terms, to the county administrator's satisfaction, and request waiver of this provision." https://library.municode.com/HTML/10131/level2/PTIICO_CH22LIBURE.html#PTIICO_CH22LIBURE_S22-70.13CASYCO.

Norfolk, VA:

"The director of public works shall have the right to designate a pole for the joint use of the owner of such pole and other proprietors of lines, and to assign to each such joint user a certain section thereof on such terms as may be agreed upon. In the event of failure to reach such agreement, such director shall have the right to determine such terms, and to revoke the permit for such pole, unless such determination is accepted by the owner or proprietor thereof." https://library.municode.com/HTML/10121/level4/COCI_CH42STSI_ARTIIUTPOWICOOVUNST_DIV2PO.html#COCI_CH42STSI_ARTIIUTPOWICOOVUNST_DIV2PO_S42-92JOUSGE.

Mobile, AL:

"It shall be the duty of the city electrician to so direct the placing, stringing and attaching of wires upon poles erected in the streets and alleys of the city that the same shall cause as little obstruction, either to travel in the streets or to the use and enjoyment of private property, as possible, and to compel the joint use of poles wherever practicable. In case the joint users of any such pole are unable to agree on such joint use or the rental to be paid the owner of such pole for such use, the city electrician shall fix such rate, which shall be binding upon the parties and companies interested; provided, that either party may appeal from the decision of the city electrician as to such joint use or the amount of rental to be paid for the use of such pole for the privilege of attaching wires thereto, to the city council." https://library.municode.com/HTML/11265/level3/CICO_CH19EL_ARTIVPOWI.html#CICO_CH19EL_ARTIVPOWI_S19-37DISTWIJOUSPO.

Other helpful broadband policies and procedure resources include:

CTC Technology & Energy Broadband Strategies Checklist
http://www.ctcnet.us/wp-content/uploads/2014/01/Broadband-Strategies-Checklist.pdf

CTC Technology & Energy; An Engineering Analysis of Public Rights-of-Way Processes in the Context of Wireline Network Design and Construction
http://www.ctcnet.us/wp-content/uploads/2014/01/NationalLeagueOfCitiesStudy.pdf

FUNDING YOUR BUILD OUT

REALLOCATE EXISTING FUNDS

Building a business case for a broadband initiative is a great time for local government participants to perform an enterprise-wide "telecommunications audit" to determine exactly how much is actually being spent on items such as:

- Local/Long Distance Telecom services (wireline and wireless voice)
- Data services
- Frame Relay
- Internet Access

- Point-to-point connections
- PBX extensions to remote offices via OPX lines.
- VPNs/VoIP (currently purchased from another provider)
- Wireline voice equipment, such as TDM PBXs and handsets
- Wireless voice/mobile data equipment

Assimilating telecom cost information allows planners to determine how much funding can be made available to help "buy down" the price of an impending deployment by transferring services (to the new network) to create an annual revenue stream.

CALCULATE CONTRIBUTIONS

Communities developing a "business case" for broadband deployments often overlook potential "in-kind" elements that can be integral to the effort. Local government assets (tangible and intangible) can be used as potentials matches when securing state or federal funding for broadband deployments. The ability to capitalize on existing assets can also dramatically reduce deployment costs. For example, communities who waive, or at a minimum reduce initial and monthly structure attachment fees, can greatly reduce the capital expense associated with an initial broadband build-out;

When considering "what" types of in-kind assets your community has to offer – consider the following:

- Does your community own (or have ready access to) structures (tall buildings, water tanks, high buildings), rights-of-way or public safety radio towers that can be utilized in a broad band deployment?

  _____

  _____

- Are there state-owned assets (rights of way, buildings, State Police towers) in the area?

  _____

  _____

- Are there other communication related projects planned or underway in the area? Coordinating efforts can greatly enhance a proposed deployment by providing opportunities for maximizing coverage and minimizing the likelihood of overbuilding and duplicative infrastructure. One of the key components of Connect NY was to avoid over-builds by capitalizing on existing infrastructure. Too often departments and organizations in a community initiate independent single-use telecommunication projects. The result is a patchwork of fragmented, stand-alone networks that do not adequately address long-term need, and typically require additional funding to re-engineer or maintain costs that could likely be avoided through coordinated planning and deployment.

  _____

  _____

- Is there state-owned or community owned (or can you rent) land that could be used for infrastructure placement?

_____

_____

LEVERAGE FEDERAL FUNDS/ GRANTS AND LOAN PROGRAMS

NEW YORK STATE GRANTS

With more than **$68 million** awarded for broadband projects during Governor Cuomo's administration, the largest statewide broadband commitment funding in the nation, New York strengthened our capacity to bring broadband services to unserved and underserved communities, counties and regions across the State.

In September 2012, Governor Cuomo committed $25 million in funding to expand high-speed Internet access in rural upstate and underserved urban areas of New York through the **Connect NY Broadband Grant Program**. Eighteen broadband projects were selected to receive Connect NY Broadband grants based on the support of the Regional Economic Development Councils and a technical committee that analyzed and ranked projects competing for the $25 million in funding.

Broadband projects also received funding during all three rounds of Regional Economic Development Council Awards. In Round 1 (Dec 2011), four projects received funding totaling $2 million; 4 North Country Broadband Project Sponsors received more than $6 million from Round 2 (Dec 2013); and most recently during the Round 3 REDC funding awards made in December 2013, Governor Cuomo announced grants for three broadband projects, and dedicated a $6 million broadband fund to the North Country, totaling $11.4 million.

For more information on State Funding, visit the **New York State Broadband Funding Web page**: http://www.nys-broadband.ny.gov/state-funding.

Round 4 Regional Economic Development Council Funding

In 2014, the each Regional Council will continue to implement its Strategic Plan, and continues to identify and invest in significant economic development projects. The Governor has directed up to $750 million in state resources to be made available through the Consolidated Funding Application (CFA) in 2014 to support economic development priorities of the Strategic Plans and job creation across the state. Of this, up to $530 million from state agency programs will be available to applicants through the CFA to support economic development projects that align with the Regional Council's Strategic Plans. Applications to apply for REDC Round 4 deadline is June 16, 2014. To access the 2014 CFA Application Manual visit http://regionalcouncils.ny.gov/sites/default/files/CFA_2014_Application Manual.pdf.

FEDERAL GRANTS AND LOANS

New York State has been working with the federal government including the Federal Communications Commission (FCC), the Rural Utilities Services (RUS) and the United States Department of Agriculture (USDA) in an effort to streamline the application process to apply for and expedite the delivery of available federal funds. Communities Should Consider the Following Federal Resources:

USDA RURAL UTILITIES SERVICE (RUS)

USDA Grants: http://www.rurdev.usda.gov/RD_Grants.html
USDA Loans: http://www.rurdev.usda.gov/RD_Loans.html

- The Community-Oriented Connectivity Broadband Grant ("Community Connect") Program
  The Community Connect Program provides grants to eligible applicants to establish service in rural areas where no broadband service exists today. The grants will provide funding to support broadband deployment that fosters economic growth and delivers enhanced educational, health care, and public safety benefits. To obtain an application visit http://www.rurdev.usda.gov/utp_commconnect.html.

  Grant Program Features: Grant applications are accepted annually through a competitive process. The open season for applications is announced each year, usually in the spring, through a Notice of Funds Availability (NOFA) in the Federal Register. Minimum and maximum grant award amounts are specified in the NOFA. To obtain an application or for more information visit: http://www.rurdev.usda.gov/utp_commconnect.html.

- The Distance Learning and Telemedicine (DLT) Program
  The DLT provides both educational and healthcare opportunities in rural communities through grants that finance advanced telecommunications technologies. The focus is on using the unique capabilities of telecommunications to connect rural areas to each other and to the world, thus overcoming he effects of remoteness and low population density. DLT, which began in 1993, has funded more than 1,400 projects totaling $512 million.

  DLT Grant Program Features: DLT grant applications are accepted annually through a competitive process. The open season for applications is announced through a Notice of Funding Availability (NOFA) in the Federal Register. Applicants are required to provide a minimum of 15 percent in matching funds. Once announced, the NOFA and an application guide are posted on the program Web site. For more information visit: http://www.rurdev.usda.gov/UTP_DLT.html.

- Rural Broadband Loan
  This program funds the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural areas on a technology-neutral basis. Direct loans are in the form of a cost-of-money loan, a 4-percent loan, or a combination of the two. In March 2011, Rural Development published an interim rule in the Federal Register proposing changes required due to program modifications under the 2008 Farm Bill. The interim rule can be found online at: www.rurdev.usda.gov/utp_farmbill.html.

  Eligible Rural Areas: Rural area means any area, as confirmed by the latest decennial census by the U.S. Census Bureau, which is not located within: (a) A city, town, or incorporated area that has a population of more than 20,000 people; or (b) An urbanized area contiguous and adjacent to a city or town with a population of more than 50,000 people. An urbanized area means a densely populated territory as defined in the latest decennial census.

- Telecommunications Loan Program
  The Telecommunications Loan Program improves the quality of life in rural America by providing investment capital, in the form of loans, for the deployment of rural telecommunications infrastructure. The USDA Rural Development's Utilities Programs finances infrastructure that enables access to a seamless, nationwide telecommunications network. With access to the same advanced telecommunications networks of its urban counterparts, especially broadband networks designed to accommodate distance learning, telework and telemedicine, rural America will see improved educational opportunities, health care, safety and security and ultimately, higher employment. Through this program, more than $13 billion has been invested in improved telecommunications services to rural subscribers.

  Eligibility Requirements: Financial assistance is provided to: Rural utilities; municipalities; commercial

corporations; limited liability companies; public utility districts; Indian tribes; and cooperative, non-profit, limited-dividend, or mutual associations. To obtain an application packet or for more information, visit http://www.usda.gov/rus/telecom/.

E-RATE FUNDING FOR SCHOOL

The federal E-rate program provides subsidies to schools and libraries, including funds to upgrade services under certain circumstances. The specific resources funded through these programs are restricted to use by qualified schools, libraries and research institutions, but in many cases those specific resources can be purchased from or be made part of a larger project.

This service can be aggregated as part of total demand for the region and provide maximum buying power when negotiating with providers.

Information on the E-Rate Program for Schools and Libraries:

- FCC E-Rate Funding for Schools and Libraries: http://www.fcc.gov/guides/universal-service-program-schools-and-libraries
- E-Rate Program Update Fact Sheet: https://apps.fcc.gov/edocs_public/attachmatch/DOC-322288A1.pdf
- E-Rate – Applying for Funding: http://www.usac.org/sl/about/getting-started/process-overview.aspx

GRANTS.GOV

http://www.grants.gov/web/grants/home.html;jsessionid=0xRPTnXcWJvcy7ppVBzWZTNhymQnWnjTSMTJ9Qv-JvznfDN6bpTy5

Grants.gov is a resource to find and apply for federal grants. The United States Department of Health and Human Services is the managing partner for Grants.gov. The portal serves as a centralized location for grant seekers to find and apply for federal funding opportunities. The Grants.gov system houses information on over 1,000 grant programs for 26 federal grant-making agencies. Grants.gov allows visitors to search grants using keywords and criteria.

OTHER GRANTS

Appalachian Regional Commission (ARC)
http://www.arc.gov/funding/ARCGrantsandContracts.asp

ARC awards grants to projects that address one or more of the four goals identified by ARC in its strategic plan and that can demonstrate measurable results. Typically, ARC project grants are awarded to state and local agencies and governmental entities (such as economic development authorities), local governing boards (such as county councils), and nonprofit organizations (such as schools and organizations that build low-cost housing). Proposals will be accepted for the following project types:

ARC targets special assistance to economically distressed counties in the Appalachian Region, allowing up to 80 percent participation in grants in distressed areas. The following NYS counties are in the Appalachia: Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Cortland, Delaware, Otsego, Schoharie, Schuyler, Steuben, Tioga, and Tompkins

For questions, contact the New York State Appalachian Program Manager, Kyle Wilber at 518.473.3355 or email kwilber@dos.state.ny.us.

INITIATE NEGOTIATIONS

The best way to understand this point is to make it personal. For example, buying a ream of copy paper is a matter of finding the cheapest store that supplies the item. A Request for Proposal (RFP) issued for this product makes sense, because the item being acquired is almost exactly the same from one supplier to the next. Also, the points of differentiation between bids would be easy to comprehend – *Is the weight of the paper different? Is it glossy or does it have a flat surface?*

Initiating contract negotiations for a community-led broadband deployment is, in terms of procurement regulations, essentially the same as any other large-scale procurement. However, technologies and individual elements of the agreement will vary from community to community. If your municipality has procurement policies, you must ensure they are followed.

Your proposal should be thorough and organized. You will need sections for introduction, requirements, selection criteria, timelines, and processes. Below are some of the commons elements in an RFP:

1. Introduction and Background Information and Your Goal

2. Submission Requirements

   - How do you want to receive the proposal, email, mail
   - Number of copies of the proposal
   - What format – word, PDF
   - Who are the proposals submitted to
   - Proposal deadline

3. Purpose of the RFP

   - What are you seeking to achieve? – seeking proposals from qualified entities to deploy, operate and maintain a broadband network to deliver broadband services to residents in underserved areas access to broadband with speeds of at least 6 Mbps download and 1.5 Mbps upload.

4. Scope of the Services Requested / General Requirements

   - Scope of the services requested
   - Description of the network and service area
   - Technical specifications/ product specifications
   - Work covered by contract documents
   - Reference specifications
   - Price and payment procedures
   - Administrative requirements
   - Submittal procedures
   - Quality control
   - Cleanup
   - Contract closeout procedures
   - Warranty

5. Supplementary Conditions/ Qualification Requirements

   - Should they be a licensed NYS broadband provider?
   - Do they have documentable/proven success and experience providing the services proposed?
   - Can they provide proof of commitment of resources to execute proposed services in the timeframe?

6. Proposal Content

- Executive Summary
- Technology proposed
- Cost of Services
- Business Model

7. **Evaluation Process, Scoring Method and Selection Process** – describe the method in which proposals will be reviewed and evaluated.

- Bidders will be required to meet targets for service availability and technical quality. In many cases, bids will be evaluated first on technical and operating compliance with the specifications as outlined in your proposal. The bids that pass are then typically evaluated on cost. This may include a point value assigned to the different topics or sections of the proposal.

Below are some sample Broadband RFPs issued for broadband networks in other states:

County of Surry, Virginia
http://www.surrycountyva.gov/uploads/docs/RFP-broadband-network-services.pdf

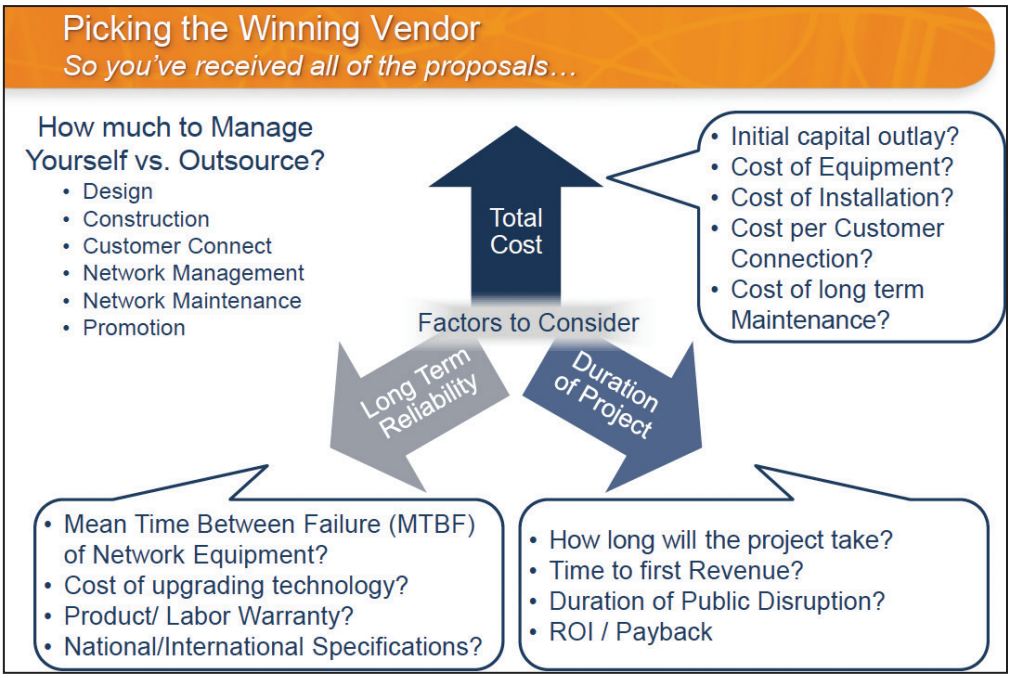
City of Gustavus, Alaska
http://cms.gustavus-ak.gov/services/network/broadband/rfp.htm

Western Massachusetts Middle Mile Broadband Initiative
http://broadband.masstech.org/sites/mbi/files/documents/procurements/2011-MBI-01_RFP_OPM_Sep10.pdf

City of Durham, North Carolina
http://durhamnc.gov/Lists/Bids%20and%20Notices/Attachments/316/ts_broadband.pdf

Northwest Colorado Council of Governments Regional Broadband Strategic Plan RFP
http://www.ohivey.com/test/presentation/Broadband%20RFP%20Dec2012.pdf

The **Fiber to the Home Council** has published several documents on issuing an RFP which can be found by visiting http://www.ftthcouncil.org/p/do/si/topic=86&type=0



Source: FTTH Community Toolkit: TE Connectivity

MANAGING THE IMPLEMENTATION

As important as proper network planning is, successful implementation of your network is vitally essential. Once you have developed your plan, issued an RFP, and selected your vendor, the next step is to put your plan to work. To do so, consider the following factors:

- Plan the schedule for installation of network equipment and cables with the proper procedures documented and followed.
- Perform testing with documented procedure as the installation work is in progress to ensure all parts are working properly.
- Plan a fallback plan in case any part of the network installation fail or causes delay.
- Consider the pros and cons of performing the installation over the weekend.
- Prepare contacts for technical support. In case of technical problems or questions, do you have some place to turn for immediate assistance?
- Observe or perform an investigation on the workplace daily routine to find out how the network installation can minimize the disruptions.
- Be prepared for things go wrong such as delay in important materials delivery, failed installation, incompatibilities problem, manpower problem and user errors. Regardless of the network size, the chances of encountering problems during the project execution stage are high.
- Ensure communication with community members and members of government.
- Highlight broadband success stories describing what broadband is capable of doing to increase economic development.

ADDITIONAL RESOURCES

NYS Broadband Website: http://www.nysbroadband.ny.gov/

MuniWireless: http://muniwireless.com

Government Technology Digital Communities: http://www.govtech.net/digitalcommunities

USDA Rural Development: http://www.usda.gov/rus/telecom/

Rural Broadband Coalition: http://www.ruralbroadbandcoalition.net

Rural Communication Congress: http://www.ruraltelecon.org/dp/

Federal Communications Commission: http://www.fcc.gov/broadband/

What Cities Can Do to Get Gigabit-Ready:
http://www.govtech.com/local/What-Cities-Can-Do-to-Get-Gigabit-Ready.html?utm_source=related&utm_medium=-direct&utm_campaign

Google Fiber City Checklist:
https://fiber.storage.googleapis.com/legal/googlefibercitychecklist2-24-14.pdf

Net Neutrality Explained – with current status:
http://www.thenation.com/article/179934/fccs-net-neutrality-proposal-explained#

Other State Planning Resources

New Mexico Community Planning Guide Book:
http://www.ctcnet.us/wp-content/uploads/2014/01/NewMexicoCommunityGuidebook.pdf

Broadband in Allegany County: Status, Opportunities, and Strategies:
http://www.ctcnet.us/wp-content/uploads/2014/01/AlleganyCountyBroadbandReport.pdf

Broadband in Garrett County: A Strategy for Expansion and Adoption:
http://www.ctcnet.us/wp-content/uploads/2014/01/GarrettCountyBroadbandReport.pdf

SAVE THE DATE

RURAL BROADBAND SYMPOSIUM

HOSTED BY CONGRESSMAN CHRIS GIBSON

October 21, 2013 ~ 9:00 AM – 12:00 PM

Registration ~ 8:15 AM -8:50 AM

Sullivan County Community College
Seelig Theatre
112 College Road, Loch Sheldrake, NY 12759

Develop your strategy for expanding broadband in your community

Individuals, community leaders, local businesses, and government officials are all invited and encouraged to attend.

"As I have travelled the 165 towns throughout the 19th district, I have heard from people who have asked for help to bring broadband service. This symposium has been created to help them try and find solutions." **Congressman Chris Gibson**

For more information contact Ann Mueller at 518-610-8133 or ann.mueller@mail.house.gov

Appendix B: Broadband Community Letter

[Date]

[Mailing Address]

Dear Valued Resident :

[Insert name of your community] has launched a survey designed to determine the highest concentrations of broadband demand throughout the region. This demand model will enable us to gain a well-defined picture of potential subscriber adoption, and will assist in driving new broadband investments, while spurring private investment to our region.

The expansion of broadband service to unserved areas can yield significant economic and social benefits. Access to broadband generates job creation; attracts new business; allows workers to telecommute; and provides greater access to educational, health care and social services.

We would like to know about your current, or the lack of, broadband services, at your home and are asking for your help by completing the attached broadband survey. As such, the information you provide, regarding present and future demand for broadband, will enable us to determine the needs within our community. The survey results will be processed and assessed as part of [insert name of community] overall broadband plan . Outcomes will also be communicated with service providers in effort to expand broadband services into unserved areas of our community.

Thank you in advance for your participation. Should you have any questions or concerns involving this survey, please contact [Enter point of contact information here].

Regards,

Appendix C: Sample Broadband Internet Survey

TELL US ABOUT YOUR INTERNET ACCESS

The [insert name of community office] would like to know about broadband service or the lack of broadband service at your home. The information you provide regarding current and future demand for broadband services will enable us to determine needs in our community. The survey results will be processed and aid us in the development of a comprehensive broadband plan for [insert name of community].

Please check the selections that best represents your answer. Add any information on the lines below.

1. This location is primarily a
   - ☐ Home
   - ☐ Business
   - ☐ Community Anchor Institution

2. Do you currently have Internet access?
   - ☐ Yes
   - ☐ No

3. If not, why not?
   - ☐ Not available
   - ☐ Access it elsewhere
   - ☐ Too expensive
   - ☐ Too complicated

4. If high-speed internet service is currently not available, would you like it?
   - ☐ Yes
   - ☐ No

5. What is the minimum broadband speed you would need?
   - o 6 Mbps download/1.5 Mbps upload
   - o 10 Mbps download/3 Mbps upload
   - o 25 Mbps download/3 Mbps upload
   - o 50 Mbps download and above
   - o 100 Mbps download and above

6. How much are you willing to pay for high-speed Internet service?
   - o $0
   - o $1 - $19.99
   - o $20 - $49.99
   - o $50 - $75
   - o > $75

7. I primarily use (or would use) broadband for
   - o Home
   - o Business
   - o Both

8. Tell us about your experience(s) with broadband service providers:

   _____

_____

_____

_____

_____

9. Share additional information:

_____

_____

_____

_____

_____

First Name: _____ Last Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Email Address: _____

Thank you for your participation in our Broadband Survey!

Appendix D: NYS Broadband Providers and Technology Type

Provide Residential Broadband at ≥ 6 mbps download, ≥ 1.5 mbps upload

	Cable Providers	
	Provider Name	DBA Name
1	Adams CATV Inc.	Adams Cable Service
2	Atlantic Broadband (Penn), LLC	Atlantic Broadband
3	Berkshire Cable Corp.	FairPoint Communications
4	Cable Communications of Willsboro, Inc.	Cable Communications of Willsboro
5	Castle Cable TV, Inc.	Castle Cable TV
6	Charter Communications Inc.	Charter Communications
7	Comcast of New York, LLC	Comcast
8	CSC Holdings, Inc.	Cablevision/Optimum
9	Haefele TV Inc.	Haefele TV
10	Keene Valley Video, Inc.	Keene Valley Video
11	Mid-Hudson Cablevision, Inc.	Mid-Hudson Cablevision
12	MTC Cable	MTC Cable
13	Oquaga Lake Cable System Inc.	Oquaga Lake Cable System
14	RCN Telecom Services of New York, LP	RCN/RCN Business Solutions
15	Southern Cayuga County Cablevision, LLC	Southern Cayuga County Cablevision
16	Time Warner Cable LLC	Time Warner Cable

	DSL Providers	
	Provider Name	DBA Name
1	Armstrong Telephone Co of New York	Armstrong Telephone
2	Berkshire Telephone Company	FairPoint Communications
3	Cassadaga Telephone Corporation	DFT Communications/Netsync
4	Champlain Telephone Company	Champlain Telephone Company
5	Chautauqua & Erie Telephone Corporation	FairPoint Communications
6	Chazy & Westport Telephone Corporation	Chazy & Westport Telephone Corp
7	Citizens Telephone Company of Hammond, NY	Citizens Telephone of Hammond
8	Crown Point Telephone Corporation	Crown Point Telephone Corporation
9	Delhi Telephone Company	Delhi Telephone
10	Deposit Telephone Company, Inc.	TDS Telecom
11	DFT Local Service Corporation	DFT Communications/Netsync
12	Dunkirk and Fredonia Telephone Company	DFT Communications/Netsync
13	Edwards Telephone Company, Inc.	TDS Telecom
14	Empire Telephone Corp.	Empire Telephone Corp.
15	Fishers Island Telephone Corporation	Fishers Island Telephone Corp
16	Frontier Communications Corporation	Frontier Communications
17	GTel Teleconnections	GTel Teleconnections
18	Hancock Telephone Company	Hancock Telephone
19	Hometown Online Inc.	WVT Communications
20	Margaretville Telephone Co Inc	Margaretville Telephone
21	MegaPath Corporation	MegaPath
22	Newport Telephone Company, Inc.	Newport Telephone
23	Nicholville Telephone Company, Inc.	Nicholville Telephone
24	Oneida County Rural Telephone Co.	Oneida County Rural Telephone
25	Ontario Telephone Company Inc.	Ontario Telephone Company
26	Oriskany Falls Telephone Corp	TDS Telecom
27	Pattersonville Telephone Company	Pattersonville Telephone
28	Port Byron Telephone Company	TDS Telecom
29	Primelink, Inc.	Primelink
30	State Telephone Company, Inc.	State Telephone
31	Taconic Telephone Corporation	FairPoint Communications
32	The Middleburgh Telephone Co	The Middleburgh Telephone Company
33	Township Telephone Company, Inc.	TDS Telecom
34	Trumansburg Telephone Company, Inc.	Trumansburg Telephone
35	Verizon New York Inc.	Verizon New York
36	Vernon Telephone Company, Inc.	TDS Telecom
37	Westelcom Network	Westelcom Network
38	Windstream Corporation	Windstream

	Fiber Providers		
	Provider Name	DBA Name	Business Only
1	Cable Communications of Willsboro, Inc.	Cable Communications of Willsboro	
2	Cablevision Lightpath, Inc.	Cablevision/Lightpath	*
3	Castle Cable TV, Inc.	Castle Cable TV	
4	Chazy & Westport Telephone Corporation	Chazy & Westport Telephone Corp	
5	Cogent Communications Group	Cogent Communications	*
6	Crown Point Network Technologies, Inc.	Bridge Point Communication	
7	Delhi Telephone Company	Delhi Telephone	
8	DFT Local Service Corporation	DFT Communications/Netsync	
9	Empire Telephone Corp.	Empire Telephone Corp.	
10	Fiber Technologies Networks, L.L.C.	Fiber Technologies Networks	*
11	Finger Lakes Technologies Group	Finger Lakes Technologies Group	*
12	GTel Teleconnections	GTel Teleconnections	
13	Keene Valley Video, Inc.	Keene Valley Video	
14	Level 3 Communications, LLC	Level 3 Communications	*
15	Light Tower Fiber LLC	Lightower	*
16	Mid-Hudson Cablevision, Inc.	Mid-Hudson Cablevision	*
17	Northland Networks	Northland Communications	*
18	Primelink, Inc.	Primelink	
19	Slic Network Solutions, Inc.	Slic Network Solutions	
20	State Telephone Company, Inc.	State Telephone	
21	Stealth Communications	Stealth Communications	*
22	Tata Communications (America) Inc.	Tata Communications	*
23	TVC Albany, Inc.	TechValley Communications	*
24	tw telecom of new york l.p.	tw telecom	*
25	Verizon New York Inc.	Verizon New York	
26	Westelcom Network	Westelcom Network	

	Fixed Wireless Providers		
	Provider Name	DBA Name	*NO DATA
1	Call Rich, Inc.	CNY Wireless	
2	Clarity Connect, Inc.	Clarity Connect	
3	Fishers Island Telephone Corporation	Fishers Island Telephone Corp	
4	GlobalNet Internet Services	GlobalNet	
5	Hudson Valley Wireless	Hudson Valley Wireless	
6	Mid-Hudson Data Corp.	NYAir	
7	Mountain Wireless, LLC	Mountain WISP	
8	Plexicomm, LLC	Plexicomm	
9	Southern Tier Wireless	Southern Tier Wireless	
10	Tivcorp, Inc.	Webjogger Internet Services	
11	TVC Albany, Inc.	TechValley Communications	
12	Xchange Telecom Corp.	Xchange Telecom	
13	Logical Net Corporation	Logical Net	*
14	New Horizons Wireless, Inc.	New Horizons Wireless, Inc.	*
15	Rainbow Broadband	Rainbow Broadband	*
16	Simtronics	Airxcess Broadband Services	*
17	Lightlink	Lightlink	*
18	Metro PCS	Metro PCS	*
19	RidgeviewTel LLC	RidgeviewTel/Premier Wireless	*
20	Wireless LLC	WINC Communications	*
21	WNYNet, Inc.	WNYNet	*
22	New Visions Communications	New Visions Communications	*
23	American WiFi	American WiFi	*
24	Fire Island Wireless	Fire Island Wireless	*
25	Jet Web, Inc.	JetWeb	*

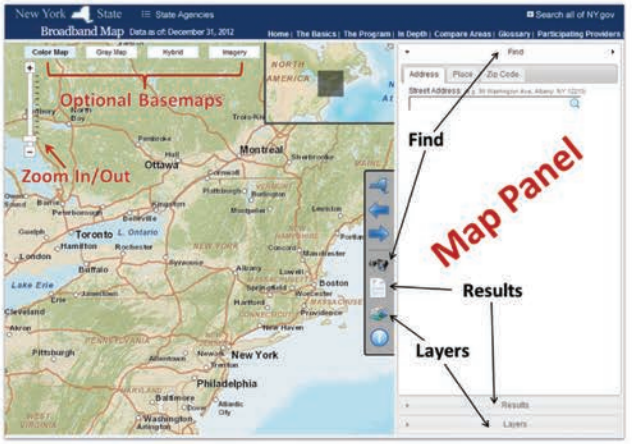
	Mobile Wireless Providers	
	Provider Name	DBA Name
1	AT&T Mobility LLC	AT&T Mobility
2	Cellco Partnership	Verizon Wireless
3	Clearwire Corporation	Clearwire
4	Leap Wireless International, Inc.	Cricket Communications, Inc.
5	Sprint Nextel Corporation	Sprint
6	T-Mobile USA, Inc.	T-Mobile USA

New York State Broadband Map

QUICK REFERENCE GUIDE

www.broadbandmap.ny.gov

Map Page Navigation

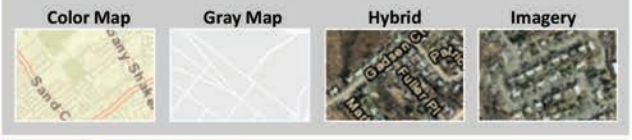


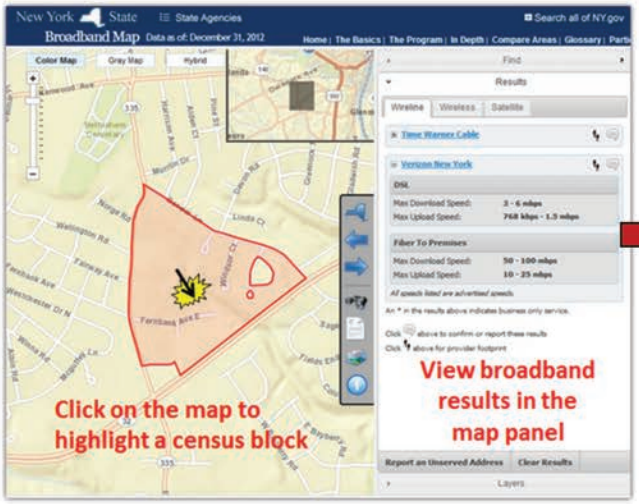
Map Panel	Features
Find	Search for broadband availability by Address, Place, or Zip code
Results	View broadband availability results
Layers	Map layers depicting provider footprints, service technology, speeds, and more!

Mouse & Keyboard Navigation Options:

- Use the mouse scroll wheel to zoom in and out
- Double-click to zoom in
- Pan using the arrow keys on the keyboard
- Press the + key to zoom in, press the - key to zoom out
- Hold Shift, click and drag a box around an area to zoom in

Optional Basemaps





Map Tools

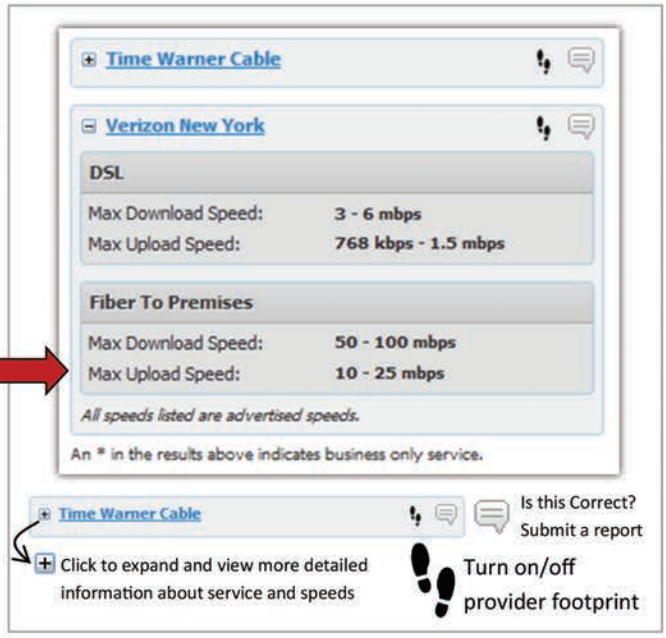
- Return to a view of the full New York State map
- Return to the previous map view
- Return to a more recently selected map view
- Open the Find tool to search by Address, Place or Zip Code
- Open the "Results for Selected Block" inset
- Open the Map Layers inset
- Turn Info Tool on/off

Map Layers

Service Technology	Service Levels
Fiber	No Service at 6 mbps down, 1.5 mbps up
Cable	< 6 mbps download, 1.5 mbps upload
DSL	≥ 6 mbps download, 1.5 mbps upload
Fixed Wireless	≥ 10 mbps download, 3 mbps upload
2G/3G Mobile Wireless	≥ 25 mbps download, 10 mbps upload
4G Mobile Wireless	≥ 50 mbps download, 10 mbps upload
Uninhabited Areas	≥ 100 mbps download, 10 mbps upload

- Unserved Wireline Reports
- Unserved Wireless Reports
- Speed Test Locations

MORE LAYERS: Provider Footprints, State Funded Projects, Broadband Adoption, Population Density, And More!

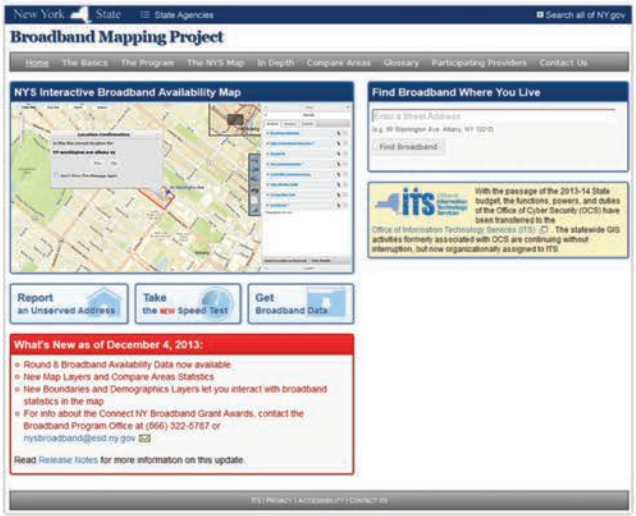


New York State Broadband Map

QUICK REFERENCE GUIDE

www.broadbandmap.ny.gov

Home Page Overview



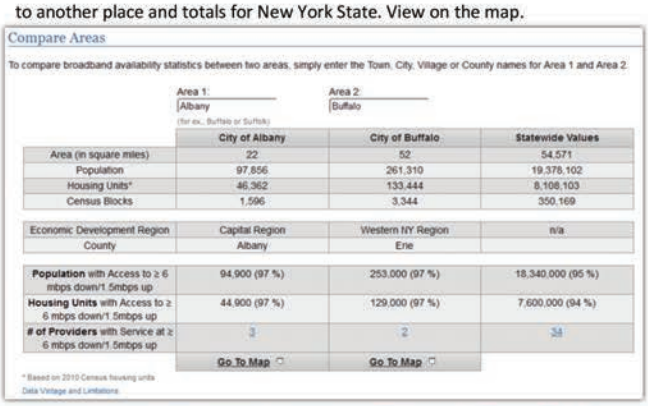
Section	Features
NYS Interactive Broadband Availability Map	Provides a map and tools to explore broadband availability
Find Broadband Where You Live	Allows users to enter an address and get broadband information
Report an Unserved Address	Report an address where there is no broadband service available
Take the New Speed Test	Take a broadband speed test
Get Broadband Data	Information on how to download map layers and links to map services
What's New	General information including new data and functionality announcements
The Basics/The Program/ In Depth	Learn about the Broadband Mapping Program, broadband technologies, and much more!
Compare Areas	Interactive tool to compare broadband availability in places within New York State
Glossary	Words and common abbreviations used in the broadband industry
Participating Providers	Broadband providers who are participating in the program and give data to support the map

Contact Information

GIS Program Office
NYS Office of Information Technology Services
Phone: (518) 242-5177
Email: nysbroadbandmapping@its.ny.gov

Compare Areas

Type in the name of a City, Town, Village, Tribal Community, County, or Economic Development Region to view broadband availability statistics. Compare to another place and totals for New York State. View on the map.



Compare Areas

To compare broadband availability statistics between two areas, simply enter the Town, City, Village or County names for Area 1 and Area 2.

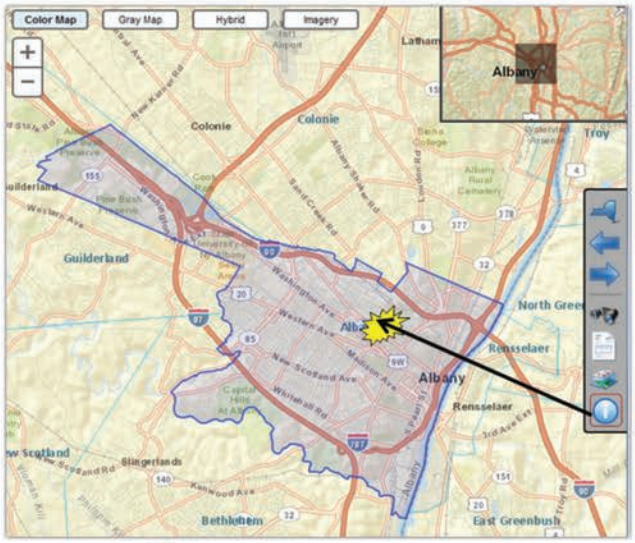
Area 1: Albany (for ex., Buffalo or Suffolk)
Area 2: Buffalo

	City of Albany	City of Buffalo	Statewide Values
Area (in square miles)	22	52	54,571
Population	97,856	261,310	19,378,102
Housing Units*	46,362	133,444	8,108,103
Census Blocks	1,596	3,344	350,169

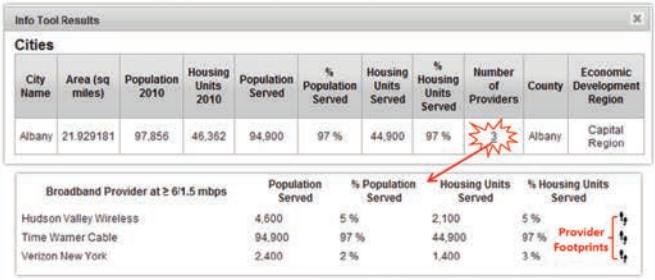
Economic Development Region	Capital Region	Western NY Region	n/a
County	Albany	Erie	

Population with Access to ≥ 6 mbps down/1.5mbps up	94,900 (97 %)	253,000 (97 %)	18,340,000 (95 %)
Housing Units with Access to ≥ 6 mbps down/1.5mbps up	44,900 (97 %)	129,000 (97 %)	7,600,000 (94 %)
# of Providers with Service at ≥ 6 mbps down/1.5mbps up	3	2	34
	Go To Map	Go To Map	

* Based on 2010 Census housing units
Data Vintage and Limitations



Use the Info tool in the map to click and get place-level information as well



Info Tool Results

Cities

City Name	Area (sq miles)	Population 2010	Housing Units 2010	Population Served	% Population Served	Housing Units Served	% Housing Units Served	Number of Providers	County	Economic Development Region
Albany	21.929181	97,856	46,362	94,900	97 %	44,900	97 %	3	Albany	Capital Region

Broadband Provider at ≥ 6/1.5 mbps	Population Served	% Population Served	Housing Units Served	% Housing Units Served
Hudson Valley Wireless	4,600	5 %	2,100	5 %
Time Warner Cable	94,900	97 %	44,900	97 %
Verizon New York	2,400	2 %	1,400	3 %

Provider Footprints

www.nysbroadband.ny.gov
Phone: (866) 322-5787
Email: nysbroadband@esd.ny.gov

625 Broadway
8th Floor
Albany, NY 12245

A Division of Empire State Development