



Delaware Broadband Expansion: A Public-Private Partnership

Category: Cross-Boundary Collaboration and Partnerships
Contact: Mike Hojncki, Chief of Policy and Communications
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Executive Summary

The Delaware Department of Technology & Information (DTI) worked with the Delaware Department of State/Delaware Public Service Commission, and the Delaware Department of Economic Development Office to develop legislation that created the Delaware Broadband Fund. The purpose of the fund was to support and enhance broadband services in the state's public schools, public libraries, and rural broadband initiatives in unserved and underserved areas of the state.

DTI developed legislation to create the Delaware broadband fund and educate state leadership on the importance of expanding broadband services to underserved communities. In June 2013, Governor Jack Markell signed House Bill 96 into law establishing the Delaware Broadband Fund. Telecommunication providers were required to make contributions into the Broadband Fund by continuing the collection of fees and making payments directly into the fund. Together with matching state grants, the fund grew to \$2.5 million. The state incentivized providers by awarding \$1 million in funds to expand broadband in all three of Delaware's counties New Castle, Kent, and Sussex.

Great strides have been made to improve broadband services in Delaware's underserved counties (Kent and Sussex) serving to break down the barriers of time and distance and make communications possible regardless of logistical constraints. Expansion is allowing rural businesses to compete against their counterparts in more populated regions and is providing economic and social advantages to citizens.

The public-private partnership of stakeholders, grants, and privately invested capital has made the fiber backbone to the most rural areas of Delaware a reality. Throughout expansion activities, DTI took action to promote public-private partnerships by working with the University of Delaware, Comcast, Verizon, Lightower (formerly FiberTech), and other private service providers, as well as state and local government partners.

Strategic efforts included the leveraging of e-Rate Funding for schools and Libraries under the direction of the Federal Communications Commission (FCC); amendments to Delaware code related to the jurisdiction of the Public Service Commission and Public Utilities providing telecommunication services; and the education and outreach to counties, municipalities, the general assembly, business community, and citizens to highlight the importance and availability of broadband connectivity.

The grant was awarded to Lightower, enabling the public-private partnership to secure contracts resulting in over 300 miles of fiber infrastructure and services to be installed. Initially services were extended with 100 miles of fiber, north to south, from Wilmington in New Castle County through Kent County and into Georgetown in Sussex County. A second segment was installed to traverse the largest area of Sussex County, east to west, going from Lewes to Seaford. Without this grant it would have taken a decade or more for the state to expand services into these areas. The department's hard work has paid off and a solid foundation is in place for the State of Delaware to continue the expansion of services.

Business Problem and Solution Description

The Problem

There are three counties in Delaware with the two largest geographic areas being in Kent and Sussex Counties. These two counties have the most rural and underserved areas in Delaware. When available, broadband services in these areas were often cost prohibitive, such as the expensive 3G/4G services limited data plan.

The Pew Internet & American Life Project has found that rural residents are much less likely to subscribe to broadband than their urban counterparts. A study by Connected Nation finds that 19% of rural residents say they do not subscribe to broadband because it is not available in their area. Equally challenging is that many residents are not aware of the enormous benefits provided to them by high-speed internet. Nearly half of rural residents without a home broadband connection say it is because they do not need it. Cost can also present a problem for both providers and residents, as 22% of rural residents say they do not subscribe to broadband because it is too expensive. Infrastructure investment in sparsely populated rural area is often seen as unsustainable by telecommunication companies.

Rural area citizens and businesses are not afforded the benefit examples shown below:

- Expansion of local markets to reach across the nation and even the world
- Opportunities for direct access to education and health care for rural residents who are otherwise forced to travel long distances for college courses and medical treatment
- The resurgence of community interest and participation in rural libraries through the availability of high-speed internet to access global information and cultural resources
- The ability for historically urban businesses like graphic and website design, and other creative industries to compete in rural settings
- The ability for agriculture industry to gain real time access to vital information such as crop prices or weather forecasts, and marketing opportunities through high-speed networks

The Solution

To address the problem project goals were identified:

- Focus efforts to expand high-speed internet infrastructure to unserved and underserved rural communities.
- Support initiatives to keep the price of high-speed internet in underserved rural communities affordable.
- Target communities with low adoption rates to increase public awareness about the importance of high-speed internet.

Delaware was determined to achieve these goals through public-private partnerships as a means of leveraging available funding against the growing need to provide broadband access to the rural counties of Delaware. These partnerships brought together the best of both worlds. When you hear about Delaware ranking first in the nation and third in the world for broadband

services, what they are referencing is the result of these broadband efforts between state government, telecommunication providers, and local governments working together.

Achieving the goals demanded creative ideas to address funding, infrastructure and resources in a timely manner. The first step was to develop a funding mechanism. DTI, in conjunction with the Delaware Department of State (DOS), created legislation that established the Broadband Fund. House Bill 96 was signed into law in June 2013, and with the service providers agreement, allowed for a three year extension of a service charge to telecommunication providers that was originally due to expire. Funds from the service charge were appropriated to the Broadband Fund.

The second step required DTI to work with the Delaware Office of Management and Budget, the Delaware Department of Economic Development Office (DEDO) and the Delaware Department of Transportation (DelDOT) to issue a competitive grant. Through the grant process, a vendor was selected to develop the infrastructure and lay fiber across the length and width of the two lower underserved counties of Kent and Sussex. Vendors capable of providing access to dark fiber and some lit fiber services were evaluated for capability, past performance, and contract and service level agreement options.

DTI leveraged a State economic development grant along with funding from the Delaware Broadband Grant fund to award Lighttower Fiber Networks with more than \$1 million. The State funding and a \$2.1 million investment from Lighttower, allowed the fiber expansion to be realized throughout Kent and Sussex Counties. The Delaware Broadband Grant Fund also provided \$300,000 to purchase computers and mobile devices for public libraries through the DOS/Delaware Division of Libraries (DDL).

DTI is responsible for administration of the Broadband Funds and the outcomes are measured through annual updates from service providers as to the continued investments by private sector parties delivering services. DTI, DEDO, DOS, DDL, and private sector partners meet on a regular basis to continue strategizing on how best to meet the needs of citizens and businesses of Delaware.

To prepare for the fiber expansion, DTI's Engineering and Telecommunications team mapped each school location in relation to identified fiber points. The first priority was to provide high speed service options to the Georgetown area. Grant funding would connect the most competitive fiber termination to the DelDOT/Division of Motor Vehicles (DMV) southern District. Once completed, service in Sussex County was immediately leveraged by businesses and local governments and expanded to all the local schools. The fiber was also extended to other carriers and internet providers to expand broadband options for residential areas.

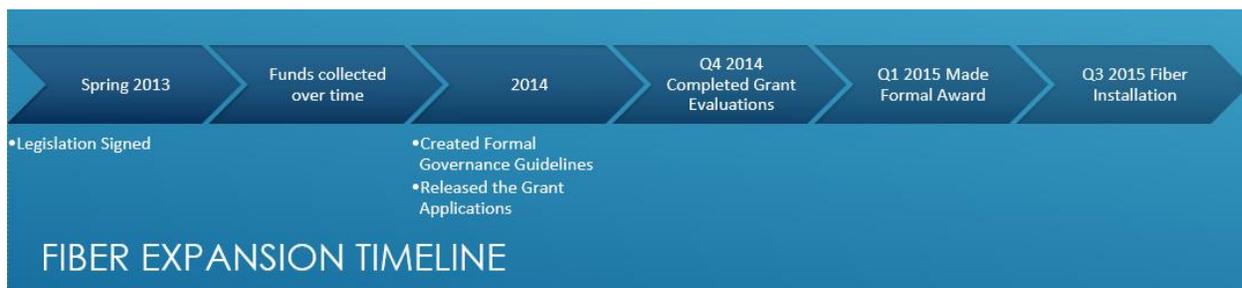
The Georgetown, Delaware, location was selected for several reasons:

1. To leverage newly constructed fiber infrastructure reaching from the northern, urban part of the state, to the southern rural area including the town of Georgetown where the hub was established. DTI and DEDO leveraged the New Jobs Infrastructure Fund, awarded by

Information Protection and Recovery Company (IPR) International, to incentivize this critical initial fiber connection.

2. To enhance services to the identified high-bandwidth consumers within five miles of the Georgetown hub. These consumers were identified as: DeIDOT; Georgetown State Service Center; Georgetown Public Library; Chancery Court/Superior Court; University of Delaware Southern Campus; Delaware Technical & Community College; Delaware State University Southern Campus; Department of Corrections, Sussex Correctional Institution; Department of Health and Social Services' Stockley Center; Beebe Health Center; The International School; Peninsula Regional Medical Center (PRMC) Health Care Group; and various farms and agricultural businesses.
3. To provide for Public Safety System redundancy by connecting the 800MHz tower in Georgetown back to the northern locations.
4. To establish net-neutral fiber in the Georgetown area. Net-neutral fiber restricts the cable and telecommunication provider's ability to selectively alter Internet connectivity speeds.
5. To allow the SOD to continue to compete and maintain a high ranking status as one of the top states in broadband coverage and speed by building out to our underserved areas in the lower portion of the state.

Although the initial costs for fiber construction can be high, DTI realized that the potential capacity with fiber is, in effect, unlimited. Further, the recurring costs of capacity increases are significantly reduced. Meeting the internet needs of schools and local organizations is no longer affordable through leased services alone. DTI utilized \$2.2 million of the revenue from the Broadband Fund to complete this effort and provide connection from the Georgetown hub to the impacted public schools, including the last mile connections.



Significance and Benefits of the Project

The installation of the fiber connections is in many ways like building a “superhighway” in Delaware that will allow future phases to build “off ramps”. Delaware’s broadband expansion lays the groundwork and the base infrastructure to address exponentially more needs. One preexisting cable can carry the equivalent of hundreds of phone lines compared to the new fiber that can carry the equivalent of hundreds of thousands of phone lines.

The importance of expanding broadband services into unserved or underserved communities cannot be overstated when it comes to providing what is considered to be a critical “public utility” to State of Delaware employees, citizens, and businesses. Many governmental agencies

are making content and services available to citizens online; encouraging or requiring that documents be submitted online. Delaware agencies are providing mobile websites and applications which allow citizens access to agencies such as Motor Vehicles, Transportation, State Parks, Polling Places, and even recycling information from multiple devices using multiple platforms. Subscription and notification services are delivering content to users anywhere they are, based on user preferences. The prevalence of connected devices, cloud based services and high bandwidth applications will continue to drive the demand for internet capacity and accessibility.

Expanding and improving broadband access in the state is a priority for Governor Markell and DTI because of the positive impact on education, economic development, and the quality of life for the citizens of Delaware. In addition to the significant improvements to the operations of state government by extending services and information to all segments of Delaware citizens and businesses, Governor Markell recognizes that “Lives have been transformed through the internet in a short time, across every part of society; the internet has had an impact.” While broadband services used to be a luxury, in today’s world it’s become a necessary service similar to public utilities. The new fiber-optic services, as a result of the collaborative Broadband partnership, is enabling internet service providers to offer new services to citizens and businesses, like Beebe Healthcare, Nanticoke Health Services, Sussex County Offices, education facilities, and the many farms/agricultural industries located in rural communities.

While fiber construction is an expense, an example of reductions in costs is shown in the costs savings realized by state agencies in the Wilmington, Delaware area. Six state facilities moved to fiber once the fiber hub was installed and the combined agency monthly subscription costs for those agencies dropped from \$8,400 to \$2,600 (70% savings). This allowed the state to realize nearly \$83,000 per year in savings for those six agencies alone. Additionally, the utilization of the fiber ring provided the connectivity required for FirstNet (First Responder Network), NextGen 911 (Nationwide 911 Emergency System), 800MHz (Emergency Radio Tower) upgrades, and the DelDOT backbone.

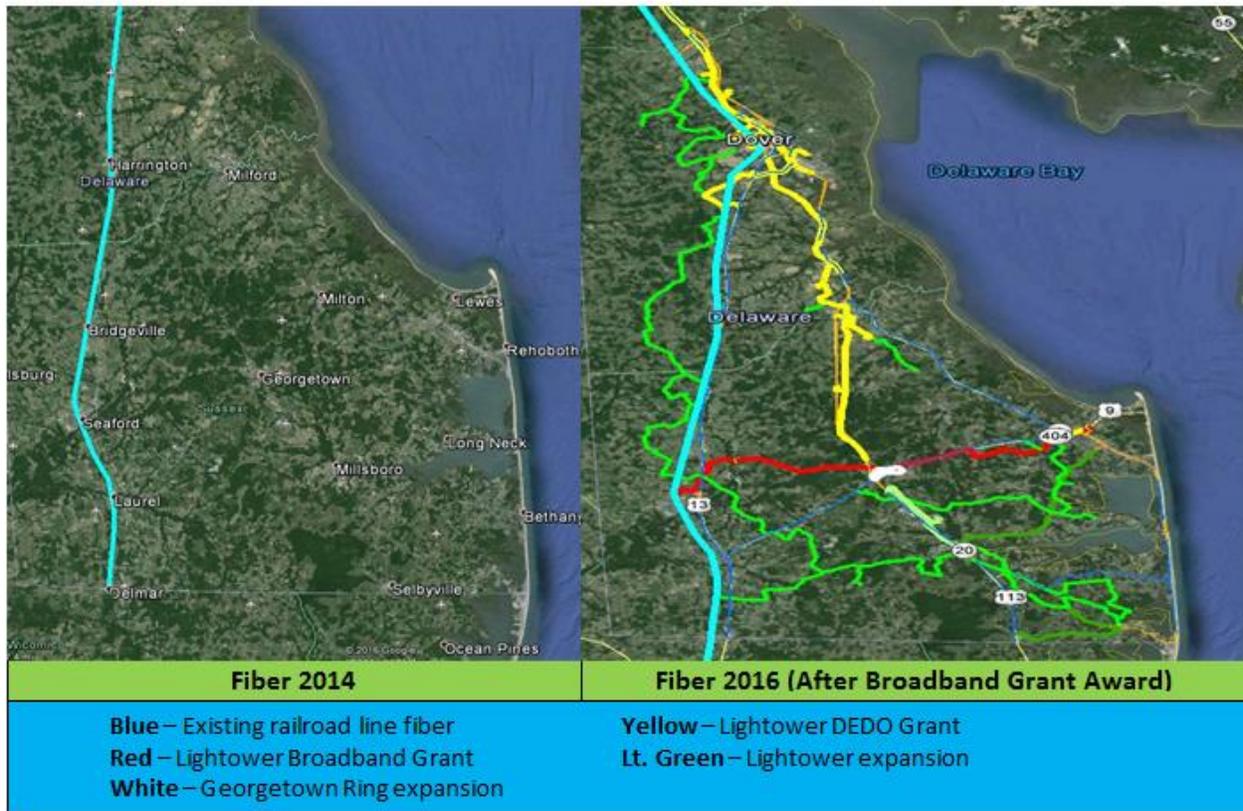
Other highlights on the significance and benefits of broadband expansion include:

- **TELEMEDICINE and TELEHEALTH** - Telemedicine provides Delawareans the opportunity to get advanced medical care in rural areas. Broadband provides healthcare organizations, such as La Red, access to electronic medical records and other information and services that can save lives and make the delivery of healthcare more cost effective. Additionally, the newly constructed broadband backbone is at the core of services provided at the Delaware Social Services’ Stockley Campus, a 700 acre facility.
- **BURRIS LOGISTICS** - Donnie Burris, the CEO of Burris Logistics said that connecting the company data centers was critical to their success. Burris has 17 data centers in the country. These data centers need quality connections back to the home base in southern Delaware in order to communicate logistics so that customers receive the deliveries they are expecting. Burris operates 24 hours a day, seven days a week, 365 days a year.
- **SMALL BUSINESS** - Mayor Bryan Shupe, (Milford, Delaware) said that the new broadband connection is not only beneficial for large businesses, but high-speed internet connections

are critical for small businesses as well. “My wife and I own three small businesses in Milford. We could not operate any of them without technology. With this network, we will see significant business growth.”

According to the University of Delaware, there are 1,795 square miles of land mass in Kent and Sussex counties that are considered rural areas. In four years’ time Delaware has seen 354 miles of broadband fiber installed. This equates to 34% of the rural areas of the two counties in Delaware having fiber available to state and public sectors. The impact locally has resulted in life-changing advancement for citizens and economic growth in southern Delaware.

Below are maps that show the before and after of broadband expansion the lower counties.



Delaware is proud to lead the nation in providing broadband services. In the first quarter (Q1) of 2015, the Akamai State of the Internet Report showed that Delaware saw an increase of 42% yearly growth rate. Delaware led the nation in annual increases in average peak connection speeds with a 65% increase at 85.6 Mbps.

The implementation of incentivizing our providers has successfully provided the impetus to grow rural businesses and to implement additional initiatives that will continue expansion and bring competitive growth to rural Delaware. By establishing the public-private partnerships, DTI accomplished this in a matter of three years instead of a decade or more.