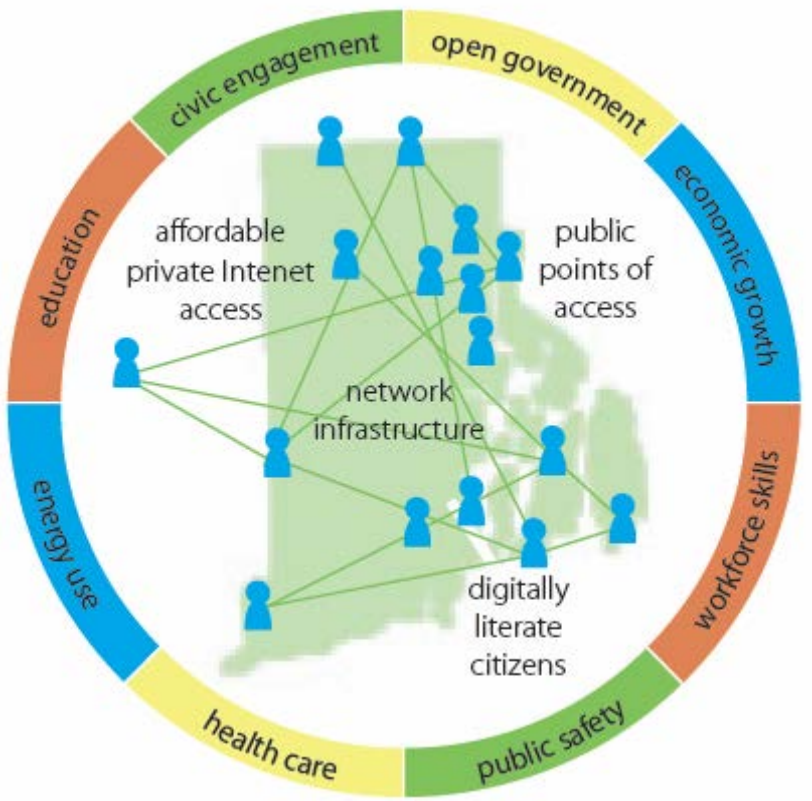
Special Legislative Commission to Study Broadband Services and Accessibility in the State of Rhode Island

Final Report

Report Submitted to the Rhode Island General Assembly

June 2015



Senator Juan Pichardo

Co-Chair

Representative Deborah Ruggiero

Co-Chair

Introduction

In today's global economy, broadband, or high-speed Internet, is an essential infrastructure asset for social inclusion, economic competitiveness, and sustainability Policy makers around the world have recognized this and are working to close the digital divide by promoting access to high-speed broadband infrastructure, universal adoption of the technology across all segments of society, and increased utilization across key strategic sectors, such as education, healthcare, and the provision of government services. Broadband is the great infrastructure challenge of our time, and ensuring universal access, adoption, and utilization is essential to maintain a vibrant and competitive economy and society. In many ways it truly is the "Great Equalizer".

Commission Formation:

Understanding the opportunities the technology presented, the House and Senate enacted Joint Resolutions 2014 S-2827-A and 2014 H-8136-A on June 20, 2014, establishing the Special Legislative Commission to Broadband Service and Accessibility ("the Commission") was formed in 2014 with the following key objectives:

1) **Identify the current level of broadband service state-wide**
2) **Analyze the policies and actions necessary to eliminate obstacles to the investment in and the identification of areas in the state that currently lack the infrastructure necessary to support broadband service**
3) **Identify and address the digital gap in both the minority and rural communities,**
4) **Explore opportunities for potential public/private sector partnerships,**
5) **Evaluate the various strategies, financing methods, and financial incentives used in other states and countries to support deployment of high-speed broadband,**
6) **Review the security, vulnerability, and redundancy actions necessary to ensure the reliability of high-speed broadband**
7) **Explore the economic development opportunities made possible by the wide dissemination of high-speed broadband,**
8) **Examine how access to high-speed broadband can benefit educational institutions, community based organizations, and government institutions, and**
9) **Assess the current public centers for broadband access as well as potential future plans to enhance access to underserved communities throughout the state.**

It consists of 14 members, eight of whom are members of the General Assembly; the remaining members were the Commissioner of Elementary and Secondary Education, Chairperson of the Rhode Island Public Utilities Commission, Executive director of the Rhode Island Commerce Corporation, Director of the Rhode Island Emergency Management Agency, Director of the Rhode island Department of Health, Chief Information Officer of The Rhode Island Division of Information Technology or their designees.

2014 - 2015 Broadband Commission Members:

Senator Juan Pichardo Co-Chair	**Representative Deborah Ruggiero Co-Chair**
Senator Louis DiPalma	Representative Marvin Abney
Senator Cynthia Coyne	Representative Shelby Maldonado
Senator Nicholas Kettle	Representative Dan Reilly
Stuart Freiman RI Commerce Corporation	Thomas Guertin RI Office of Digital Excellency
Cynthia Brown, RI Department of Education	Peter Gaynor RI Emergency Management Agency
Thomas Kogut RI Division of Public Utilities & Carriers	Leonard Green RI Department of Health

Over the past year, the Broadband Commission held six (6) meetings spanning over 12 hours of testimony. The Commission received written and oral testimony from 19 people from varying organizations, agencies, and businesses identifying numerous opportunities, concerns, and recommendations relative to the Broadband Industry in Rhode Island.

Throughout the hearings, participants expressed certain common factors regarding Rhode Island's broadband infrastructure, performance metrics, access, utilization, and coordination, along with opportunities for job growth, infrastructure investment and maintenance. One universal recommendation that stood out among the rest was the need for enhanced coordination and greater cooperation among all governmental and non-governmental broadband stake holders.

FINDINGS

Driven by their legislative objectives, key topics of discussion included:

1. Identifying the current level of broadband service state-wide:

Rhode Islanders enjoy broadband service through cable providers (Cox Communication, Verizon, and Full Channel), the OSHEAN network and private sector fiber services. Extensive wireless capabilities are additionally supplemented by satellite broadband services.

Through a $21 million federal grant, the OSHEAN network created approximately 475 miles of fiber broadband coverage in Rhode Island, a build that was completed in October 2013. Connection to the network is physically straight forward and, between non-profit BTOP network and for-profit providers, broadband fiber is fairly abundant in the state.

The coverage rate in Rhode Island for wireless, which would include new 4G/LTE coverage offered through various vendors, the coverage rate is presently at 100%. When looking at wired coverage, which would include cable or fiber, the coverage rate is presently 93%. Drop out zones were noted but rates of coverage were achieved by looking at census block by census block, and if a structure had a service provided on a particular block, the area was considered covered. The "un-covered" 7% refers to land coverage as opposed to population; analyzing the rate of coverage in terms of population raises the 7% a few percentage points.

According to the New Economy Index (which looks at Technology-type businesses), Rhode Island currently ranks at #11 in broadband coverage. Rhode Island previously ranked at #2, but that the drop was not necessarily an indication that Rhode Island was failing but rather that other states are improving at faster rates.

According to the National Broadband map, which was created by NTIA (the National Telecommunications and Information Administration) in collaboration with the FCC, Rhode Island ranked #1 in the following categories:

- % of Residents (99.4) with access to advertised download speeds > 25 Mbps
- % of Residents (100) with access to advertised upload speeds > 3 Mbps
- % of Residents (99.3) with access to advertised download speeds > 100 Mbps
- % of Residents (99.8) with access to multiple internet providers
- % of Residents (97.5) with access to optical carriers/fiber to the end user
- % of Residents (99.1) with DOCSIS 3.0 technology

2. <u>Analyzing the policies and actions necessary to eliminate obstacles to the investment in and the identification of areas in the state that currently lack the infrastructure necessary to support broadband service</u>:

Testimony established that two areas of the state are either lacking in broadband entirely or underserved in some form. Specifically, an area of northern Foster lacks broadband coverage for some 232 homes. The issue has come into sharper focus with the Ponaganset School District moving to a tablet based homework platform. Those students with no broadband in their homes have been accommodated by a school bus service to library facilities.

In addition, broadband issues on Aquidneck Island involve quality, performance and expandability of existing broadband coverage. Most residents on the island have access to wireline broadband through Cox Communications, and are currently without a second commercial wireline broadband provider option. For residents of Aquidneck Island, it is more about moving forward to remain current with present technology than an issue of coverage alone.

Testimony established that neither of the two major cable companies currently plan to expand their existing coverage to reach the referenced homes in Foster. In addition, Verizon representatives indicated that they had no current plans to expand their fiber network to Aquidneck Island. The Commission discussed the need for enhanced competition and public/private partnerships to drive, competition, innovation and bandwidth.

3. <u>Identifying and addressing the digital gap in both the minority and rural communities</u>:

In various presentations, the so-called "digital gap" was addressed and solutions offered to the problem. The Commission heard testimony that approximately 29% of all Rhode Islanders do not use the internet, and that the number is higher among both racial and ethnic minority and lower income communities. In addition, approximately 100,000 working age Rhode Islanders lack a high school credential, basic literacy and language skills, or both.

Presenters identified two of the main drivers that cause people to not use broadband services as affordability and relevance. Most every presenter and commission members noted that, as a society, we are getting to a point where relevancy is less an issue as the internet is nearly a requirement in most areas of life.

In 2012, Broadband Rhode Island (BBRI) published research that drew a direct connection between low literacy levels and low internet adoption, in part because of low literacy levels are often tied to low income (i.e. less access to technology and the internet). As a way to increase internet adoption in 2013, the RI Department of Elementary and Secondary Education's Office of Adult Education required all adult education programs to utilize BBRI's Teaching Basic Digital Literacy Program. By 2015, all Adult Education programs offer basic digital literacy, and the Professional Development Center took on primary responsibility for BBRI curricula trainings to ensure sustainability of these efforts over time.

Additional efforts have been made through the efforts of RI Adult Education Professional Development Center (PDC) in Warwick. The PDC delivers high-quality, research-based professional development and technical assistance to Rhode Island's adult education programs and practitioners. Through its leadership and partnerships, the PDC seeks to support, enhance and promote the network of quality educational opportunities for RI's adult learners. It delivers over 5,000 professional development contact hours yearly to staff of the 34 RIDE-funded agencies (and others), including technology integration with standards-based curriculum. Additionally they established Professional Learning Communities across the state for implementing research- and evidence-based best practices delivers weekly newsletters and info e-blasts to the field and more importantly created RI Resource Hub to make information about adult education and online literacy & work supports available to the public (http://riresourcehub.org/)

Cox Communications recently established their *Connect2Compete* program to increase internet adoption in Rhode Island and to eradicate the digital divide. Recognizing that home internet is a critical part of a child's education and future – Cox has teamed with *Connect2Compete*, a nationally recognized nonprofit focused upon digital empowerment, to institute a program that brings fast, affordable internet service to households for $9.95 a month. Eligibility exists for all those who qualify for the federal school lunch program or Supplemental Nutrition Assistance Program (SNAP). Presently, 1,000 families participate in the program, one year after it launched.

Cox has worked with superintendents and is willing to work with elected officials in impacted communities. From there, they plan to engage an advertising program to get the word out to those who are eligible. Cox also provides technology labs at Boys & Girls Clubs with free internet.

The commission finds that Verizon is not offering a similar program at this time.

4. Exploring opportunities for potential public/private sector partnerships

Examples were gleaned of public-private partnerships to include: an effort in New York City to use repurposed old phone booths for wireless expansion which resulted in a large economic boon; Google's efforts in Utah to build out a 1G system after support bonds failed; Venture capitalists investments in the Kansas City area caused an economic upturn after Google Fiber took shape.

As it relates specifically to deployment, it was noted that Rhode Island's compact and population dense characteristics have provided the basis of strong competition in telecommunications, cable television and internet services. Other states, including other New England states, have population centers that are relatively isolated. The incentive and deployment models designed to address this issue would not likely translate well into a Rhode Island solution.

During testimony from OSHEAN, potential public/private partnerships were discussed to include the group Wide Open Aquidneck, a private organization with a goal to bring broadband to all on the island at very inexpensive rate. Either a private organization or a for-profit business could go through OSHEAN to offer a broadband service by building "on top of" the existing OSHEAN network and charging for that service. The concept of "dark fiber" was explained as strands existing OSHEAN network that can be shared with entities that have the intent to deliver fiber optic/high speed internet to business and residences in a geographic location. OSHEAN can be the "middle mile provider" to a private organization like Wide Open Aquidneck.

5. Evaluating the various strategies, financing methods, and financial incentives used in other states and countries to support deployment of high-speed broadband

The Commission heard various strategies and financing methods utilized across the country to address broadband deployment. Those efforts include:

- **Connecticut**: via the NTIA State Broadband Data & Development Grant Program and the Connecticut Broadband Internet Coordinating Council which focused upon monitoring trends & developments in the efforts to develop a state-wide, world-class communications infrastructure.

- **Massachusetts**: via their Broadband Institute under Massachusetts Technology Collaborative, funded by $40 million in state authorized bond for infrastructure (fiber-optic cable, wireless and towers). The Commonwealth has a particular focus upon Veterans & Small Businesses. Massachusetts Broadband Institute's mission is to deliver high speed internet to all homes, business and schools. Finally, MassBroadband 123 enjoys a goal to have broadband all across the state with the state helping provide the "Middle mile" with private industry providing the "last mile" connectivity to users.

- **Vermont:** via $40 million in revenue bonds (per executive authority). It was noted, however, that the state needed the revenue structure to pay for these projects, as the private sector chose not to participate due to the low return on investment of the additional private capital needed.

- **Maine:** via a .25% surcharge on in-state retail communications services.

- **Colorado:** via the Colorado Broadband Data & Development Program established In the Governor's Office of Information Technology, funded in part by their NTIA Grant.

- **Florida:** via their grant development team along with an e-rate program to leverage funding opportunities.

- **Georgia:** via a grant from the US Commerce Department.

- **Texas:** via the Connected Nation Program. In addition, the Texas PUC plays a role in a similar capacity.

- **Utah:** via the Utah Broadband Advisory Council, which provides broadband updates and policy recommendations.

- **Wisconsin:** via NTIA Grant Money which went to the Wisconsin Public Service Commission via RFP.

6. <u>Reviewing the security, vulnerability, and redundancy actions necessary to ensure the reliability of high-speed broadband</u>,

The Commission discussed the institutional users' ability to maintain back-up servers at remote locations to help support system reliability. This ability to maintain back-up servers has been enhanced by their access to OSHEAN fiber connections.

Cyber security remains a concern for all users. Support for cyber-security measures is also a potential business growth opportunity for Rhode Island based computer technology companies.

Rhode Island does benefit from having two commercial wire line providers in all but one county (Newport), along with robust institutional and wireless networks.

7. Explore the economic development opportunities made possible by the wide dissemination of high-speed broadband

In addition to opportunities in cyber security services, presenters noted that Rhode Island's ability to maintain its positive competitive position in broadband service will help retain and expand many core business sectors already operating in the state. These sectors include, at a minimum, higher education, medicine, information technology services, insurance, financial services, defense contractors, retail service management, and high-tech manufacturing.

Already an existing area of economic strength for the Rhode Island, the Healthcare industry would continue to flourish with improved broadband state-wide. Presenters discussed Rhode Island's potential to lead the nation in advanced technology for healthcare delivery. The developing field of telemedicine was also identified a more than a "rural" application that could extend into many facets of nursing home care. Opportunities for grants via the Healthcare Connect Fund could facilitate chances for further economic growth.

Technological advances like the RI Resource Hub have utilized the internet to improve the lot of workers and prospective employers. The site coordinates state efforts, reduces rework and duplication, and better serves Rhode Islanders. The RI Resource Hub expands the reach of the workforce, higher education, and adult education systems in Rhode Island. The Hub embeds in any website, supports account integration and gives state agencies and other service providers a platform to promote their services to the adults who need them.

(8) Examine how access to high-speed broadband can benefit educational institutions, community based organizations, and government institutions

Various presenters from the education field identified the mounting challenges that face schools and students in an ever changing technological age. Schools are faced with growing data-intensive demands such as: blended learning strategies, anytime, anywhere learning and personalized instruction; 1:1 device initiatives; wide-spread use of technology within classrooms; on-line assessments; instructional management; evaluation and professional development and administrative functions. By 2020, the need for flexibility in where and when learning takes place will have substantially increased, and with it a dramatically greater need for increased bandwidth needs in order to keep pace with technology.

Public libraries are faced with growing demands as well. Across Rhode Island there are students, individuals and families in every community for whom public libraries provide their only access to technology. There are ever increasing needs by the community for extended student and adult opportunities such as applying for a job or posting a resume on the Department of Labor and Training's website in order to collect un-employment benefits. Additionally, adult educational programming occurs in over 20 community-based locations, to include in libraries, traditional schools and community facilities. As towns face difficult fiscal times, public libraries are constantly in fundraising mode in order to deliver the services needed by citizens. Coupled with increased need, both short term and longer term, bold steps are needed to continue meeting the broadband needs of our schools, libraries and community service providers.

Municipalities have substantially benefitted from broadband coverage in Rhode Island. OSHEAN maintains a Municipality Project with the cities and towns of Providence, Newport, Middletown, Portsmouth and Jamestown that offers (1) fiber infrastructure connectivity for towns' administration, police, fire, schools and libraries; (2) potential for town to town shared platforms; (3) a consistent disaster recovery model; (3) a direct "on net" secure fiber connectivity to State applications such as Voter Registration, RI State Police, Permitting, DMV, Public Safety; and (4) direct connectivity to the state Data Center in Warwick

In Providence alone, there are 39 Schools that now use OSHEAN as their internet provider. Along with Administrative offices, the contract with OSHEAN provides a significant cost savings to the City – from $200,000 to less than $40,000. The City is now entirely connected in the following buildings/departments: City Hall, Public Works, Communications and Dispatch, Administration and Roger Williams Park. The City is looking to expand in the Roger Williams park area, both in network offices but also in wireless connectivity for the public for the many events held there.

The City expects that its now flourishing network will move into the future in the following ways: (1) Public Safety interface to RILETS – this modification to the high Speed network will help to speed up outdated network on criminal record checks, license and registration look up. (2) Improved Wi-Fi to Roger Williams Park – a facility that has substantial need, and (3) Potential expansion of public access to Wi-Fi in Parks and Public spaces – would allow members of the public to freely access Wi-Fi in locations adjacent to city offices and buildings.

Providence reportedly has the capacity to host and co-locate shared services and applications for other municipalities. The City is in the planning stages on options to close the digital divide by offering

low/no cost broadband to residents in need. Finally the City hopes to leverage their existing infrastructure and internet services as the backbone for attracting businesses and economic development to the state.

9. <u>Assessing the current public centers for broadband access as well as potential future plans to enhance access to underserved communities throughout the state</u>.

Rhode Island maintains thirty-four Adult Education programs serving 5,587 adults and youth over age sixteen. These include the PDC (Professional Development Center), single classrooms etc. Some of these programs have two or more satellite locations. An existing area of need regarding public centers for broadband access is improving infrastructure, given the range of types and ages of buildings where adult education occurs.

Since 2004, RIDE funded adult education programs have reported an increase in positive student outcomes, both in terms of total number of positive outcomes and number of positive outcomes as a percentage of all students served.[1] Educational gains have increased steadily over the last ten years, from a low of less than 25%, ranking Rhode Island in the lowest quartile nationally, up to 51% in 2013-2014 ranking Rhode Island in the highest quartile nationally.[2] Not only are the results in the top quartile, but the state exceeded the federal targets in 2013-2014 and earned eligibility to apply for another WIA Incentive Grant Award.

The Commission learned that OSHEAN has reached out to the RI Foundation to better identify underserved populations, and has begun to work with Broadband RI in this area. However, OSHEAN acknowledged that there is much work to be done by their organization in this regard. As to urban municipalities that have received any benefit from OSHEAN, besides the cities and towns who have participated in the municipal project, only Westerly and Woonsocket were identified as potential additions.

[1] United Way Rhode Island 2015 *"Adult Education in Rhode Island, 2004-2015"*.
[2] 5/13/15 RIDE Adult Education Presentation to Broadband Commission page 3.

RECOMMENDATIONS:

The internet is a driver of innovation, improves efficiency, and thus contributes to growth and employment every place that it is available, accessible and utilized. Hence, the Commission was formed to study and formulate governmental policy recommendations that lead to enhanced economic competitiveness and improved quality of life for all of our citizens. .As was evidenced above, The Broadband Commission thoroughly examined the areas it was charged with studying and makes the following related findings and recommendations to the General Assembly:

1. Develop a Broadband Strategic Plan

The Commission's first recommendation is that the state develop a Broadband Strategic Plan ("BBSP"). States' best practices indicate that the Governor designate stakeholders similar to those executive departments that participated in the Special Legislative Commission to Study Broadband Service and Accessibility to develop the strategic plan. The BBSP should address both demand and supply-side challenges with focus upon increasing state-wide broadband access, adoption and utilization. Doing so will ensure that subsequent waves of investment in infrastructure deployment meet the increasing demand for broadband capacity by all citizens, businesses, government, and community anchor institutions. Particular focus should be placed upon universal adoption and penetration of broadband services either mobile or fixed, by all citizens, and businesses. Doing so increases utilization thus ensuring that all communities, particularly community anchor institutions such as schools, libraries, hospitals, and clinics are increasingly using broadband technology to pursue economic opportunity and sustainability, through improved government services, including educational, employment and e-Health resources. By focusing on both the supply, or infrastructure gap, and demand, or adoption and usage gap, the BBSP can accurately address the multiple causes of the digital divide in Rhode Island.

In short, the Broadband Strategic Plan is critical in helping our state achieve a twenty-first century infrastructure that will contribute to the revitalization of the Rhode Island economy, by offering new economic and social opportunities to all citizens regardless of where they live and work or what their education and income levels are.

2. Increase Broadband Adoption in Underserved Communities

In the United States, the U.S. Census Bureau, in collaboration with the National Telecommunications and Information Administration, found that broadband non-adopters are generally people of low-income, senior citizens, members of ethnic minorities, rural dwellers, people with disabilities, and/or people with less education.

The goal is not to have universal access per se, but rather to have citizens adopting and using this network and information technology for ever-more empowering and productive activities. The success of the digital age does not rest in more or better broadband "pipes" and should not be measured in terms of access bits, but rather in terms of number of adopters and scope and quality of usage of the technology. Some might question what should be the role of government to address barriers to broadband adoption across vulnerable populations. While market forces are effectively driving market growth in the sector across a large segment of the society, that growth does not reach all segments and regions. Broadband technology is today a key enabler of economic opportunity, social interaction, and is critical in supporting first responders during a disaster situation. Increasingly, communities and citizens that are left behind this empowering technology have to overcome ever-greater challenges to obtain economic independence and fully participate in the social discourse of our nation. Hence, it is in the interest of both private and public leaders to work together to overcome the barriers to IT and broadband technology among the most vulnerable.

While making broadband and related technologies affordable is fundamental to bridging the digital divide, cost alone is not the sole factor to explain, nor an adequate lever to address, the gap in home broadband adoption. Communities with a large percentage of non-adopters face multiple overlapping challenges to broadband use, from skill and language barriers, to provider access as well as public access points.

What else is driving non-adoption? Among low-income households, the lack of a home computer is the main barrier reported. However, overall, the largest barrier to broadband reported among non-adopters is the lack of relevance that broadband has in their lives, cited by nearly one-third of non-adopters.[3] In other words, their perceived benefits of broadband do not justify the monthly expense. In fact, regardless of household income, relevance as a barrier remains fairly consistent. Thus, addressing the adoption gap will include affordability solutions, as well as addressing computer access, ownership and relevancy issues.

[3] U.S. Department of Commerce (NTIA), 2011 *"Exploring the Digital Nation –Computer and Internet Use at Home."*

Ultimately, broadband adoption and utilization are not about owning a specific piece of technology or subscribing to a service but about providing individuals and communities with the tools to build assets, to participate in their communities, and to increase their economic, education and healthcare opportunities.

3. Enhance Broadband Funding for Schools, Libraries and other Community Anchor Institutions:

Public and private broadband stakeholders in Rhode Island should work collaboratively to reform the Rhode Island's Telecommunications and Education Access Fund (RITEAF) to support the deployment of broadband in underserved areas and ensure that the RITEAF remains funded and complements the E-Rate program. This can be accomplished when key stakeholders:

Undertake a study of potential revenue that can be derived form a $.05 monthly charge ($.60 year) on each wireless device enrolled on a wireless internet plan. The program would mirror the current $.26 monthly RITEAF program.

Consider amending RIGL §35-4-27 to exempt the RITEAF restricted receipt balances from indirect cost recovery, would shift an additional $133,000 annually from the state general fund toward the purchase of bandwidth.

Conceptually support the Rhode Island Department of Education's request for increased General Revenue targeted to support the purchase of bandwidth. In doing so also allow RIDE to negotiate bandwidth purchases for not only schools and libraries but also adult educational providers.

Explore the expansion of free library Wi-Fi range through boosting signal strength in underserved areas.

With respect to grant opportunities that can fund Broadband, the Commission recommends that there should be more cooperation between and within each state agency and municipalities. A centralized repository of information regarding grants should be widely shared and leveraged. For example: when grant information is shared/posted potential partners at Cox, Verizon, RI Foundation, state agencies, municipalities, private companies or non-profits can view the information in order to further to leverage or support the grant**.**

The private sector in partnership with public agencies including the DHS, BHDDH, the Department of Labor, Commerce Corporation, and DCYF should work to establish and market programs offering basic entry broadband service at discounted prices to the most vulnerable citizens in Rhode Island. One example would be to leverage Cox's "Connect to Compete" reduced rate broadband program while encouraging the establishment of new programs with other providers such a Verizon to offer basic entry broadband service at speeds greater than 5 mps at discounted prices to low-income citizens in Rhode Island.

4. Embrace Spectrum-wide Broadband Educational Opportunities

Expand public computing capacity, digital literacy, and workforce development programs leveraging existing community resources, support from national non-profit organizations, and public and private institutions such as our state's many colleges and universities.

Leverage Broadband Rhode Island's existing online digital literacy curricula across the educational spectrum.

Promote a collaborative effort across government agencies and private stakeholders to promote greater adult digital literacy outcomes.

Consider amending RIGL §39-1-61 to change terminology from "telecommunication lines" to "broadband" as future Federal E-rate funding reduces telecommunications funding by 20% in Fiscal 2016.

Investigate opportunities to include the adult learning organizations into statewide Requests for Proposals for the purchase of bandwidth and internet access at bid pricing under state purchasing Master Price Agreements and gather information as necessary to inform future decisions and opportunities related to technology, current bandwidth and access levels/needs and E-Rate training with a goal of identifying opportunities to improve services for adult learners.

Consider funding a study to: determine the potential benefits and expected cost/timeline associated with building out a high speed fiber data connection to every school building in the State. Based on the study results, consider designating a portion of future RITEAF funds toward the build out of fiber connections on a cost share basis between district E-Rate applications, district funds and RITEAF funds.

Consider, in future years, amending RIGL §39-1-61 to reduce the amount of the surcharge applicable to land lines only from $0.26 to $0.16 monthly as alternative funding accrues, which may necessitate a fiscal note.

5. Establish a "Broadband Coordinating Council" or a "Statewide Broadband Coordinator"

Due to the ubiquitous and cross-organization nature of broadband it is critical that some entity has statewide authority to develop and implement the state plan. Best practices indicate that the location of the entity is not as important as having the executive/ legislative authority to implement the strategic plan as well as assist state and municipal departments with broadband related issues.

6. Continue BBRI's broadband data collection efforts with specific focus on the following:

a. An inventory of statewide assets (at a city and town level) which identifies assets that are used or can be used to support or develop broadband infrastructure such as conduit, gas lines, poles, towers, telecom, SCADA, light poles, fiber, institutional networks, etc.
b. Neutral situational assessment of broadband assets and coverage in RI including the impact and opportunity of OSHEAN
c. Require carriers to report infrastructure and service upgrade plans as well as update broadband service data as reported on the National Broadband Map.

Ongoing collection and analysis of this data on broadband infrastructure availability, capacity, and competition will be critical in assessing progress in meeting the Broadband Strategic Plan's goals.
An effective and proactive broadband strategy needs to ensure the growth of broadband-enabled technology and solutions across key business sectors, in particular, the Education and Healthcare sectors.

These tasks could fall to the Coordinating Council, or RI Commerce or DPUC via legislation.

7. Healthcare:

A similar transformational process triggered by broadband is taking place in the healthcare service sector. Broadband-enabled applications such as online patient records, telemedicine, remote diagnosis, and real-time digital imagery are empowering healthcare service providers in ways that will directly impact the both the cost and quality of services for patients. All Rhode Island healthcare providers and patients should have access to broadband that meets the capacity, latency, and quality of service specifications necessary to utilize healthcare information technology and provide telemedicine services effectively. To ensure that this vision becomes a reality, healthcare providers need to have access to very fast broadband able to sustain two-way high-definition video imagery in real time.

The state should reinforce public-private partnerships to overcome governmental barriers to Health IT expansion while continuing to assist citizens in accessing Health Source RI via schools, libraries, and adult learning centers statewide.

8. Encourage E-Government Expansion:

Rhode Island should leverage the presence and value of its current E-Government services through enhanced funding and legislative guidance. The state has invested in developing online E-Government platforms that will provide to citizens, businesses, and other institutions access to government-related information and services. The digitalization of government-citizen transactions is important because it results in significant cost savings by lowering the cost of conducting business on both a state and local level. Just as importantly, the expansion of E-Government services across all levels of government will increase the value of the internet to all Rhode Island citizens and businesses, encouraging usage and access to the technology.

The legislative and executive branches, should work to ensure that government assets critical to the broadband market are effectively contributing to the expansion of the market in a fair and competitively neutral way. Government action should complement and not compete with its private sector partners.

In the near-term, the Commission does not recommend any major state initiated infrastructure investments because the industry and its' infrastructure are changing too rapidly to make such investments economically feasible.

9. Support Ongoing Funding of Broadband Based Public Safety Initiatives

Broadband can support the work of police, fire, EMS and disaster response personnel by bringing relevant information to first responders in the field and enhancing emergency event coordination. It improves situational awareness with real-time information; and assists in resource-deployment to improve response times and quality of service. For these benefits to be realized in Rhode Island there needs to be continued investment in resource sharing, integration of security hardware, systems architecture and software between emergency responders, hospitals and other service providers. These increasingly sophisticated applications also require high bandwidth. Another front-burner issue for public safety is a cyber security analysis of the State's infrastructure.

One notable example is at Rhode Island Emergency Management Agency (RIEMA) where the First Responder Network Authority (FirstNet) an independent authority within the National Telecommunications and Information Administration (NTIA) is working to provide emergency responders with the first nationwide, high-speed, wireless broadband network dedicated to public safety. Initially funded through a $750,000 grant from the NTIA, RIEMA has been working to document the location of public safety-related broadband infrastructure. RIEMA has implemented a program to document physical assets including their condition, hours for maintenance, cost, resources/materials required and other similar variables. This information is used to help track project costs and manage budgets in a way that the state heretofore was unable to do. Additional funding is expected to be available to support the build-out of FirstNet.

The Commission recommends that Rhode Island must continue to be engaged with the NTIA and FirstNet and be prepared to respond strategically to future funding opportunities.

10. Other Ideas:

Cities and towns should explore offering free "Main Street Wi-Fi" programs with private/public partnerships such as was done in New York City. Local governments see this as an amenity for businesses, consumers and tourists, and as a means to drive local economic growth. With such a plan, a neighborhood or business district can bring full broadband wireless access to approximately one square mile at extremely low cost usually around $100,000 including equipment and annual maintenance[4]

Consider legislation that will encourage: "Dig Once" policies for all future transportation and civil engineering construction projects so as to facilitate infrastructure development at lower cost. Dig Once programs facilitate the laying of necessary infrastructure, namely fiber and conduit, to expand broadband service. On the local level, Dig Once would work as follows: whenever there is street construction planned on locally owned roads and/or highways, the local government would inform all private providers in the area in an effort to coordinate the laying of fiber and conduit as part of the construction project. That is, once there is a plan for street construction, there would be a second plan to incorporate the laying of fiber and conduit before the construction begins: Plan twice, "Dig Once". In addition to reducing the cost of broadband deployment, the strategic investment in broadband infrastructure at the time of construction also reduces the damage and disruption to rights-of-way in the future.

[4] Carnegie Mellon University – Heinz College The Pittsburgh Wi-Fi Project The Hybrid Wi-Fi Model Framework October 2014

Consider the formation of a taskforce to evaluate pole attachment costs across the state and work to improve efficiency of pole attachment processes, establish low and uniform pole attachment rental rates and efficient processes to achieve this goal. Connecticut is the one state in the country that has fixed the extremely difficult issue of attaching wires to poles. Connecticut requires pole owners to obey a Single Pole Administrator, adhere to uniform pricing agreements, and act to make way for new wires in a set time.

CONCLUSION

All over the world, the Internet has become essential to our citizens, as well as for state and local economic growth. For our citizens, the internet is a unique information and education resource that can be a helpful tool that educates our citizens as well as provides upward economic mobility. For business, the internet has become an essential and irreplaceable tool for the conduct of commerce and development of relations with consumers. For government is an essential tool that connects citizens, provides transparency while concurrently reducing the cost of government. The internet is a driver of innovation, improves efficiency, and thus contributes to growth and employment every place that it is available, accessible and utilized.

Leaders across the world recognize the importance of broadband and information communications technology (ICT) as key drivers of economic opportunity, sustainability, and expansion. Today, high-speed Internet is transforming the way we conduct business in the private and public sectors, the way doctors interact with patients and other healthcare providers, the way teachers approach their students' learning experience, the way citizens communicate with friends, family, search for commercial deals, professional and training opportunities, or simply seek entertainment.

Ultimately to achieve these goals, we must broaden our outlook of what constitutes an effective broadband strategy. A broadband policy should strive to adapt to rapid technological innovation and address the multiple complexities needed for governmental transparency, economic viability and a digitally empowered citizenry.

This process will not happen overnight and will require legislative reforms, coordination, and constant adjustment across multiple agencies and functions of government in partnership with the private sector. As such, this Broadband Strategic Plan – the first one of its kind for Rhode Island – should be understood as the beginning of a dialogue and action plan, not the end.

It is for these multiple reasons that the Commission submits these recommendations.

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