

# UPPER DORCHESTER COUNTY

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## TECHNOLOGY ACTION PLAN

PREPARED BY **CONNECT SOUTH CAROLINA**  
AND THE  
**UPPER DORCHESTER COUNTY BROADBAND COMMITTEE**



NOVEMBER 2013



ACCESS



ADOPTION



USE

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## INTRODUCTION

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The purpose of this report is to summarize the community's assessment of local broadband access, adoption, and use, and to provide an action plan for broadband acceleration.

### Background

Deploying broadband infrastructure, services, and applications, as well as supporting the universal adoption and meaningful use of broadband, are challenging – but required – building blocks of a twenty-first century community. The success of a community has become dependent on how broadly and deeply the community adopts technology resources – this includes access to reliable high-speed networks, digital literacy of residents, and the use of online resources locally for business, government, and leisure. Due in large part to private investment and market-driven innovation, broadband in America has improved considerably in the last decade. More Americans are online at faster speeds than ever before.

Despite the progress, there are still critical problems that slow the progress of the access, adoption, and use of broadband. Connected Nation estimates that approximately 70 million, or 30% of, Americans do not subscribe to home broadband service, and adoption varies significantly across socioeconomic lines.<sup>1</sup> Connected Nation's studies also show that 17 million families with children do not have broadband at home – and 7.6 million of these children live in low-income households. Connected Nation also estimates that at least 1.8 million businesses – 24% – in the United States do not utilize broadband technology today.<sup>2</sup>

In early 2009, Congress directed the Federal Communications Commission (FCC) to develop a National Broadband Plan (NBP) to ensure every American has “access to broadband capability.”<sup>3</sup> Congress also required that the plan include a detailed strategy for achieving affordability and maximizing use of broadband to advance “consumer welfare, civic participation, public safety and homeland security, community development, healthcare delivery, energy independence, and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.”<sup>4</sup>

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<sup>1</sup> *Consumer Broadband Adoption Trends*, Connected Nation, Inc., March 2013, [www.connectednation.org/survey-results/residential](http://www.connectednation.org/survey-results/residential)

<sup>2</sup> Connected Nation, *Broadband and Business: Leveraging Technology to Stimulate Economic Growth*, [www.connectednation.org/survey-results/business](http://www.connectednation.org/survey-results/business)

<sup>3</sup> *Connecting America: The National Broadband Plan*, Federal Communications Commission, April 2010, [www.broadband.gov/download-plan/](http://www.broadband.gov/download-plan/)

<sup>4</sup> Ibid.

To fulfill Congress's mandate, the National Broadband Plan, released in 2010, makes recommendations to the FCC, the Executive Branch, Congress, and state and local governments that influence the broadband ecosystem – networks, devices, content, and applications – in four ways:

1. Design policies to ensure robust competition and, as a result, maximize consumer welfare, innovation, and investment.
2. Ensure efficient allocation and management of assets and government controls or influences, such as spectrum, poles, and rights-of-way, to encourage network upgrades and competitive entry.
3. Reform current universal service mechanisms to support deployment of broadband and voice in high-cost areas; and ensure that low-income Americans can afford broadband; and in addition, support efforts to boost adoption and utilization.
4. Reform laws, policies, standards, and incentives to maximize the benefits of broadband in sectors that government influences significantly, such as public education, healthcare and government operations.<sup>5</sup>

In addition to these recommendations, the plan recommended that the country set the following six goals for 2020 to serve as a compass over the decade:

**GOAL No. 1:** At least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second.

**GOAL No. 2:** The United States should lead the world in mobile innovation, with the fastest and most extensive wireless networks of any nation.

**GOAL No. 3:** Every American should have affordable access to robust broadband service and the means and skills to subscribe if they so choose.

**GOAL No. 4:** Every American community should have affordable access to at least 1 gigabit per second broadband service to anchor institutions such as schools, hospitals, and government buildings.

**GOAL No. 5:** To ensure the safety of the American people, every first responder should have access to a nationwide, wireless, interoperable broadband public safety network.

**GOAL No. 6:** To ensure that America leads in the clean energy economy, every American should be able to use broadband to track and manage their real-time energy consumption.<sup>6</sup>

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<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

Meeting these six goals will help achieve the Congressional mandate of using broadband to achieve national purposes, while improving the economics of deployment and adoption. While the National Broadband Plan recommends significant action by the FCC, the Executive Branch, and Congress, it requires a strong partnership among all broadband stakeholders. Federal action is necessary, but state, local, and Tribal governments, corporations, and community-based organizations must all do their part to build a high-performance America.

To assist communities in localizing the goals and recommendations made by the National Broadband Plan, Connected Nation developed the Connected Community Engagement Program.<sup>7</sup> The program is designed to help communities identify local technology assets, complete an assessment of local broadband access, adoption, and use, and develop an action plan for accelerating broadband's integration into the community's priorities.

## Methodology

By actively participating in the Connected Community Engagement Program, the Upper Dorchester Broadband Committee is boosting the community's capabilities in education, healthcare, and public safety, and stimulating economic growth and spurring job creation. The Upper Dorchester Broadband Committee has collaborated with multiple community organizations and residents to:

1. Empower a community team leader (local champion) and create a community team composed of a diverse group of local residents from various sectors of the economy including education, government, healthcare, the private sector, and libraries.
2. Identify the community's technology assets, including local infrastructure, providers, facilities, websites, and innovative uses employed by institutions.
3. Complete the Connected Assessment, a measurement of the community's access, adoption, and use of broadband based on the recommendations of the National Broadband Plan.
4. Match gaps in the local broadband ecosystem to solutions and best practices being utilized by communities across the nation.
5. Pursue Connected certification, a nationally recognized platform for spotlighting communities that excel in the access, adoption, and use of broadband.

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<sup>7</sup> Connected Nation, parent company for Connect South Carolina, is a national non-profit 501(c)(3) organization that expands access to and use of broadband Internet and the related technologies that are enabled when individuals and communities have the opportunity and desire to connect. Connected Nation works in multiple states to engage community stakeholders, state leaders, and technology providers to develop and implement technology expansion programs with core competencies centered around the mission to improve digital inclusion for people and places previously underserved or overlooked.

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## CONNECTED ASSESSMENT

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The Connected Assessment framework is comprised of three elements: access, adoption, and use. Each sub-assessment has a maximum of 40 points. To achieve Connected certification, the community must have 32 points in each sub-assessment and 100 points out of 120 points overall.

- The access assessment reviews whether an adequate broadband foundation exists for the community. The criteria within the access sub-assessment endeavors to identify gaps that could affect a local community broadband ecosystem including: last mile and middle mile issues, cost issues, and competition issues. As noted in the National Broadband Plan, broadband access “is a foundation for economic growth, job creation, global competitiveness and a better way of life.”<sup>8</sup>
- Broadband adoption is important for consumers, institutions, and communities alike to take the next step in fully utilizing broadband appropriately. The adoption sub-assessment seeks to ensure the ability of all individuals to access and achieve meaningful use of broadband service by measuring the community’s capability and commitment to eliminating the major barriers that keep non-adopters from getting broadband.
- Broadband use is the most important component of the framework because it is where the value of broadband can finally be realized. However, without access to broadband and adoption of broadband, meaningful use of broadband wouldn’t be possible. As defined by the NBP, meaningful use of broadband includes those areas of economic opportunity, education, government, and healthcare where values to individuals, organizations, and communities can be realized.

### Connected Assessment Criteria

The criteria for the Connected Assessment stems from the Federal Communication Commission’s National Broadband Plan, as well as the broadband speed tiers used under the National Telecommunications and Information Administration’s State Broadband Initiative Grant Program. The Connected Assessment’s thirteen questions are as follows:

#### ACCESS

- **Broadband Availability:** What percentage of homes in the community has access to fixed

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<sup>8</sup> *Connecting America: The National Broadband Plan*, Federal Communications Commission, April 2010, [www.broadband.gov/download-plan/](http://www.broadband.gov/download-plan/)



broadband speeds of 3 Mbps or higher?<sup>9</sup>

- **Broadband Speeds:** What is the highest speed level available to at least 75% of the households in your community?
- **Broadband Competition:** What percentage of homes in the community has access to more than one broadband provider?
- **Middle Mile Access:** What is the availability of middle mile access to the community?
- **Mobile Broadband Availability:** What is the mobile broadband availability in your community?

### ADOPTION

- **Digital Literacy:** What is the number of digital literacy program graduates over the past year in the community?
- **Public Computer Centers:** What is the number of public computer hours available per low-income resident per week?
- **Broadband Awareness:** What percentage of the community is reached by broadband awareness campaigns?
- **Vulnerable Population Focus:** How many vulnerable population groups are being targeted within the community?

### USE

- **Economic Opportunity:** What economic opportunity applications are currently in place utilizing broadband technology?
- **Education:** What broadband-enabled applications are currently being utilized by the education sector?
- **Government:** What broadband-enabled applications are currently being utilized by the government sector?
- **Healthcare:** What broadband-enabled applications are currently being utilized by the healthcare sector?

## Community Technology Scorecard

The Community Technology Scorecard provides a summary of the community's Connected Assessment. The Connected Assessment's criteria are reflective of the recommendations made by the Federal Communications Commission's National Broadband Plan. These scores reflect the community's progress to meeting these national benchmarks to universal fixed broadband

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<sup>9</sup> The Broadband Availability criterion is based on the speed tiers required by the National Telecommunications and Information Administration's State Broadband Initiative Grant Program. The closest combination of speeds for which NTIA collects data that would allow a consumer, according to the Federal Communications Commission's National Broadband Plan, to "access a basic set of applications that include sending and receiving e-mail, downloading web pages, photos and video, and using simple video conferencing" is 3 Mbps downstream and 768 kbps upstream. Downstream speed measures the rate at which a user can download data from the Internet, including viewing Web pages, receiving e-mails, or downloading music. Upstream speed measures the rate at which a user can upload data to the Internet, including sending e-mail messages and files. For more information, go to: [www.ntia.doc.gov/files/ntia/publications/usbb\\_avail\\_report\\_05102013.pdf](http://www.ntia.doc.gov/files/ntia/publications/usbb_avail_report_05102013.pdf).

service, ubiquitous mobile service, and growing access to higher speed next-generation services. Lower scores do not necessarily signify a complete lack of access to broadband service but instead reflect that the broadband infrastructure in the community has not met these national goals and benchmarks.

## Community Technology Scorecard Brief

The Community Technology Scorecard provides a summary of the community's Connected Assessment.

- The community scored 10 out of a possible 40 points in broadband access primarily because of slow broadband speeds, an absence of middle mile infrastructure, and little broadband competition among providers in the community.
- The community scored 34 out of a possible 40 points in broadband adoption. This score indicates great access to Public Computers and a focus on broadband outreach among vulnerable populations.
- The community scored 26 out of a possible 40 points in broadband use. This score indicates a high number of broadband applications present in the areas of education and government with minimal applications present in the area of healthcare.
- Upper Dorchester achieved a score of 70 points out of 120 for overall broadband and technology readiness, which indicates that the community is exhibiting high success in technology adoption, mediocre success in the area of technology use, and low success in broadband access.

While the results indicate that the community has made tremendous strides and investments in technology, this technology action plan will provide some insight and solutions that will help the community continue to achieve success.



<b>Community Technology Scorecard</b> Community Champions: Jennie Richmond Community Advisor: Lindsay Conrad				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	<70% of households have access to 3 Mbps	0	10
	Broadband Speeds	<75% of households with access to at least 3 Mbps	0	5
	Broadband Competition	<60% of households with access to more than 1 broadband provider	0	5
	Middle Mile Access	None of the above	0	10
	Mobile Broadband Availability	99% to 100% of households with access to mobile wireless	10	10
	<b>ACCESS SCORE</b>			<b>10</b>
ADOPTION	Digital Literacy	Program grads are greater than 2 per 1,000 residents over the past year	4	10
	Public Computer Centers	500 computer hours per 1,000 low-income residents per week	10	10
	Broadband Awareness	Campaigns reach 100% of the community	10	10
	Vulnerable Population Focus	At least 5 groups	10	10
	<b>ADOPTION SCORE</b>			<b>34</b>
USE	Economic Opportunity	1 advanced, 4 basic uses	6	10
	Education	3 advanced, 3 basic uses	9	10
	Government	4 advanced, 0 basic uses	8	10
	Healthcare	1 advanced, 1 basic use	3	10
	<b>USE SCORE</b>			<b>26</b>
<b>COMMUNITY ASSESSMENT SCORE</b>			<b>70</b>	<b>120</b>

## Itemized Key Findings

The Upper Dorchester Broadband Committee identified the following key findings (in addition to findings illustrated in the community scorecard) through its technology assessment:

### ACCESS

- 4 last mile broadband providers currently provide service in Upper Dorchester:
  - 78% of households have access to 1.5 Mbps to at least 3 Mbps.
  - 29% of Upper Dorchester households have access to more than 1 provider.
- 100% of Upper Dorchester households have access to mobile broadband.

### ADOPTION

- 2 Digital Literacy Programs exist in the community resulting in 417 graduates over the past year.
- 3 Public Computer Centers (PCC) with a total of 61 computers are open to the public.
- 4 Broadband Awareness Campaigns are reaching 100% of Upper Dorchester.
- 4 organizations are working with vulnerable populations.

### USE

- At least 5 uses of broadband were identified in the area of economic opportunity including 1 advanced use and 4 basic uses.
- At least 6 uses of broadband were identified in the area of education including 3 advanced uses and 3 basic uses.
- At least 4 advanced uses of broadband were identified in the area of government.
- At least 2 uses of broadband were identified in the area of healthcare including 1 advanced use and 1 basic use.

In addition to the items identified above, the Upper Dorchester Broadband Committee identified the following technology resources in the community:

#### **Technology Providers**

- 6 broadband providers

#### **Technology Facilities**

- 3 public computing centers
- 9 wireless hotspots

#### **Community Websites**

- 8 Business-related websites (excluding private businesses)
- 4 Education-related websites
- 2 Government-related websites
- 1 Healthcare-related website

- 1 Library-related website

## Community Priority Projects

The Connected Assessment has culminated in the outlining of projects designed to empower the community to accelerate broadband access, adoption, and use. Below are six priority projects. Detailed descriptions of each project can be found in the *Action Plan* section later in this report.

1. **Create Local Jobs Via Teleworking Opportunities**
2. **Develop a Technology Mentorship Program to Establish a "Community Technology Academy"**
3. **Identify, Map, and Validate Broadband Demand**
4. **Improve Public Safety Communications**
5. **Partner with Team St. George to Develop a Farmers' Network**
6. **Perform a Broadband Build-out Analysis in Unserved Areas**

## All Proposed Projects

Below is a complete list of proposed projects. Detailed descriptions of each project can be found in the *Action Plan* section later in this report.

### ACCESS

#### **Broadband Availability**

1. Deploy Educational WiMAX
2. Apply to USDA for Funding to Support Broadband Build-out in Community
3. Improve Campus Connectivity
4. Perform an Analysis of Local Policies and Ordinances
5. Perform a Broadband Build-out Analysis in Unserved Areas

#### **Broadband Speeds**

6. Identify, Map, and Validate Broadband Demand

#### **Broadband Competition**

No proposed projects

#### **Middle Mile Access**

7. Develop Public-Private Partnerships to Deploy Broadband Service
8. Study and Possibly Reassess Major Telecom Purchase Contracts
9. Develop & Issue an RFP for Build-out

#### **Mobile Broadband Availability**

10. Complete a Vertical Assets Inventory

## **ADOPTION**

### **Digital Literacy**

11. Distribute Digital Literacy Content
12. Develop a Technology Mentorship Program
13. Facilitate Internet Safety Classes

### **Public Computer Centers**

No proposed projects

### **Broadband Awareness**

14. Facilitate a Technology Summit
15. Develop a Technology Mentorship Program to Establish a “Community Technology Academy”

### **Vulnerable Population Focus**

No proposed projects

## **USE**

### **Economic Opportunity**

16. Create a Main Street Portal (Community Portal)
17. Online Identification of Broadband Services at Key Economic Sites
18. Develop a Tourism Portal
19. Create a Teleworker Support and Attraction Program
20. Host Website and Social Media Classes for Local Businesses
21. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses
22. Create Local Jobs Via Teleworking Opportunities
23. Partner with Team St. George to Develop a Farmers Network

### **Education**

24. Improve Education through Digital Learning
25. Connect all School Classrooms to the Internet

### **Government**

26. Improve the Online Presence of Government
27. Support Healthcare Providers Serving Rural Communities
28. Pursue Next Generation 911 Upgrades
29. Improve Online Business Services Offered by the Government
30. Improve Public Safety Communications

### **Healthcare**

31. Promote Telemedicine in Remote Areas



## DETAILED FINDINGS

### Current Community Technology Developments in Upper Dorchester

During the Connected assessment, the community team identified projects that are currently in development or being implemented. These projects are helping to enhance technology in Upper Dorchester:

- The Town of St. George is in the process of creating a comprehensive town website that will give citizens and visitors basic information about the government, tourism information, and the ability to pay taxes and traffic tickets online. The website is hoped to be completed by early 2014.

### Upper Dorchester Assessment Findings

Residents in Upper Dorchester (or sections of the community) are served by six providers. Currently, broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream.<sup>10</sup> According to Connect South Carolina’s latest broadband mapping update, the following providers have a service footprint in the Upper Dorchester Community:

Broadband Providers	Technology Type	Website Reference
AT&T Mobility, LLC	Mobile Wireless	<a href="http://www.wireless.att.com">www.wireless.att.com</a>
AT&T South Carolina	DSL	<a href="http://www.att.com">www.att.com</a>
Home Telecom	Cable & DSL	<a href="http://www.hometelco.com">www.hometelco.com</a>
NTInet, Inc.	Fixed Wireless	<a href="http://www.ntinet.com">www.ntinet.com</a>
Sprint	Mobile Wireless	<a href="http://www.sprint.com">www.sprint.com</a>
Verizon Wireless	Mobile Wireless	<a href="http://www.verizonwireless.com">www.verizonwireless.com</a>

<sup>10</sup> Organizations define broadband in different ways. For information to be included on the National Telecommunications and Information Administration’s National Broadband Map, the technology must provide a two-way data transmission (to and from the Internet) with advertised speeds of at least 768 kilobits per second (Kbps) downstream and at least 200 Kbps upstream to end users. The Connected Community Engagement Program defines basic broadband as 768 Kbps downstream and 200 Kbps upstream.

Below is a list of community websites (sorted by category) designed to share and promote local resources.

Organization Name	Website	Website Category
Dorchester County Economic Development	<a href="http://www.dorchesterforbusiness.com">www.dorchesterforbusiness.com</a>	Business
First Citizens Bank	<a href="http://www.firstcitizenonline.com">www.firstcitizenonline.com</a>	Business
First Federal Bank of South Carolina	<a href="http://www.1stfederalofsc.com">www.1stfederalofsc.com</a>	Business
First National Bank	<a href="http://www.fnbsc.com">www.fnbsc.com</a>	Business
Greater Summerville/Dorchester County Chamber of Commerce	<a href="http://www.greatersummerville.org">www.greatersummerville.org</a>	Business
South Carolina Bank and Trust	<a href="http://www.scbtonline.com">www.scbtonline.com</a>	Business
The Citizens Bank	<a href="http://www.thecitizensbank.cc">www.thecitizensbank.cc</a>	Business
Tri-County Regional Chamber of Commerce	<a href="http://www.tri-crcc.com">www.tri-crcc.com</a>	Business
Dorchester Academy	<a href="http://dorchesteracademy.org">dorchesteracademy.org</a>	Education
Dorchester County Adult Education	<a href="http://dorchester.ae.schoolfusion.us">dorchester.ae.schoolfusion.us</a>	Education
Dorchester District 4 School District	<a href="http://www.dorchester4.k12.sc.us">www.dorchester4.k12.sc.us</a>	Education
Trident Technical College QuickJobs Training Center	<a href="http://www.tridenttech.edu/stgeorge.htm">www.tridenttech.edu/stgeorge.htm</a>	Education
Dorchester County Government	<a href="http://www.dorchestercounty.net">www.dorchestercounty.net</a>	Government
Town of Harleyville	<a href="http://www.harleyvillesc.com">www.harleyvillesc.com</a>	Government
David Sojourner Center	<a href="http://www.dorchesterseniors.com">www.dorchesterseniors.com</a>	Healthcare
Dorchester County Library	<a href="http://www.dcl.lib.sc.us">www.dcl.lib.sc.us</a>	Libraries

Below is a list of organizations that are making technological resources available to the community. These include organizations that provide videoconferencing, public computing, and wireless hotspots.

Organization Name	Website	Resource Type
David Sojourner Senior Center	<a href="http://www.dorchesterseniors.com">www.dorchesterseniors.com</a>	Public Computer Facility
Dorchester County Library	<a href="http://www.dcl.lib.sc.us">www.dcl.lib.sc.us</a>	Public Computer Facility
TTC QuickJob Training Center	<a href="http://www.tridenttech.edu/stgeorge.htm">www.tridenttech.edu/stgeorge.htm</a>	Public Computer Facility
Comfort Inn	<a href="http://www.comfortinn.com">www.comfortinn.com</a>	Wireless Hotspot
Country Hearth Inn & Suites	<a href="http://www.countryhearth.com">www.countryhearth.com</a>	Wireless Hotspot
Flying J Truck Stop	<a href="http://www.pilottravelcenters.com">www.pilottravelcenters.com</a>	Wireless Hotspot
Le Nails	N/A	Wireless Hotspot
McDonald's	<a href="http://www.mcdonalds.com">www.mcdonalds.com</a>	Wireless Hotspot
Motel 6	<a href="http://www.motel6.com">www.motel6.com</a>	Wireless Hotspot
Quality Inn	<a href="http://www.qualityinn.com">www.qualityinn.com</a>	Wireless Hotspot

Skynard's	N/A	Wireless Hotspot
Southern Inn	<a href="http://www.southern-inn-st-george.magnusonhotels.com">www.southern-inn-st-george.magnusonhotels.com</a>	Wireless Hotspot

## Connected Assessment Analysis



### ACCESS SCORE EXPLANATION

**Broadband Availability (0 out of 10 Points Possible)** – is measured by analyzing the percentage of households in the community with access to fixed broadband speeds of 3 Mbps or higher. Data is collected by Connected Nation’s broadband mapping program.<sup>11</sup> If broadband data is missing, the community team was able to improve the quality of data to ensure all providers are included.

- **According to data collected by Connect South Carolina, 38% of Upper Dorchester residents had access to broadband speeds of 3 Mbps or greater.**

**Broadband Speeds (0 out of 5 Points Possible)** – is measured by analyzing the speed tiers available within a community. Data is collected by Connected Nation’s broadband mapping program. The Connected Assessment analyzes broadband coverage by the highest speed tier with at least 75% of households covered. If broadband data is missing, the community team was able to improve the quality of data to ensure all providers are included.

- **According to data collected by Connect South Carolina, 78% of Upper Dorchester residents had access to broadband speeds of 1.5 Mbps to at least 3 Mbps.**

**Broadband Competition (0 out of 5 Points Possible)** – is measured by analyzing the number of broadband providers available in the community and the percentage of that community’s residents with more than one broadband provider available. Connected Nation performed this

<sup>11</sup> Connected Nation is working across states and with the federal government to implement the State Broadband Initiative (SBI) program created by the Broadband Data Improvement Act of 2008 and managed by the National Telecommunications and Information Administration (NTIA) within the Department of Commerce. One of the main components of the SBI program is the creation of a detailed, nationwide map of broadband coverage in order to accurately pinpoint remaining gaps in broadband availability across the nation. Connected Nation is the largest mapping agent across the nation supporting the SBI program, and has worked in thirteen jurisdictions to collect, process, integrate, and validate provider data, and map the broadband inventory across these jurisdictions. Connected Nation has received, processed, and submitted records to the NTIA from over 1,400 service providers.



analysis by reviewing the data collected through its broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to data collected by Connect South Carolina, 29% of Upper Dorchester residents had access to more than one broadband provider.**

**Middle Mile Access (0 out of 10 Points Possible)** – is measured based on a community’s availability to fiber. Three aspects of availability exist: proximity to middle mile points of presence (POPs), number of POPs available, and available bandwidth. The community, in collaboration with Connected Nation, collected and analyzed middle mile access data.

- **Upper Dorchester is served by no middle mile fiber providers.**

**Mobile Broadband Availability (10 out of 10 Points Possible)** – is measured by analyzing provider availability of mobile broadband service gathered by Connected Nation’s broadband mapping program. In communities that may have mobile broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to data collected by Connect South Carolina, 100% of Upper Dorchester residents had access to mobile broadband service.**



**ADOPTION SCORE EXPLANATION**

**Digital Literacy (4 out of 10 Points Possible)** – is measured by first identifying all digital literacy programs in the community. Once the programs are determined, a calculation of program graduates will be made on a per capita basis. A digital literacy program includes any digital literacy course offered for free or at very low cost through a library, seniors center, community college, K-12 school, or other group serving the local community. A graduate is a person who has completed the curriculum offered by any organization within the community. The duration of individual courses may vary. A listing of identified digital literacy offerings is below.

Organization Name	Program Description	Number of Grads
Dorchester County Library	Book-A-Librarian: individualized digital literacy sessions, topics range from PowerPoint to downloading to e-Readers	42
Trident Technical College QuickJobs	Computer Training Classes	375

Training Center		
<b>Total Graduates</b>		417

**Public Computer Centers (10 out of 10 Points Possible)** – is measured based on the number of hours computers are available each week per 1,000 low-income residents. Available computer hours are calculated by taking the overall number of computers multiplied by the number of hours open to a community during the course of the week. A listing of public computer centers available in Upper Dorchester is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Dorchester County Library	53.5	40	2,140
Trident Technical College QuickJobs Training Center	61	17	1,037
David Sojourner Senior Center	30	4	120

**Broadband Awareness (10 out of 10 Points Possible)** – is measured based on the percentage of the population reached. All community broadband awareness programs are first identified, and then each program’s community reach is compiled and combined with other campaigns. A listing of broadband awareness programs in Upper Dorchester is below.

Organization Name	Campaign Description	Community Reach
Dorchester County Library	Ongoing publicity in local newspaper and home flyers for classes and online resources	60%
Trident Technical College QuickJobs Training Center	Ongoing publicity in the newspaper, radio, and other avenues for technology classes	75%
Dorchester County Government	Publicity for online job applications, tax payment, and applications for licenses through the newspaper, website, and in office	100%
Town of Harleyville, SC	Promotion of online payment of traffic tickets on Town website	20%

**Vulnerable Population Focus (10 out of 10 Points Possible)** – A community tallies each program or ability within the community to encourage technology adoption among vulnerable groups. Methods of focusing on vulnerable groups may vary, but explicitly encourage technology use among vulnerable groups. Example opportunities include offering online GED classes, English as a Second Language (ESL) classes, video-based applications for the deaf, homework assistance for students, and job-finding assistance. Communities receive points for each group on which they focus. Groups may vary by community, but include low-income, minority, senior, children,

etc. A listing of programs focusing on vulnerable populations in Upper Dorchester is listed below.

Organization Name	Program Description	Vulnerable Group
Dorchester County Library	Official DEW Connection Point and job application center for county employment; offers ESL digital resources	Underemployed, non-English speakers
David Sojourner Senior Center	Public computer access for senior citizens	Seniors
Adult Education Services, Dorchester District 4	GED classes	High school drop outs
Trident Technical College	TRIO programs	Low income groups, first generation college students, and students with disabilities



**USE SCORE EXPLANATION**

**Economic Opportunity (6 out of 10 Points Possible)** – A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within economic opportunity include: economic development, business development, tourism, and agriculture. Identified uses of broadband in the area of economic opportunity are listed below and identified as basic or advanced.

Application Provider	Description	Basic / Advanced
Online Banking	4 banks with local presence offer online banking resources	Basic
Tri-County Regional Chamber of Commerce	Website offers general regional information and calendar of events	Basic

Greater Summerville/Dorchester County Chamber of Commerce	Website offers business and cultural community information, calendar of events, community and civic leadership development program application, and other resources; mobile site offers condensed version of the main website	Basic
Dorchester County Economic Development	Website offers information for establishing and developing businesses in Dorchester County	Basic
Dorchester County Library	Website offers access to library event calendar, catalogs, library account management, downloadable resources for mobile devices, and other resources	Advanced

**Education (9 out of 10 Points Possible)** – A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within education include K-12, higher education, and libraries. Identified uses of broadband in the area of education are listed below and identified as basic or advanced.

Application Provider	Description	Basic/Advanced
Library Online Resources	Self-paced online classes for all ages ranging from improving reading and math skills to GED prep courses, foreign language training, and popular computer software	Advanced
Library WiFi and Broadband access	50MG broadband access through public computers and WiFi access inside and outside library	Basic
Dorchester County School District 4	Website offers directories, resources, school calendar, Power School access, and Virtual School information	Advanced
Trident Technical College QuickJobs Training Center	Site offers technology-based academic and continuing education courses; students have access to public computer center and online courses	Advanced
Dorchester Academy	Website offers calendars, directories, general information, and links to tutoring resources and college information	Basic

**Government (8 out of 10 Points Possible)** – A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within government include general government, public safety, energy, and the environment. Identified uses of broadband in the area of government are listed below and identified as basic or advanced.

Application Provider	Description	Basic/ Advanced
Dorchester County Government	Website offers county information and online resources	Advanced
Town of Harleyville	Website offers ability to pay traffic tickets, ability to view court cases and dockets, and general information	Advanced
DMV	Offers citizens access to online DMV services	Advanced
LawTraks	St. George utilizes this portal which contains fully integrated modules that support everything from traffic ticket entry to a full court package that prints out all of the main reports for the Court Administration	Advanced

**Healthcare (3 out of 10 Points Possible)** – A community receives one point per basic use of broadband and two points per advanced use of broadband. Entities within healthcare can include, but are not limited to, hospitals, medical and dental clinics, health departments, nursing homes, assisted living facilities, and pharmacies. Identified uses of broadband in the area of healthcare are listed below and identified as basic or advanced.

Application Name	Description	Basic/ Advanced
Hands on Health SC	Website provides access to information about health services by location in SC through MUSC	Advanced
Dorchester County Library	Offers citizens access to various healthcare databases	Basic

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## ACTION PLAN

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### Community Priority Projects

The Connected Assessment has culminated in the outlining of projects designed to empower the community to accelerate broadband access, adoption, and use. Below are six priority projects. This is followed by a complete list of all proposed solutions.

#### 1. Create Local Jobs Via Teleworking Opportunities

Connected Nation's Digital Works program is a hybrid between an employment agency and a co-working facility that connects residents with online training courses and connections with companies that lack a physical presence in the community. The Digital Works program creates jobs in areas facing high unemployment by leveraging broadband technology for call center and IT outsourcing. Extended training is available for HTML programming, and other technical positions as well. The program is providing an avenue for communities to create a job incubator, retaining workers in the area and attracting corporate jobs while providing a pathway for improving a worker's competitive advantage in the twenty-first century workforce with specified coursework and training.

At the end of training, workers are placed in available positions that match their skills and interests. All jobs pay above minimum wage and the training provides opportunities for placement at levels for upward mobility. This is work that can be done from home or at the Digital Works center, which is provided through a partnership with the community.

#### Goals

1. Connect IT training and education with remote employment opportunities.

#### Benefits

1. This type of project can educate, train, employ, and has the potential to ultimately increase the productivity and economic competitiveness of your community's workforce.
2. The physical infrastructure and training exposes a broad spectrum of residents to the benefits of telecommunications and productive uses of the Internet.
3. Through training and work, participants will rely heavily on local ISPs, broadband technology, and emerging IT technologies to provide services to a global marketplace, in turn fostering the demand-driven strengthening of your community's physical Internet infrastructure.

#### Action Items

1. The Digital Works program requires a site suitable for establishing office infrastructure, educational partners to develop the workforce, and business relationships with enterprises willing to hire workers through the digital factory.
2. Identify the physical, financial, and technological resources needed to establish a digital factory.
3. Space to house workspace and training and support offices will be needed, as well as the equipment, such as computers and monitors for video conferencing and training.
4. Develop partnerships with companies who would provide contractual employment to program graduates.
5. Visit [www.digitalworksjobs.com](http://www.digitalworksjobs.com) to learn more.

### **Implementation Team**

To be determined.

## **2. Develop a Technology Mentorship Program to Establish a "Community Technology Academy"**

Initiate a program designed to recruit local high school or college students who excel in school and exhibit advanced leadership and technology skills to assist in technology training, technical support, and outreach efforts in their communities. Recognizing students as a powerful resource for local outreach efforts, the program will tap into the technology knowledge base that exists among students, and will challenge students to extend their teaching and learning experiences beyond the classroom.

### **Goals**

1. Utilize student technology knowledge to implement community programs.

### **Benefits**

1. The program helps students develop self-confidence and technical competencies as they work with their families, leaders, peers, neighbors, seniors, and other members of their communities. In addition to empowering these students with real world experience, it helps enhance their skills as they mature into productive and highly competent citizens.
2. It helps to build character by awarding students opportunities to give back to their communities and embrace responsibilities associated with community service.
3. The program will engage students who are creative, knowledgeable, and interested in technology as a great resource for planning, implementation, support, and using technology at a local level. With guidance and support, they will help to provide a missing, and important, link between the members of community that have experience with broadband technology and those who are currently not using it.
4. The program will expose students to potential career paths and provide a basis to determine if they want to further their educations in a technology field. It could also potentially provide a beginning client base from the relationships he or she has built within the community as a student.

### Action Items

1. Identify the program format and offerings. Similar technology mentorship programs are organized as student run-help desks or student-led classes.
2. The program can be hosted at a local school or community anchor institution such as a library or community center, and could be run during the school day as part of the regular curriculum – during study hall or as an afterschool activity.
3. The curriculum could be borrowed from an existing technology mentorship program or could be student-driven. Similar programs offer digital literacy training to seniors, provide computer refurbishing, build websites, and other forms of tech support to local residents.

### Implementation Team

To be determined.

### 3. Partner with Team St. George to Develop a Farmers' Network

Create a local agricultural portal to connect farmers with buyers and technical experts ([United States Department of Agriculture](#) (USDA), researchers, university and extension offices, state department of agriculture, the State or [National Farm Bureau](#), etc.) in agriculture. This portal will enable local farmers to share the latest techniques in farming such as using technological tools and data to make decisions. Tools can include GPS, yield monitors, variable rate technology, and remote sensing. Farmers can also share how to be successful in maximizing production and reducing costs.

Beyond information sharing, a local agricultural portal could also be utilized to provide online “booth space” for growers, producers, and artisans selling direct to the consumer. Set up much like an open-air farmers' market where vendors offer food, crafts, gifts, supplies, garden tools and more, the purpose would be to provide a space where local and regional consumers can meet, correspond, and purchase products directly from the farm. This online farmers’ market could be a feature in the local agricultural portal or a Main Street Portal. Either way, an online farmers’ market should be feature-rich, enabling virtual farm tours, discussion forums, video and image galleries, and real time ordering and payment.

### Goals

1. Create a portal to keep the agricultural community connected and to facilitate advanced information sharing, news, and marketing of products.

### Benefits

1. Connects agricultural community.
2. Connects agricultural producers and consumers.
3. Facilitates knowledge-share.
4. Could be used for e-Commerce.



### **Action Items**

1. Identify an appropriate host for the agricultural portal.
2. Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.
3. The community portal should be continually updated to reflect the agricultural community's needs and technological expertise.

### **Implementation Team**

To be determined.

### **4. Perform a Broadband Build-out Analysis in Unserved Areas**

Conduct an onsite visual assessment of the defined geographic area seeking broadband coverage. The assessment determines the feasibility of deploying various Internet systems in a defined area. You should gather site specific information required for (i) determining use of existing infrastructure, (ii) designing wired and wireless Internet system using these assets, and (iii) expanding the broadband coverage in the defined area.

Wireless may be the best likely solution. To assist with that, you should conduct a visual assessment of the vertical assets (broadcast towers and water tanks) to determine the feasibility of deploying a fixed wireless broadband Internet system in the unserved community and to gather site-specific information required for that purpose.

### **Goals**

1. Determine which areas lack the necessary technological structure and determine the feasibility of deploying various Internet systems in the defined area.

### **Benefits**

1. Determines project feasibility and provides information to develop a business case for build-out.
2. First step in providing unserved community residents with adequate broadband access.

### **Action Items**

1. Determining the functionality of all potential transmit locations.
2. Surveying the availability of adequate power sources at each location.
3. Identifying any issues regarding ingress and egress at each location.
4. Designing a wireless broadband system using these potential transmit locations.
5. Creating a methodology for the expansion of wireless broadband coverage into the unserved areas of the community.

### **Implementation Team**

To be determined.

## 5. Identify, Map, and Validate Broadband Demand

Develop a team to conduct research surveys and market analyses to validate a business case. A market analysis includes research on the existing and potential service offerings and the respective rates to determine the levels of interest in the services and rate plans offered by the client. The team should provide accurate, timely, and thorough solutions accompanied by personalized service to meet the needs of communities or broadband providers.

### Goals

1. To understand existing and potential markets for broadband subscribers (both residential and business).

### Benefits

1. Enables the ability to better understand the key drivers of the broadband market.
2. Validates the business case for network build out and capacity investment.

### Action Items

1. The project team should be prepared to provide research project design, data collection services, data analysis and reporting, and presentation development and delivery.
2. HARBOR Inc. is a citizen based, non-profit, Michigan Corporation founded in 2001 and located in the City of Harbor Springs. The organization's broadband committee developed and mailed a broadband demand survey in July 2012 to approximately 6,300 addresses, comprising all of the local property owners/residents in the community. A copy of the survey can be reviewed here: [is0.gaslightmedia.com/wwwharborincorg/ ORIGINAL /fs72-1369322556-20386.pdf](http://is0.gaslightmedia.com/wwwharborincorg/ ORIGINAL /fs72-1369322556-20386.pdf)

### Implementation Team

To be determined.

## 6. Improve Public Safety Communications

Broadband offers a unique opportunity to achieve a comprehensive vision for enhancing the safety and security of your community's residents. Broadband can help public safety personnel prevent emergencies and respond swiftly when they occur. Broadband can also provide your community with new ways of calling for help and receiving emergency information. For example, first responders from different jurisdictions and agencies often cannot communicate during emergencies due to disparate communication systems and the lack of integration between these systems. However, wireless broadband supports the interoperability of communications systems that would allow first responders anywhere in the nation to communicate with each other, send and receive critical voice and data to save lives, reduce injuries, and prevent acts of crime and terror. Furthermore, with broadband, 911 call centers (also known as public safety answering points or PSAPs) could receive text, pictures and videos from the public and relay them to first responders. Similarly, the government could use

broadband networks to disseminate vital information to the public during emergencies in multiple formats and languages.

To overcome the challenges posed by disparate communication systems and dated technology, your community's public safety agencies should collaborate with state and federal agencies in order to improve communication across organizational and jurisdictional boundaries. This is one of the priorities of the First Responder Network Authority (FirstNet). Created by the Middle Tax Relief and Job Creation Act of 2012, FirstNet was established as an independent authority within the National Telecommunications and Information Administration (NTIA) in order to establish a single nationwide, interoperable public safety broadband network.

To find out more information on FirstNet and the Nationwide Public Safety Network, visit [www.ntia.doc.gov/category/firstnet](http://www.ntia.doc.gov/category/firstnet). To find out more information regarding your state's efforts and point of contact for FirstNet planning, check with your Governor's office and/or statewide interoperability coordinator.

Other relevant initiatives include:

- **Assistance to Firefighters Grants (AFG):** The primary goal of the AFG Program is to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations. AFG funds have helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.
- **Community Connect Grant Program:** The Community Connect Grant Program provides financial assistance to furnish broadband service in un-served, often isolated, rural communities. The grants are used to establish broadband service for critical facilities such as fire or police stations, while also providing service to residents and businesses.

### **Goals**

1. Leverage Broadband Technologies to Enhance Emergency Communications to and from the Public.

### **Implementation Team**

To be determined.

## **All Proposed Projects**

### **ACCESS**

#### **Broadband Availability**

## 1. Deploy Educational WiMAX

Deploy WiMAX to the community and provide students with WiMAX-enabled laptops to ensure equal access for all students regardless of socioeconomic status. WiMAX is primarily a wireless and highly cost effective means of extending the school district's intranet-based content and applications to the student body beyond the school campus and outside of school hours equating to anytime, anywhere instruction.

WiMAX is an IP-based, wireless broadband access technology that provides performance similar to Wi-Fi networks, but with the coverage and quality of service of cellular networks. WiMAX can provide broadband wireless access (BWA) up to 30 miles (50 km) for fixed stations, and 3 - 10 miles (5 - 15 km) for mobile stations. Developing a WiMAX network should be done in partnership with providers, technology organizations, and local government.

Community-wide WiMAX networks require significant infrastructure, including: towers (number and placement determined by a site survey conducted by the installation company); antennas; WiMAX transmitters and receivers; management server; Internet backhaul; and power. A one-to-one laptop and WiMAX program would include network and hardware maintenance costs. WiMAX infrastructure is a capital expense that can be amortized over many years. The typical infrastructure costs [\\$5-20 per student per month, over a five-year period](#), depending on factors such as population density, terrain, and the size of the area to be covered.

### Goals

1. Extend school district's intranet-based content and ensure equal access to home Internet.

### Benefits

1. Affordability. WiMAX is cheaper than DSL, Cable, Fiber to the Home, and 3G wireless. This low cost per home brings it into the realm of possibilities for a school district to build its own private access network independent of commercial operators.
2. Empowers all students to access online educational material after school hours so that digital content is not restricted to school or library computer labs for low-income students who cannot afford laptops or internet access at home.
3. Provides equal hardware and Internet access to all students.
4. Supports curriculum updates and increased push for STEM education.

### Action Items

1. Develop partnership with area providers, technology and education organizations, local government, and school district.
2. Assess infrastructure needs.
3. Contact local or national WiMAX service and equipment providers.

## 2. Apply to USDA for Funding to Support Broadband Build-out in Community

The USDA, through its Rural Development mission area, administers and manages housing, business, and community infrastructure and facility programs through a national network of state and local offices. Rural Development has an active portfolio of more than \$165 billion in loans and loan guarantees. These programs are designed to improve the economic stability of rural communities, businesses, residents, farmers, and ranchers and improve the quality of life in rural areas.

### **Farm Bill Loan Program - USDA**

This program is designed to provide loans for funding, on a technology neutral basis, for the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural communities. For more information: [www.rurdev.usda.gov/supportdocuments/BBLoanProgramBrochure\\_8-11.pdf](http://www.rurdev.usda.gov/supportdocuments/BBLoanProgramBrochure_8-11.pdf)

#### *Additional Information:*

- Direct loans are in the form of a cost-of-money loan, a 4-percent loan, or a combination of the two.

#### *Eligibility:*

- Application guide: [www.rurdev.usda.gov/supportdocuments/Broadband%20Application%20Guide%203.14.11.pdf](http://www.rurdev.usda.gov/supportdocuments/Broadband%20Application%20Guide%203.14.11.pdf)

#### *Contact Information:*

Point of Contact: Ken Kuchno

Telephone: (202) 690-4673

E-mail: [kenneth.kuchno@wdc.usda.gov](mailto:kenneth.kuchno@wdc.usda.gov)

Website: [www.rurdev.usda.gov/utp\\_farmbill.html](http://www.rurdev.usda.gov/utp_farmbill.html)

### **Community Connect Program – USDA**

Provides community access to broadband services in unserved areas through a one-time grant to such organizations as tribes, cooperatives, private companies, and universities, and uses the infrastructure built by the grant to create opportunities for continued improvement.

#### *Additional Information:*

- The funding will support construction, acquisition, or lease of facilities, including spectrum, to deploy broadband transmission services to all critical community facilities and to offer such services to all residential and business customers located within the proposed service area.
- The funding can be put towards the improvement, expansion, construction, acquisition, or leasing of a community center that furnishes free access to broadband Internet service, providing that the community center is open and accessible to area residents before, during, and after normal working hours and on Saturday or Sunday.

- All equipment purchases with grant and/or matching funds must be new or non-depreciated.

*Eligibility:*

- The following entities are eligible for funding:
  - Incorporated Organizations
  - Indian Tribes or Tribal Organizations, as defined by 25 U.S.C. 450b(e)
  - State or local units of government
  - Cooperatives, private corporations or limited liability companies organized on a for-profit or not-for-profit basis
- NOFA is available here:  
[www.rurdev.usda.gov/SupportDocuments/utp2013CommConnectNOFA.pdf](http://www.rurdev.usda.gov/SupportDocuments/utp2013CommConnectNOFA.pdf)
- Application guide is available here:  
[www.rurdev.usda.gov/SupportDocuments/utp2013CommConnectAppGuide.pdf](http://www.rurdev.usda.gov/SupportDocuments/utp2013CommConnectAppGuide.pdf)

*Contact Information:*

Point of Contact: Thera Swersky or Steven Levine

Telephone: (202) 690-4673

E-mail: [community.connect@wdc.usda.gov](mailto:community.connect@wdc.usda.gov)

Website: [www.rurdev.usda.gov/utp\\_commconnect.html](http://www.rurdev.usda.gov/utp_commconnect.html)

**Distance Learning and Telemedicine Loans and Grants Program – USDA**

Provide loans and grants to rural community facilities (e.g. schools, libraries, hospitals, and tribal organizations) for advanced telecommunications systems that can provide healthcare and educational benefits to rural areas.

*Additional Information:*

- The Distance Learning and Telemedicine Loans and Grant Program (DLT Program) provides three kinds of financial assistance: a full grant, grant-loan combination, and a full loan.

*Eligibility:*

To be eligible for a grant, your organization must:

- Currently deliver or propose to deliver distance learning or telemedicine services for the term of the grant. To receive a grant, the purposes must meet the grant definition of distance learning and telemedicine. The DLT program is focused on sustainability. Planning studies, research projects, and short-term demonstration projects of less than two years will not be considered.
- Be legally organized as an incorporated organization or partnership; an Indian tribe or tribal organization; a state or local unit of government; a consortium; or other legal entity, including a private corporation organized on a for-profit or not-for-profit basis with the legal capacity to contract with the United States Government.

- Operate a rural community facility or deliver distance learning or telemedicine services to entities that operate a rural community facility or to residents of rural areas at rates calculated to ensure that the benefit of the financial assistance passes through to such entities or to residents of rural areas.

*Contact Information:*

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Telephone: (202) 720-0665

E-mail: [dltinfo@wdc.usda.gov](mailto:dltinfo@wdc.usda.gov)

Website: [www.rurdev.usda.gov/UTP\\_DLT.html](http://www.rurdev.usda.gov/UTP_DLT.html)

### 3. Improve Campus Connectivity

Improved access includes classroom access, better wireless coverage in common areas and student centers, as well as high-speed broadband access to student dorms. Before expanding access, a network assessment should be undertaken to ensure current coverage. Part of the expansion should include indirect requirements such as the potential need for increased tech support and power consumption due to increased usage of devices.

#### Goals

1. Ensure that all higher education campuses (especially community colleges) have adequate access to broadband networks.

#### Benefits

1. Beyond the research and development tools, broadband enables higher education institutions to offer college credit for online courses for advanced high school students; offer specialized science and technology online learning experiences in subjects where there are too few specialized K-12 teachers; support adult students through personalized career and technical programs while working around the needs of their jobs and families; and extend continuing education programs by offering diverse, quality content to the public to foster job skills, community development, and personal growth.

#### Action Items

1. Utilize the [national broadband availability map](#) and assess your community's needs. The [U.S. Department of Education](#) developed this broadband availability map and search engine as part of a collaborative effort with the [National Telecommunications and Information Administration](#) (NTIA) and the [Federal Communications Commission](#) (FCC). This education-focused broadband map and database builds upon the [NTIA State Broadband Initiative](#) (SBI) Program that surveys bi-annually broadband availability and connectivity for the 50 United States, 5 territories, and the District of Columbia.
2. Research federal and state funding sources.

### 4. Perform an Analysis of Local Policies and Ordinances



High capital investment costs, including permit processing, pole attachment costs, and lack of effective planning and coordination with public authorities, negatively impact the case for deployment. For example, the FCC’s National Broadband Plan concludes that, “the rates, terms, and conditions for access to rights of way [including pole attachments] significantly impact broadband deployment.” The costs associated with obtaining permits and leasing pole attachments and rights-of-way are one of the most expensive cost functions in a service provider’s plans to expand or upgrade service, especially in rural markets where the ratio of poles to households goes off the charts. Furthermore, the process is time consuming. “Make ready” work, which involves moving wires and other equipment attached to a pole to ensure proper spacing between equipment and compliance with electric and safety codes, can take months to complete.

Community and provider collaboration to problem solve around local pole attachment and other right of way issues is one of the most effective opportunities to encourage faster, new deployment of infrastructure.

#### **Goals**

1. Ensure that local policies are conducive to broadband build-out.

#### **Benefits**

1. Lowers cost barriers to improve the business case for broadband deployment.
2. Encourages good public policy and provider relations.

#### **Action Items**

1. Review local policies, ordinances, and other barriers to broadband deployment and consult with community leaders, providers, utilities and other members of the community to ensure that they are supporting policies (local ordinances, pole attachments, right-of-way) that are conducive to broadband build-out.
2. Develop an awareness campaign targeted towards community leaders to inform them of the benefits of broadband to the entire community derived from access to global resources that outweigh the need for some policies.

### **5. Perform a Broadband Build-out Analysis in Unserved Areas**

Conduct an onsite visual assessment of the defined geographic area seeking broadband coverage. The assessment determines the feasibility of deploying various Internet systems in a defined area. You should gather site specific information required for (i) determining use of existing infrastructure, (ii) designing wired and wireless Internet system using these assets, and (iii) expanding the broadband coverage in the defined area.

Wireless may be the best likely solution. To assist with that, you should conduct a visual assessment of the vertical assets (broadcast towers and water tanks) to determine the



feasibility of deploying a fixed wireless broadband Internet system in the un-served community and to gather site-specific information required for that purpose.

#### **Goals**

1. Determine which areas lack the necessary technological structure and determine the feasibility of deploying various Internet systems in the defined area.

#### **Benefits**

1. Determines project feasibility and provides information to develop a business case for build-out.
2. First step in providing un-served community residents with adequate broadband access.

#### **Action Items**

1. Conduct a wireless assessment to include:
  - Determining the functionality of all potential transmit locations
  - Surveying the availability of adequate power sources at each location
  - Identifying any issues regarding ingress and egress at each location
  - Designing a wireless broadband system using these potential transmit locations
  - Creating a methodology for the expansion of wireless broadband coverage into the unserved areas of the community

### **Broadband Speeds**

#### **6. Identify, Map, and Validate Broadband Demand**

Develop a team to conduct research surveys and market analyses to validate a business case. A market analysis includes research on the existing and potential service offerings and the respective rates to determine the levels of interest in the services and rate plans offered by the client. The team should provide accurate, timely, and thorough solutions, accompanied by personalized service to meet the needs of communities or broadband providers.

#### **Goals**

1. To understand existing and potential markets for broadband subscribers (both residential and business).

#### **Benefits**

1. Enables the ability to better understand the key drivers of the broadband market.
2. Validates the business case for network build-out and capacity investment.

#### **Action Items**

1. The project team should be prepared to provide research project design, data collection services, data analysis and reporting, and presentation development and delivery.

2. HARBOR Inc. is a citizen based, non-profit, Michigan Corporation founded in 2001 and located in the City of Harbor Springs. The organization's broadband committee developed and mailed a broadband demand survey in July 2012 to approximately 6,300 addresses, comprising all of the local property owners/residents in the community. A copy of the survey can be reviewed here: [is0.gaslightmedia.com/wwwharborincorg/\\_ORIGINAL\\_/fs72-1369322556-20386.pdf](http://is0.gaslightmedia.com/wwwharborincorg/_ORIGINAL_/fs72-1369322556-20386.pdf)

### **Broadband Competition**

No projects proposed

### **Middle Mile Access**

#### **7. Develop Public-Private Partnerships to Deploy Broadband Service**

Public-private partnerships take many forms, limited only by the imagination and legal framework in which the municipality operates. Some communities issue municipal bonds to fund construction of a network, which they lease to private carriers, with the lease payments covering the debt service. Others create non-profit organizations to develop networks in collaboration with private carriers or provide seed investment to jumpstart construction of networks that the private sector is unable to cost-justify on its own.

A public-private partnership should not be simply seen as a method of financing. The strength of these partnerships is that each party brings something important to the table that the other doesn't have or can't easily acquire. The community can offer infrastructure (publicly-owned building rooftops, light poles, towers, and other vertical assets for mounting infrastructure) for the deployment of the system, as well as committed anchor tenants. Private-sector partners bring network-building and operations experience.

#### **Goals**

1. Fund broadband network deployment.

#### **Benefits**

1. The public sector transfers much of the risk for private investment. For example, the public sector has many funding tools available, including incentivizing continued investment through tax credits, encouraging greater availability of private capital through government guaranteed loans, or government being a direct source of capital through loans or grants.
2. The partnership can aggregate demand and reduce barriers to deployment. By working together, public and private parties can educate and build awareness needed for the public to better integrate the use of broadband into their lives, thereby improving the business case for broadband deployment.
3. A good partnership concentrates investment on non-duplicative networks and aims to ensure that all residents have access to adequate broadband service.

### **Action Items**

1. Decide on the technology (e.g. cable, DSL, fiber, etc.).
2. Issue an RFP.
3. Develop a finance and ownership model.

### **8. Study and Possibly Reassess Major Telecom Purchase Contracts**

Demand for broadband capacity across community institutions represents a key segment of the overall demand for broadband in many communities. The purchasing power of this collective should be leveraged to help promote greater competition in the broadband market and drive increased investment in backhaul and last mile broadband capacity.

### **Goals**

1. Leverage the demand for broadband across community institutions to promote competition and investment in broadband services.

### **Benefits**

1. By aggregating demand within a local community, these institutions will be able to demonstrate to interested broadband providers existing pent-up demand and help justify private investments to bring greater capacity backhaul service to that community.
2. The increased backhaul capacity can in turn benefit the whole community.

### **Action Items**

1. Develop partnerships between local high-capacity demand institutions, including local civic leaders, government entities, public safety agencies, libraries, hospital or clinics, and schools, in a coordinated effort to aggregate local demand needs for increased broadband capacity and service.

### **9. Develop & Issue an RFP for Build-out**

An RFP (request for proposals) is a widely used technique for establishing a selection of qualified responses for which to choose when contracting for services. The RFP should provide a guidance and due diligence framework for interested broadband providers and vendors. Furthermore, the RFP should request that interested parties provide plans for cost-effective community broadband networks, including equipment lists, locations, and itemized engineering cost estimates. In addition, the completed design should include what technology will be needed at customer premises, the performance that can be expected, and recurring costs associated with operating and maintaining the system once it is in place.

### **Goals**

1. To identify the most credible and reliable broadband provider to serve your region's households and businesses.

### **Benefits**

1. After completing an RFP, your community will have a good handle on the potential project risks, as well as benefits, associated with build-out.
2. An RFP lets providers know that the situation will be competitive. The competitive bidding scenario is often the best method available for obtaining the best pricing and, if done correctly, the best value.

### **Action Items**

1. Content: The RFP should include a project overview, background information, scope of work, and selection criteria. Additionally, the RFP should require that vendors provide a cover letter, a statement of project understanding, a business plan, a proposed project schedule, qualifications, references, and cost.
2. Distribution: The RFP could be posted to the community's website. Alternatively, one method of efficiently distributing an RFP is to send out to a wide audience a one-page document announcing the availability of the full RFP. Vendors and consultants who are interested in your project can then contact you to obtain the full RFP.

## **Mobile Broadband Availability**

### **10. Complete a Vertical Assets Inventory**

Wireless communications equipment can be placed in a wide variety of locations, but ideally, wireless providers look for locations or structures in stable conditions, with reasonably easy access to electricity and wired telecommunications, and with a significant height relative to the surrounding area. "Vertical assets" are defined as structures on which wireless broadband equipment can be mounted and positioned to broadcast a signal over as much terrain as possible. These assets include structures such as cell towers, water tanks, grain silos, and multi-story buildings.

The lack of easily accessible and readily usable information regarding the number and location of vertical assets prevents the expansion of affordable, reliable wireless broadband service. Wireless broadband providers must determine if it is worth the effort and expense to collect and analyze this data when making investment decisions. Public sector organizations are faced with the same challenges. A centralized and comprehensive vertical assets inventory can help wireless broadband providers expedite decisions regarding the deployment of affordable, reliable broadband service in rural areas.

### **Goals**

1. Develop a single repository of vertical assets, such as communications towers, water tanks, and other structures potentially useful for the support of deploying affordable, reliable wireless broadband in less populated rural areas or topographically challenged areas.

### **Benefits**

1. The vertical assets inventory provides data for private and public investment decisions, lowering the initial cost of efforts needed to identify potential mounting locations for infrastructure.
2. The inventory can encourage the expansion of affordable, reliable wireless broadband services to underserved areas by shortening project development time.

#### **Action Items**

1. Identify or develop a vertical assets inventory toolkit to provide guidelines to identify structures or land that could serve as a site for installation of wireless communications equipment.
2. Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.
3. Identify and map elevated structures utilizing your community's GIS resources. The resulting database should be open ended; localities should be encouraged to continuously map assets as they are made available.

### **ADOPTION**

#### **Digital Literacy**

##### **11. Distribute Digital Literacy Content**

Leverage the abundant digital literacy content available online to distribute to local trainers. Currently, numerous non-profit organizations and for-profit corporations provide curriculum that can be adapted for classroom or self-paced study. Some organizations also provide additional resources for instructor use, including classroom setup information, teaching tips for each course, additional practice, test item files, and answers to frequently asked questions. Digital literacy content can be deployed via local websites (a community portal), print material, podcasts, blogs, and videos.

Additionally, your community could create a partnership between libraries, school systems, computer suppliers, and broadband providers to provide free training and discounted computers and broadband service to low-income community members who are not participating in the digital age. An example of such a program is Connected Nation's Every Community Online program. This is an innovative program that is providing free digital literacy training, access to low-cost computers, and discounted broadband access to communities across the country.

#### **Goals**

1. Facilitate partnerships in order to provide digital literacy training.

#### **Benefits**

1. Increasing the community's digital literacy facilitates widespread online access to education and other public and government services, provides equal access to opportunities such as jobs and workforce training, enables people to find information about their health, and offers the opportunity to increase levels of social interaction and civic involvement.

#### **Action Items**

1. Develop partnerships with local organizations and equip them with digital literacy content.
2. Train staff to deliver the curriculum to potential adopters.
3. Promote local organizations as a source of broadband access and training.
4. Engage non-adopters with a comprehensive public outreach campaign, helping them understand the benefits of broadband service and inviting them to experience the value at their libraries.
5. Provide curriculum to teach computer and Internet use, as well as the skills required to utilize the Internet effectively for essential services, education, employment, civic engagement, and cultural participation.
6. Offer compelling promotion to participants, giving them the opportunity to adopt the technology for everyday use in their homes.

#### **12. Develop a Technology Mentorship Program**

Initiate a program designed to recruit local high school or college students who excel in school and exhibit advanced leadership and technology skills to assist in technology training, technical support, and outreach efforts in their communities. Recognizing students as a powerful resource for local outreach efforts, the program will tap into the technology knowledge base that exists among students, and will challenge them to extend their teaching and learning experiences beyond the classroom.

#### **Goals**

1. Utilize student technology knowledge to implement community programs.

#### **Benefits**

1. The program helps students develop self-confidence and technical competencies as they work with their families, leaders, peers, neighbors, seniors, and other members of their communities. In addition to empowering these students with real world experience, it helps enhance their skills as they mature into productive and highly competent citizens.
2. It helps to build character by awarding students opportunities to give back to their communities and embrace responsibilities associated with community service.
3. The program will engage students who are creative, knowledgeable, and interested in technology as a great resource for planning, implementation, support, and using technology at a local level. With guidance and support, they will help to provide a missing, and important, link between the members of community that have experience with broadband technology and those who are currently not using it.

4. The program will expose students to potential career paths and provide a basis to determine if they want to further their educations in a technology field. It could also potentially provide a beginning client base from the relationships he or she has built within the community as a student.

#### **Action Items**

1. Identify the program format and offerings. Similar technology mentorship programs are organized as student run-help desks or student-led classes.
2. The program can be hosted at a local school or community anchor institution such as a library or community center, and could be run during the school day as part of the regular curriculum – during study hall or as an afterschool activity.
3. The curriculum could be borrowed from an existing technology mentorship program, or could be student-driven. Similar programs offer digital literacy training to seniors, provide computer refurbishing, build websites, and other forms of tech support to local residents.

### **13. Facilitate Internet Safety Classes**

Create a program designed to help community members who are using the Internet to identify and avoid situations that could threaten their safety, threaten business or government networks, compromise confidential information, compromise the safety of children, compromise their identities and financial information, or destroy their reputations.

#### **Goals**

1. Ensure that community members are aware of how to navigate the Internet safely.

#### **Benefits**

1. This project helps ensure that community members have a solid understanding of cyber threats.
2. There are many risks, some more serious than others. Among these dangers are viruses erasing entire systems, a hacker breaking into a system and altering files, someone using someone else's computer to attack others, someone stealing credit card information, sexual predators making advances at children, and criminals making unauthorized purchases. Unfortunately, there's no 100% guarantee that even with the best precautions some of these things won't happen, but there are steps that can be taken to minimize the chances.

#### **Action Items**

1. Partner with a local library or community center to offer security-awareness training initiatives that include classroom style training sessions and security awareness websites and information booklets.
2. Awareness training can also be used to alleviate anxiety for community members who are not using the Internet because of fear of cyber threats.

### **Public Computer Access**

No projects proposed

### **Broadband Awareness**

#### **14. Facilitate a Technology Summit**

Develop and host a technology summit for residents and businesses to increase awareness of broadband value, service options, and the potential impact on quality of life. The technology summit should facilitate community partnerships between leaders in local government and the private sector, including non-profits and private businesses in the education, healthcare, and agriculture sectors, with the goal of ensuring that residents have at least one place in the community to use powerful new broadband technologies, and that this asset will be sustained over time. Further, the technology summit should highlight success stories as evidence of the impact of technology.

#### **Goals**

1. A technology summit should bring together community stakeholders to develop a dialogue about how public and private stakeholders can collectively improve broadband access, adoption, and use.

#### **Benefits**

1. Highlights successes, opportunities, and challenges regarding community technology planning.
2. Develops ongoing dialogue around improving broadband access, adoption, and use.
3. Unifies community stakeholders under one vision.

#### **Action Items**

1. Create community partnerships.
2. Identify funding sources and hosts.
3. Identify suitable speakers.
4. Develop relevant content.

#### **15. Develop a Technology Mentorship Program to Establish a "Community Technology Academy"**

Initiate a program designed to recruit local high school or college students who excel in school and exhibit advanced leadership and technology skills to assist in technology training, technical support, and outreach efforts in their communities. Utilize student leaders through partnerships with STEM programs, the school district, libraries, community centers, churches (places with computer labs for public use), community colleges and universities (places with subject matter experts) to develop a "Community Technology Academy." Providers, local businesses, and community volunteers may be included to provide



financial and/or in-kind support for the program. Academy curriculum should include basic training in areas such as "Introduction to Computers," "Internet Basics," social networking, using communication technologies, and the use of applications such as Microsoft Office, OpenOffice or Google Docs.

### **Goals**

1. Utilize student technology knowledge through a partnership with STEM programs and students to underscore a community's commitment to developing a tech-savvy workforce.

### **Benefits**

1. The program helps students develop self-confidence and technical competencies as they work with their families, leaders, peers, neighbors, seniors, and other members of their communities. In addition to empowering these students with real world experience, it helps enhance their skills as they mature into productive and highly competent citizens.
2. The program will expose students to potential career paths and provide a basis to determine if they want to further their educations in a technology field. It could also potentially provide a beginning client base from the relationships he or she has built within the community as a student.
3. Creates a more digitally literate and competent populace.
4. Develops community's human capital.

### **Action Items**

1. Identify the program format and offerings and the STEM programs in the area that can contribute student leaders.
2. The program can be hosted at a local school or community anchor institution such as a library or community center and could be run during the school day as part of the regular curriculum, during study hall or as an afterschool activity.
3. Identify all organizations performing technology education and training services.
4. Identify all the organizations that have computer labs.
5. Compile a list of classes to be offered and develop content or leverage content that is currently available at minimum or no cost from organizations such as Microsoft.
6. Determine what classes are currently being offered in the community.
7. Develop a collaborative and cooperative approach for operating the "Community Technology Academy" between all organizations.

### **Vulnerable Population Focus**

No projects proposed

### **USE**

### **Economic Opportunity**

## 16. Create a Main Street Portal (Community Portal)

A community portal can be hosted by a local government, a non-profit, school, or an individual, depending on the preference of the community and availability of resources. Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools. A feature-rich community portal with multiple ways to inform community members about what is happening the community (e.g. community calendar, discussion forums, voting polls, blog community, real time chat, videos and image gallery, RSS feeds, blogs, automated reminders, accompanying Apps for smartphones, etc.) has the potential to increase civic participation.

The portal has a dual purpose. One purpose is to inform residents and businesses within the community about community events and initiatives, groups, and economic development initiatives. Additionally, the community portal can act as a training and education resource for residents; short courses and webinars can be offered on topics of interest in the community (e.g. education on community-wide economic development or infrastructure initiatives, pollution mitigation, community gardening, local zoning laws, etc.)

Secondly, a community portal empowers others from outside of the community to learn more about the community itself. A community portal helps project an image of a dynamic and "connected" community that has a savvy, tech-ready workforce and an informed citizenry. Businesses want to move to communities that are comfortable with technology and that are clearly making modest investments to stay current. As a marketing tool, the community portal becomes an important part of tourism efforts, a way to get travelers and visitors to stop and spend money on lodging and meals, to market local businesses to customers outside the community, and to project a modern and vibrant image to the world. For a community to be seen as vibrant, attractive, and great place to live and to work, the portal must be of the highest quality to project that image.

### Goals

1. Collaborate with local businesses, government, schools, non-profits, and community volunteers to create a web portal that will serve as a one-stop shop for all online government services, community resources, tourism and economic development, census information, news, and events.

### Benefits

1. Drives web traffic to other community links.
2. Available and open data increases informed decision making and participation.
3. Increases the community's visibility on the web.
4. Acts as a recruitment tool for knowledge workers and high-tech businesses.
5. Assists community members and visitors in making informed decisions.
6. Can become a key tourism tool.

### **Action Items**

1. Identify a host for the portal. The host can be a local government, non-profit, school, or an individual, depending on the preference of the community and availability of resources.
2. Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.
3. The community portal should be continually updated to reflect the community's needs and technological expertise.

### **17. Online Identification of Broadband Services at Key Economic Sites**

Develop an inventory of the broadband and telecommunication services available at community industrial parks, business parks, and other key business locations. Gathered information could include the highest speeds, technology platform, and number of fiber providers available. If not available, the closest provider and distance should be identified. All information should be shared with regional and state economic development planners, as well as listed on the area economic development websites (e.g. Chamber of Commerce or area development districts).

### **Goals**

1. Develop an inventory of the broadband and telecommunication services available at community industrial parks, business parks, and other key business locations to share with regional and state economic development planners.

### **Benefits**

1. This data can be utilized to make site selection decisions, as well as to attract potential investment. According to a [2011 survey](#) of building owners and property managers, broadband access is one of the most important decision factors for commercial real estate siting — after price, parking, and location. Similarly, a [national survey](#) found that 77 percent of economic development professionals believe that to attract a new business, a community must have broadband of at least 100 Mbps.

### **Action Items**

1. Collaborate with commercial building owners, providers, and other stakeholders to develop an inventory of broadband and telecommunications services available at key economic sites.

### **18. Develop a Tourism Portal**

Creating a tourism portal is a way to market local attractions to travelers from around the world and deliver sophisticated, interactive multimedia tools that detail lodging, recreation, and amenities in the community. Visitors to the portal must also be able to register for events, make reservations, and have access to activities, businesses, and other items that tourists generally look for such as locations of ATM machines, restaurants, antique bazaars, museums,

hotspots, and tourist agencies. The tourism portal can be a component of a comprehensive community portal that has a dual purpose: first, to inform tourists about local attractions and give them opportunities to make inquiries and reservations; second, to inform local residents and businesses within the community about current activities, groups, and commerce. In addition to serving residents, the portal will help to inform residents and businesses within the community about current activities, groups, and commerce.

### **Goals**

1. Create a tourism portal that informs tourists about local attractions and provides information to locals regarding current activities, groups, and commerce.

### **Benefits**

1. Informs tourists and advertises to potential tourists.
2. Drives web traffic to local businesses and tourist attractions.
3. Increases the community's visibility on the web.

### **Action Items**

1. Identify an appropriate host for the tourism portal.
2. Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.

## **19. Create a Teleworker Support and Attraction Program**

Teleworking offers significant benefits to employers, employees, self-employed individuals, and entrepreneurs. These benefits include businesses' infrastructure savings, emissions reduction, and congestion management. Further, teleworking can help businesses and government agencies reduce real estate, energy, and other overhead costs, using the savings to avoid job cuts or to hire new staff. Research has shown that teleworking programs can increase an employer's productivity, enabling them to continue operating without skipping a beat in the face of a natural disaster or other emergency situation that might otherwise bring business to a halt. Teleworking also allows employees to lower their commuting costs while juggling both work and family, even accommodating people with disabilities, the elderly, mothers, and rural residents who may not be in a position to work outside the home.

It is unlikely that all employees will be able to telework. A good way to start is to identify some types of positions or job types that can be performed remotely. Before fully implementing the policy, initiate a trial period and track results. Get feedback from managers and other employees as to the benefits and any challenges they are seeing, then fine-tune and possibly expand the program to best suit everyone's needs.

### **Goals**

1. Promote or develop flexible efficient and effective work arrangements.

### **Benefits**

1. Teleworking can benefit the environment, boost economic growth, and provide a better work-life balance for employees.
2. Taps into community's workforce potential (employable individuals with transportation limitations).
3. Makes community more attractive to knowledge workers and business expansion.

### **Action Items**

1. Promote the establishment of a teleworking pilot program.
2. Establish a cross-functional project team, including, for example, information technology labor representatives and other stakeholders.
3. Establish an agency-wide telework policy.
4. Establish eligibility criteria to ensure that teleworkers are selected on an equitable basis using criteria such as suitability of tasks and employee performance.
5. Develop a telework agreement for use between teleworkers and their managers.
6. Conduct assessment of teleworker and organization technology needs.

## **20. Host Website and Social Media Classes for Local Businesses**

For small businesses, an online presence and the use of social media are vital for staying competitive in the twenty-first century. A website and social media use are not just for companies that have the experience, staff, or budget; any small business can tap into these resources. Training should be provided to small businesses regarding the use of websites and social media within that small business. Website topics should range from starting a basic website to more advanced topics such as e-Commerce. Social media topics should include a variety of social media outlets including Facebook, Twitter, YouTube, Pinterest, and LinkedIn.

### **Goals**

1. To encourage small local businesses to develop websites and to use social media and e-Commerce.

### **Benefits**

1. Facilitates business interaction with government, especially for urban planning, real estate development, and economic development.
2. e-Government lowers the cost to a business conducting all of its interaction with government. Further, as more businesses conduct their business with government online, their transaction costs will be lowered. The cost to a business for any interaction decreases as more technology and fewer staff resources are needed.
3. e-Government provides a greater amount of information to businesses and provides it in a more organized and accessible manner.

### **Action Items**

1. The first step in the process of providing e-Government services to constituents is developing a functional web portal that allows businesses to have access to resources easily. Such a portal can enable outside businesses looking for new opportunities to make informed decisions about working in a certain community.
2. In addition, often overlooked in e-Government deployment are the issues of audiences and needs. Local governments must determine who will visit the website and what sort of information and services they will typically seek. A first step toward meeting general needs of constituents is to provide online access to as broad a swath of governmental information and data as is possible. The sort of information that should be included is:
  - Hours of operation and location of facilities.
  - Contact information of key staff and departments.
  - An intuitive search engine.
  - Access to documents (ideally a centralized repository of online documents and forms).
  - Local ordinances, codes, policies, and regulations.
  - Minutes of official meetings and hearings.
  - News and events.

## **21. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses**

Methods of implementing a small and medium business broadband awareness program include, but are not limited to, facilitating awareness sessions, holding press conferences led by community leaders, inviting speakers to community business conferences or summits, and public service announcements. It is also important to educate local businesses about Internet tools that are available at minimum or no cost to them.

A training program, or entry-level “Broadband 101” course, could be utilized to give small and medium businesses an introduction on how to capitalize on broadband connectivity, as well as more advanced applications for IT staff. In addition, training should include resources for non-IT staff, such as how to use commerce tools for sales, streamline finances with online records, or leverage knowledge management across an organization. Additional training might include:

- “How-to” training for key activities such as online collaboration, search optimization, cyber-security, equipment use, and Web 2.0 tools.
- Technical and professional support for hardware, software, and business operations.
- Licenses for business applications such as document creation, antivirus and security software, and online audio- and videoconferencing.
- Website development and registration.
- Basic communications equipment, such as low-cost personal computers and wireless routers.

### **Goals**

1. Businesses adopt and use broadband-enabled applications, resulting in increased efficiency, improved market access, reduced costs, and increased speed of both transactions and interactions.

### **Benefits**

1. Provides entrepreneurial support.
2. Eliminates knowledge gap about how best to utilize broadband tools, increasing productivity.
3. Promotes business growth and workforce development.
4. Broadband empowers small businesses to achieve operational scale more quickly by lowering start-up costs through faster business registration and improved access to customers, suppliers, and new markets. According to [Connected Nation's 2012 Jobs and Broadband Report](#), businesses that are using the Internet bring in approximately \$300,000 more in median annual revenues than their unconnected counterparts.

### **Action Items**

1. Identify federally or state sponsored business support programs (e.g. Chamber of Commerce, SBA, EDA, Agriculture, or Manufacturing extension) that include assistance with broadband or IT content.
2. Identify or develop a business awareness and training program.
3. Identify or develop online training modules for businesses. For example, the Southern Rural Development Center, in partnership with National Institute of Food and Agriculture, USDA, administers the National e-Commerce Extension Initiative. As the sole outlet nationally for e-Commerce educational offerings geared at Extension programming, the National e-Commerce Extension Initiative features interactive online learning modules. In addition, the program's website offers a library of additional resources and a tutorials section for greater explanation on website design and function. Modules and presentations include: A Beginner's Guide to e-Commerce, Doing Business in the Cloud, Electronic Retailing: Selling on the Internet, Helping Artisans Reach Global Markets, and Mobile e-Commerce. To see some examples, click here: [srdc.msstate.edu/ebeat/small\\_business.html#](http://srdc.msstate.edu/ebeat/small_business.html#).

## **22. Create Local Jobs Via Teleworking Opportunities**

Connected Nation's Digital Works program is a hybrid between an employment agency and a co-working facility that connects residents with online training courses and connections with companies that lack a physical presence in the community. The Digital Works program creates jobs in areas facing high unemployment by leveraging broadband technology for call center and IT outsourcing. Extended training is available for HTML programming, and other technical positions as well. The program is providing an avenue for communities to create a job incubator, retaining workers in the area and attracting corporate jobs while providing a pathway for improving a worker's competitive advantage in the twenty-first century workforce with specified coursework and training.

At the end of training, workers are placed in available positions that match their skills and interests. All jobs pay above minimum wage and the training provides opportunities for placement at levels for upward mobility. This is work that can be done from home or at the Digital Works center, which is provided through a partnership with the community.

### Goals

1. Connect IT training and education with remote employment opportunities.

### Benefits

1. This type of project can educate, train, employ, and has the potential to ultimately increase the productivity and economic competitiveness of your community's workforce.
2. The physical infrastructure and training exposes a broad spectrum of residents to the benefits of telecommunications and productive uses of the Internet.
3. Through training and work, participants will rely heavily on local ISPs, broadband technology, and emerging IT technologies to provide services to a global marketplace, in turn fostering the demand-driven strengthening of your community's physical Internet infrastructure.

### Action Items

1. The Digital Works program requires a site suitable for establishing office infrastructure, educational partners to develop the workforce, and business relationships with enterprises willing to hire workers through the digital factory.
2. Identify the physical, financial, and technological resources needed to establish a digital factory.
3. Space to house workspace and training and support offices will be needed, as well as the equipment, such as computers and monitors for video conferencing and training.
4. Develop partnerships with companies who would provide contractual employment to program graduates.
5. Visit [www.digitalworksjobs.com](http://www.digitalworksjobs.com) to learn more.

### 23. Partner with Team St. George to Develop a Farmers Network

Create a local agricultural portal to connect farmers with buyers and technical experts ([United States Department of Agriculture](#) [USDA], researchers, university and extension offices, state department of agriculture, the State or [National Farm Bureau](#), etc.) in agriculture. This portal will enable local farmers to share the latest techniques in farming such as using technological tools and data to make decisions. Tools can include GPS, yield monitors, variable rate technology, and remote sensing. Farmers can also share how to be successful in maximizing production and reducing costs.

Beyond information sharing, a local agricultural portal could also be utilized to provide online "booth space" for growers, producers, and artisans selling direct to the consumer. Set up much like an open-air farmers' market where vendors offer food, crafts, gifts, supplies, garden tools



and more, the purpose would be to provide a space where local and regional consumers can meet, correspond, and purchase products directly from the farm. This online farmers market could be a feature in the local agricultural portal or a Main Street Portal. Either way, an online farmers market should be feature-rich, enabling virtual farm tours, discussion forums, video and image galleries, and real time ordering and payment.

### **Goals**

1. Create a portal to keep the agricultural community connected and to facilitate advanced information sharing, news, and marketing of products.

### **Benefits**

1. Connects agricultural community.
2. Connects agricultural producers and consumers.
3. Facilitates knowledge-share.
4. Could be used for e-Commerce.

### **Action Items**

1. Identify an appropriate host for the agricultural portal.
2. Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.
3. The community portal should be continually updated to reflect the agricultural community's needs and technological expertise.

## **Education**

### **24. Improve Education through Digital Learning**

Several digital learning platforms are available for K-12 implementation. For example, [CFY](#) is a national education nonprofit that helps students in low-income communities, together with their teachers and families, harness the power of digital learning to improve educational outcomes. The organization is unique in that it operates both “in the cloud” (through [PowerMyLearning.com](#), a free K-12 online learning platform) and “on the ground” (through its Digital Learning Program, a whole school initiative that works hands-on with all three of the constituents that impact student achievement: teachers, parents, and students).

[PowerMyLearning.com](#) is a free online educational tool that helps students, teachers and parents locate and access over 1,000 high-quality online digital learning activities — videos, simulations, and other educational software — to propel student achievement in subjects including math, English, science, and social studies. The platform features a kid-friendly design. There is a playpoint/badge feature to help motivate students. In addition, students can rate digital learning activities and share them with friends via e-mail, Facebook, and Twitter. CFY also provides onsite training to teach teachers how to integrate PowerMyLearning into their classrooms.

### Goals

1. Increase student attention and engagement, encourage students to take ownership of their learning, and make it easier for teachers to differentiate instruction without embarrassing students.

### Benefits

1. Increase learning time by extending learning beyond the classroom walls.
2. Individualize learning and increase student engagement in school.
3. Encourage self-directed learning.
4. Enable parents to more effectively support their children at home.

## 25. Connect all School Classrooms to the Internet

A K-12 broadband network should provide adequate performance and reach, including abundant wireless coverage in and out of school buildings. “Adequate” means enough bandwidth to support simultaneous use by all students and educators anywhere in the building and the surrounding campus to routinely use the Web, multimedia, and collaboration software. To reach the goal of sufficient broadband access for enhanced K-12 teaching and learning and improved school operations, the [State Educational Technology Directors Association \(SETDA\)](#) recommends that broadband speeds in schools should equate to a [minimum of 100 Kbps per student/staff](#). However, given that bandwidth availability determines which online content, applications, and functionality students and educators will be able to use effectively in the classroom, additional bandwidth will be required in many, if not most, K-12 districts in the coming years.

In order to evolve with technology, school districts must continue to update local educational policies and curriculum, assess their broadband and classroom technology needs, evaluate the professional development requirements of teachers, and provide tech support.

### Goals

1. Facilitate the connection of all classrooms to broadband Internet so that teachers and students can take advantage of global educational resources.

### Benefits

1. Students can actively utilize school computers to access rich, multimedia-enhanced educational content and the Internet.
2. Students can post their content (including audio and video podcasts) to school learning management systems, access their e-textbooks and get their assignments online, and collaborate daily across the network with other students via wikis and other Internet-based applications.
3. Teachers can videoconference or download streaming media to classrooms and take their students on virtual field trips to interact with subject area experts.

4. School systems can utilize online courses.
5. Teachers can actively participate in online professional learning communities to share lessons and to participate in professional development.

### **Action Items**

1. Assess current and future bandwidth needs.
2. Utilize E-Rate funding. [E-Rate](#) is the commonly used name for the Schools and Libraries Program of the [Universal Service Fund](#), which is administered by the [Universal Service Administrative Company](#) (USAC) under the direction of the [Federal Communications Commission](#) (FCC). The program provides discounts to assist most schools and libraries to obtain affordable telecommunications and Internet access. Funding is requested under four categories of service: telecommunications services, Internet access, internal connections, and basic maintenance of internal connections. Discounts for support depend on the level of poverty and the urban/rural status of the population served and range from 20% to 90% of the costs of eligible services. Eligible schools, school districts and libraries may apply individually or as part of a consortium.
3. If broadband capacity is lacking at the local level, seek partnerships with other local high-capacity demand institutions, including local civic leaders, government entities, public safety agencies, libraries, and hospitals or clinics, in a coordinated effort to aggregate local demand needs for increased broadband capacity and service. By aggregating demand within a local community, these institutions will be able to demonstrate to interested broadband providers existing pent-up demand and help justify private investments to bring greater capacity backhaul service to that community. That increased backhaul capacity can in turn benefit the whole community.

### **Government**

#### **26. Improve the Online Presence of Government**

The government's website must meet the needs of the citizen; should equal or exceed the standards of private company websites; design must be uncluttered, informative, and easy to navigate; and website best practices must be continuously monitored and implemented. Further, website administrators should be funded and required to follow the latest best practices in design and web search optimization. They should have a process for archiving content that is no longer in frequent use and no longer required to be posted on the website. In addition, the local government should regularly solicit public opinion and analyze citizens' online preferences before making changes to their website or before launching a new website.

#### **Goals**

1. The goal should be to make the website relevant, useful, convenient, and the go-to for local information and services.

#### **Benefits**

1. Makes government more efficient, resulting in greater public convenience and cost effectiveness.
2. Improves the quality and accessibility of government information, and helps agencies deliver the services most requested by their customers.

#### **Action Items**

1. Review the current e-Government applications to identify gap areas. Compare current applications to other comparable government websites of like size from around the state to identify improvement areas.
2. Conduct an assessment of the usability of current applications.
3. Use current and draft survey instruments to identify applications of public interest. Use this survey to examine potential e-Government applications.
4. Identify high-volume services to target for online automation. Emergency and first responder applications will be included.
5. Identify partners and entities to assist in implementation.
6. Develop and launch applications.

#### **27. Support Healthcare Providers Serving Rural Communities**

Review the Universal Service Administration Company's (USAC) Universal Service Rural Health Care Program. The Rural Health Care program supports healthcare providers serving rural communities by funding telecommunications services necessary for the provision of healthcare. The program is intended to ensure that rural healthcare providers pay no more for telecommunications in the provision of healthcare services than their urban counterparts.

The Healthcare Connect Fund (HCF) Program is the newest component of the Rural Health Care Program. The HCF Program will provide a 65 percent discount on eligible expenses related to broadband connectivity to both individual rural health care providers (HCPs) and consortia, which can include non-rural HCPs (if the consortium has a majority of rural sites).

#### *Eligibility:*

There are three initial criteria a health care provider (HCP) must meet to participate in the Rural Health Care Program.

1. HCPs must be one of the following types of entities:
  - Post-secondary educational institutions offering health care instruction, such as teaching hospitals and medical schools
  - Community health centers or health centers providing health care to migrants
  - Local health departments or agencies
  - Community mental health centers
  - Not-for-profit hospitals
  - Rural health clinics
  - Consortia of HCPs consisting of one or more of the above entities

- Dedicated emergency departments of rural for-profit hospitals
  - Part-time eligible entities located in facilities that are ineligible
2. HCPs must be a not-for-profit entity or a public entity.
  3. HCPs must be located in an FCC-approved rural location.

Once your HCP has been established as eligible, you should ensure that the services you request are [eligible for support](#).

*Contact Information:*

Telephone: (800) 229-5476

E-mail: [rhc-admin@usac.org](mailto:rhc-admin@usac.org)

Website: [www.universalservice.org/rhc/default.aspx](http://www.universalservice.org/rhc/default.aspx)

**Goals**

1. Ensure that rural healthcare providers in your community have access to the robust telecommunications infrastructure required for the provision of healthcare services.

**28. Pursue Next Generation 911 Upgrades**

The overall system architecture of Public Safety Answering Points (PSAPs) has essentially not changed since the first 911 call was made in 1968. These 911 systems are voice-only networks based on original wireline, analog, circuit-switched infrastructure that prevent easy transmission of data and critical sharing of information that can significantly enhance the decision-making ability, response, and quality of service provided to emergency callers. To meet growing public expectations of 911-system functionality (capable of voice, data, and video transmission from different types of communication devices), that framework should be replaced. This would require replacing analog phone systems with an Internet Protocol (IP)-based system. This system would provide an enabling platform for current technology, as well as future upgrades.

For example, in January 2013, the Federal Communications Commission proposed to amend its rules by requiring all wireless carriers and providers of “interconnected” text messaging applications to support the ability of consumers to send text messages to 911 in all areas throughout the nation where 911 Public Safety Answering Points (PSAPs) are also prepared to receive the texts (which requires an IP-based system). Text-to-911 will provide consumers with enhanced access to emergency communications in situations where a voice call could endanger the caller, or a person with disabilities is unable to make a voice call. In the near term, text-to-911 is generally supported as the first step in the transition to a Next Generation 911.

**Goals**

1. Design a system that enables the transmission of voice, data, or video from different types of communication devices to Public Safety Answering Points (PSAPs) and onto emergency responder networks.

### Benefits

1. Transitioning to a “Next Generation” IP-based network will enable the public to make voice, text, or video emergency calls from any communications device. With Next Generation 911, responders and PSAPs will gain greater situational awareness, which will enable better-informed decisions, resulting in better outcomes and, ultimately, a safer community. By capitalizing on advances in technologies, you are enabling:
  - Quicker and more accurate information to responders
  - Better and more useful forms of information
  - More flexible, secure and robust PSAP operations
  - Lower capital and operating costs

### Action Items

1. If you're involved in PSAP decision making and are faced with replacing aging systems or purchasing new technology for the very first time, you need to consider what your most immediate requirements are and where you need to be 10 years from now. Your community can take a measured and practical approach that spreads the operational impact and costs of a Next Generation 911 transition over time. Your local agency should choose a starting point that makes the most sense and provides immediate benefits for their PSAP, responders, and communities they serve. For example, according to [Intrado, Inc.](#), a provider of 911 and emergency communications infrastructure to over 3,000 public safety agencies, local public-safety agencies can implement any of the following next-generation 911 components today, and provide immediate benefits with little to no disruption of current operations:
  - A public-safety-class, IP-based network
  - IP-based call processing equipment (CPE) in public-safety answering points (PSAPs)
  - Geographic information system (GIS) data enhancements
  - Advanced 911 data capabilities and applications

## 29. Improve Online Business Services Offered by the Government

Developing more e-Government applications not only provides value to businesses, but also allows the government to realize cost savings and achieve greater efficiency and effectiveness. Examples of activities include paying for permits and licensing, paying taxes, providing services to the government and other operations.

### Goals

1. Build an e-Government solution that improves the ability of businesses to conduct business with the government over the Internet.

### Benefits

1. Facilitates business interaction with government, especially for urban planning, real estate development, and economic development.

2. e-Government lowers the cost to a business conducting all of its interaction with government. Further, as more businesses conduct their business with government online, their transaction costs will be lowered. The cost to a business for any interaction decreases as more technology and fewer staff resources are needed.
3. e-Government provides a greater amount of information to businesses and provides it in a more organized and accessible manner.

### **Action Items**

1. The first step in the process of providing e-Government services to constituents is developing a functional web portal that allows businesses to have access to resources easily. Such a portal can enable outside businesses looking for new opportunities to make informed decisions about working in a certain community.
2. In addition, often overlooked in e-Government deployment are the issues of audiences and needs. Local governments must determine who will visit the website and what sort of information and services they will typically seek. A first step toward meeting general needs of constituents is to provide online access to as broad a swath of governmental information and data as is possible. The sort of information that should be included is:
  - Hours of operation and location of facilities.
  - Contact information of key staff and departments.
  - An intuitive search engine.
  - Access to documents (ideally a centralized repository of online documents and forms).
  - Local ordinances, codes, policies, and regulations.
  - Minutes of official meetings and hearings.
  - News and events.

### **30. Improve Public Safety Communications**

Broadband offers a unique opportunity to achieve a comprehensive vision for enhancing the safety and security of your community's residents. Broadband can help public safety personnel prevent emergencies and respond swiftly when they occur. Broadband can also provide your community with new ways of calling for help and receiving emergency information. For example, first responders from different jurisdictions and agencies often cannot communicate during emergencies due to disparate communication systems and the lack of integration between these systems. However, wireless broadband supports the interoperability of communications systems that would allow first responders anywhere in the nation to communicate with each other, send and receive critical voice and data to save lives, reduce injuries, and prevent acts of crime and terror. Furthermore, with broadband, 911 call centers (also known as public safety answering points or PSAPs) could receive text, pictures and videos from the public and relay them to first responders. Similarly, the government could use broadband networks to disseminate vital information to the public during emergencies in multiple formats and languages.

To overcome the challenges posed by disparate communication systems and dated technology, your community's public safety agencies should collaborate with state and federal agencies in order to improve communication across organizational and jurisdictional boundaries. This is one of the priorities of the First Responder Network Authority (FirstNet). Created by the Middle Tax Relief and Job Creation Act of 2012, FirstNet was established as an independent authority within the National Telecommunications and Information Administration (NTIA) in order to establish a single nationwide, interoperable public safety broadband network.

To find out more information on FirstNet and the Nationwide Public Safety Network, visit [www.ntia.doc.gov/category/firstnet](http://www.ntia.doc.gov/category/firstnet). To find out more information regarding your state's efforts and point of contact for FirstNet planning, check with your Governor's office and/or statewide interoperability coordinator.

Other relevant initiatives include:

- Assistance to Firefighters Grants (AFG): The primary goal of the AFG Program is to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations. AFG funds have helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.
- Community Connect Grant Program: The Community Connect Grant Program provides financial assistance to furnish broadband service in un-served, often isolated, rural communities. The grants are used to establish broadband service for critical facilities such as fire or police stations, while also providing service to residents and businesses.

## Goals

1. Leverage Broadband Technologies to Enhance Emergency Communications to and from the Public.

## Healthcare

### 31. Promote Telemedicine in Remote Areas

Promote the delivery of healthcare services from a distance using video-based technologies. Telemedicine can help to address challenges associated with living in sparsely populated areas and having to travel long distances to seek medical care - particularly for patients with chronic illnesses. It also addresses the issue of the lack of medical specialists in remote areas by awarding access to specialists in major hospitals situated in other cities, states, or countries. While telemedicine can be delivered to patient homes, it can also be implemented in partnership with local clinics, libraries, churches, schools or businesses that have the appropriate equipment and staff to manage it. The most critical steps in promoting telemedicine are ensuring that patients and medical professionals have access to broadband





service, understand the main features of telemedicine, are aware of the technologies required for telemedicine, and understand how to develop, deliver, use, and evaluate telemedicine services.

One relevant funding opportunity includes [Distance Learning and Telemedicine Loans and Grants Program](#). The USDA provides loans and grants to rural community facilities (e.g. schools, libraries, hospitals, and tribal organizations) for advanced telecommunications systems that can provide healthcare and educational benefits to rural areas. Three kinds of financial assistance are available: a full grant, grant-loan combination, and a full loan.

### **Goals**

1. Deliver improved healthcare services to rural residents.

## APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND

### Statewide Infrastructure

As part of the South Carolina State Broadband Initiative (SBI), and in partnership and at the direction of the State of South Carolina Office of the Governor, Connect South Carolina produced an inaugural map of broadband availability in spring 2010. The key goal of the map was to highlight communities and households that remain unserved or underserved by broadband service; this information was essential to estimating the broadband availability gap in the state and understanding the scope and scale of challenges in providing universal broadband service to all citizens across the state. Since the initial map’s release, Connect South Carolina has collected and released new data every six months, with updates in October and April annually.

The most current Statewide and County Specific Broadband Inventory Maps released in the spring of 2013 depict a geographic representation of provider-based broadband data represented by cable, DSL, wireless, fiber, etc. These maps also incorporate data such as political boundaries and major transportation networks in the state. A statewide map is found at

[www.connectsc.org/connectednationftp/south%20carolina/Statewide\\_Maps/SC\\_Statewide\\_Broadband.pdf](http://www.connectsc.org/connectednationftp/south%20carolina/Statewide_Maps/SC_Statewide_Broadband.pdf).

The county maps are found at

[www.connectsc.org/community\\_profile/find\\_your\\_county/south%20carolina/Dorchester](http://www.connectsc.org/community_profile/find_your_county/south%20carolina/Dorchester).

**Table 1: Estimate of Broadband Service Availability in the State of South Carolina By Speed Tier Among Fixed Platforms**

SBI Download/Upload Speed Tiers	Unserved Households ('000)	Served Households ('000)	Percent Households by Speed Tier
<b>At Least 768 Kbps/200 Kbps</b>	57	1,744	96.85
<b>At Least 1.5 Mbps/200 Kbps</b>	59	1,742	96.73
<b>At Least 3 Mbps/768 Kbps</b>	122	1,679	93.22
<b>At Least 6 Mbps/1.5 Mbps</b>	245	1,556	86.37
<b>At Least 10 Mbps/1.5 Mbps</b>	247	1,554	86.29
<b>At Least 25 Mbps/1.5 Mbps</b>	398	1,403	77.92
<b>At Least 50 Mbps/1.5 mbps</b>	407	1,394	77.41
<b>At Least 100 Mbps/1.5 Mbps</b>	1,155	646	35.86
<b>At Least 1 Gbps/1.5 Mbps</b>	1,801	0	0

Source: Connect South Carolina, May 2013

Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband service inventory (excluding mobile and satellite service) across the state of South Carolina; it presents the number and percentage of unserved and served households by speed tiers. The total number of households in South Carolina in 2010 was 1,801,181, for a total population of 4 million people. Table 1 indicates that 96.85% of households are able to connect to broadband at download speeds of at least 768 Kbps and upload speeds of at least 200 Kbps. This implies that the number of households originally estimated by Connect South Carolina to be unserved has dropped from 81,313 households in the fall of 2010 to 56,726 households in the spring of 2013. Further, approximately 1,678,989 households across South Carolina have broadband available of at least 3 Mbps download and 768 Kbps upload speeds. The percentage of South Carolina households having fixed broadband access available of at least 6 Mbps download and 1.5 Mbps upload speeds is estimated at 86.37%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.9% of South Carolina households have broadband available from at least one provider at download speeds of 768 Kbps or higher and upload speeds of 200 Kbps or higher. This leaves 1,817 households in the state completely unserved by any form of terrestrial broadband (including mobile, but excluding satellite services).

As differences in broadband availability estimates between the fall of 2010 and the spring of 2013 show, additional participating broadband providers can have a large impact upon South Carolina broadband mapping inventory updates. Further, the measured broadband inventory provides an estimate of the true extent of broadband coverage across the state. There is a degree of measurement error inherent in this exercise, which should be taken into consideration when analyzing the data. This measurement error will decrease as local, state, and federal stakeholders identify areas where the displayed coverage is underestimated or overestimated. Connect South Carolina welcomes such feedback to be analyzed in collaboration with broadband providers to correct errors identified in the maps.

In addition, the broadband availability data collected, processed, and aggregated by Connect South Carolina has been sent on a semi-annual basis to the NTIA to be used in the National Broadband Map, and comprises the source of South Carolina's broadband availability estimates reported by the NTIA and the FCC in the National Broadband Map. The National Broadband Map can be found here: [www.broadbandmap.gov](http://www.broadbandmap.gov) and the Map's specific page for South Carolina can be found here: [www.broadbandmap.gov/summarize/state/south-carolina](http://www.broadbandmap.gov/summarize/state/south-carolina).

### **Interactive Map**

Connect South Carolina provides My ConnectView<sup>TM</sup>, an online tool developed and maintained by Connected Nation, intended to allow users to create completely customized views and maps of broadband infrastructure across the state. The self-service nature of this application

empowers South Carolina's citizens to take an active role in seeking service, upgrading service, or simply becoming increasingly aware of what broadband capabilities and possibilities exist in their area, city, county, or state.

[www.connectsc.org/interactive-map](http://www.connectsc.org/interactive-map)

For additional maps and other related information, visit: [www.connectsc.org/broadband-landscape](http://www.connectsc.org/broadband-landscape)

## Business and Residential Technology Assessments

To complement the broadband inventory and mapping data, Connect South Carolina periodically conducts statewide residential and business technology assessments to understand broadband demand trends and across the state. The purpose of this research is to better understand the drivers and barriers to technology and broadband adoption and estimate the broadband adoption gap across the state of South Carolina. Key questions the data address are: who, where, and how are households in South Carolina using broadband technology? How is this technology impacting South Carolina households and residents? Who is not adopting broadband service and why? What are the barriers that prevent citizens from embracing this empowering technology?

Through Connect South Carolina's research, many insights are able to be collected. The most recent residential technology assessment revealed the following key findings:

- Statewide, nearly 2.4 million South Carolina adults subscribed to home broadband service in 2012— approximately 329,000 more than the year before. One of biggest jumps was among low-income rural households, where broadband adoption grew faster than in the rest of the state.
- Across the state, approximately 263,000 children live without broadband service at home. For many of these families, cost is the biggest hurdle to overcome - 21% of those households with children say the main reason they do not subscribe to broadband is because the price of a computer is too expensive, while 17% cite the monthly cost of broadband service as the biggest hurdle.
- Mobile broadband usage is soaring in South Carolina. More than one-half of South Carolina adults go online using their cell phones or mobile devices, and young adults (age 18-34) are more likely to use the Internet on their cell phones than they are to have home broadband service.

Additionally, an assessment on technology in businesses released in May of 2012 in a report titled *Technology Adoption among South Carolina Businesses* revealed the following key findings:

- Across South Carolina, 80% of businesses subscribe to broadband service, which means that approximately 21,000 South Carolina businesses still do not use or benefit from



broadband.

- South Carolina business establishments that use broadband report median annual revenues that are approximately \$300,000 higher than businesses that do not use broadband.
- More than nine out of ten South Carolina businesses owned by African Americans use broadband.

For more information on the statewide information described, visit the Connect South Carolina website at [www.connectsc.org/](http://www.connectsc.org/).

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## APPENDIX 2: PARTNER AND SPONSORS

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**Connect South Carolina**, in partnership with the State of South Carolina Office of the Governor, supports South Carolina's reinvention and technological transformation through innovation, job creation, and entrepreneurship via the expansion of broadband technology and increased usage by South Carolina residents. In 2009, Connect South Carolina partnered with the State of South Carolina to engage in a comprehensive broadband planning and technology initiative as part of the national effort to map and expand broadband. The program began by gathering provider data to form a statewide broadband map, and has progressed to the planning and development stage. At this point the program is expanding to include community engagement in local technology planning, identification of opportunities with existing programs, and implementation of technology projects designed to address digital literacy, improve education, give residents access to global Internet resources, and stimulate economic development.

[www.connectsc.org](http://www.connectsc.org)

**Connected Nation** (Connect South Carolina's parent organization) is a leading technology organization committed to bringing affordable high-speed Internet and broadband-enabled resources to all Americans. Connected Nation effectively raises the awareness of the value of broadband and related technologies by developing coalitions of influencers and enablers for improving technology access, adoption, and use. Connected Nation works with consumers, community leaders, states, technology providers, and foundations, including the Bill & Melinda Gates Foundation, to develop and implement technology expansion programs with core competencies centered on a mission to improve digital inclusion for people and places previously underserved or overlooked.

[www.connectednation.org](http://www.connectednation.org)

The **National Telecommunications and Information Administration (NTIA)** is an agency of the United States Department of Commerce that is serving as the lead agency in running the State Broadband Initiative (SBI). Launched in 2009, the NTIA's State Broadband Initiative (SBI) implements the joint purposes of the Recovery Act and the Broadband Data Improvement Act, which envisioned a comprehensive program, led by state entities or non-profit organizations working at their direction, to facilitate the integration of broadband and information technology into state and local economies. Economic development, energy efficiency, and advances in education and healthcare rely not only on broadband infrastructure, but also on the knowledge and tools to leverage that infrastructure.

The NTIA has awarded a total of \$293 million for the SBI program to 56 grantees, one each from the 50 states, 5 territories, and the District of Columbia, or their designees. Grantees such as Connect South Carolina are using this funding to support the efficient and creative use of



broadband technology to better compete in the digital economy. These state-created efforts vary depending on local needs but include programs to assist small businesses and community institutions in using technology more effectively, developing research to investigate barriers to broadband adoption, searching out and creating innovative applications that increase access to government services and information, and developing state and local task forces to expand broadband access and adoption.

Since accurate data is critical for broadband planning, another purpose of the SBI program is to assist states in gathering data twice a year on the availability, speed, and location of broadband services, as well as the broadband services used by community institutions such as schools, libraries, and hospitals. This data is used by the NTIA to update the National Broadband Map, the first public, searchable nationwide map of broadband availability launched February 17, 2011.

## APPENDIX 3: WHAT IS CONNECTED?

The goal of Connect South Carolina’s Connected program is to certify that each community that participates in the program has, in some relevant manner, addressed their community’s need for improved Access, Adoption, and Use of technology by assessing community technological resources, identifying gaps, and working to fill those gaps:

- **ACCESS** – Is Broadband infrastructure available to all residents?
- **ADOPTION** – Do residents use the technologies?
- **USE** – Are residents using technology to improve their quality of life?

### Connected Process



The Connected process consists of a 4-step process:

**Step 1: Create a community technology team.** Facilitate kickoff meetings and program orientation with regional leaders and community champions. Provide them with tools and resources to form a community team. This team will be represented by local leaders from key community sectors, including:



- Broadband Provider Community
- Government: General, Public Safety, Energy and Environment
- Economic Opportunity: Economic Development, Business Development, Tourism
- Agriculture
- Education: K-12, Higher Education
- Libraries
- Healthcare

**Step 2: Perform a technology assessment.** With support provided by a planning specialist, Connect South Carolina will provide communities with tools (electronic or print depending on the community needs) to benchmark local community technology. Bolstered by benchmarking data that had been gathered through Connect South Carolina’s mapping and market research, the Upper Dorchester Broadband Committee will work with community members to determine their overall broadband and technology grade on a thirteen-point “community certification AAU” model:

1. Broadband Availability
2. Broadband Speeds
3. Broadband Competition
4. Middle Mile Access
5. Mobile Broadband Availability
6. Digital Literacy
7. Public Computer Centers
8. Broadband Awareness
9. Vulnerable Population Focus
10. Economic Opportunity
11. Education
12. Government
13. Healthcare

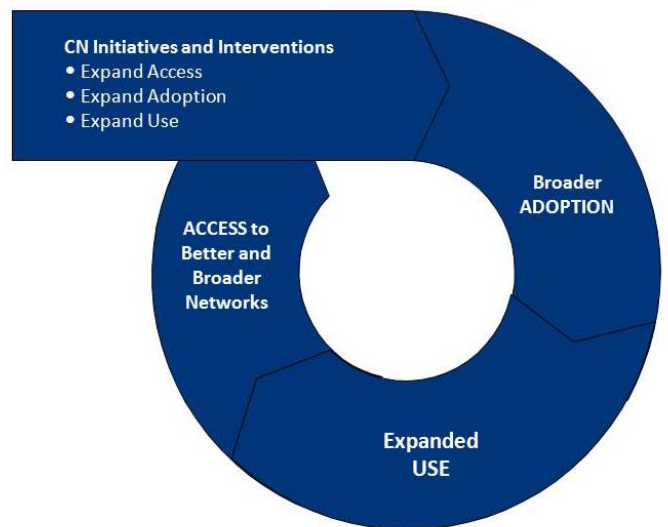
**Step 3: Action Planning & Implementation.**

Following Community Assessments, the data is analyzed, gaps will be determined, and projects are identified to help to fill gaps. After successful execution of projects the community will be certified as a Connected Community.

**Step 4: Project Success and Expanded Local Empowerment.**

Once a community is certified, the community will have an avenue to discuss its success and pursue opportunities as a recognized, technologically advanced community.

**Broadband Catalysts for Change**



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## APPENDIX 4: GLOSSARY OF TERMS

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### #

**3G Wireless - Third Generation** - Refers to the third generation of wireless cellular technology. It has been succeeded by 4G wireless. Typical speeds reach about 3 Mbps.

**4G Wireless - Fourth Generation** - Refers to the fourth generation of wireless cellular technology. It is the successor to 2G and 3G. Typical implementations include LTE, WiMax, and others. Maximum speeds may reach 100 Mbps, with typical speeds over 10 Mbps.

### A

**ARRA** - American Recovery and Reinvestment Act.

**ADSL - Asymmetric Digital Subscriber Line** - DSL service with a larger portion of the capacity devoted to downstream communications, less to upstream. Typically thought of as a residential service.

**ATM - Asynchronous Transfer Mode** - A data service offering by ASI that can be used for interconnection of customers' LAN. ATM provides service from 1 Mbps to 145 Mbps utilizing Cell Relay Packets.

### B

**Bandwidth** - The amount of data transmitted in a given amount of time; usually measured in bits per second, kilobits per second, and megabits per second.

**BIP - Broadband Infrastructure Program** - Part of the American Recovery and Reinvestment Act (ARRA), BIP is the program created by the U.S. Department of Agriculture focused on expanding last mile broadband access.

**Bit** - A single unit of data, either a one or a zero. In the world of broadband, bits are used to refer to the amount of transmitted data. A kilobit (Kb) is approximately 1,000 bits. A megabit (Mb) is approximately 1,000,000 bits.

**BPL - Broadband Over Powerline** - An evolving theoretical technology that provides broadband service over existing electrical power lines.

**BPON - Broadband Passive Optical Network** - A point-to-multipoint fiber-lean architecture network system which uses passive splitters to deliver signals to multiple users. Instead of running a separate strand of fiber from the CO to every customer, BPON uses a single strand of fiber to serve up to 32 subscribers.

**Broadband** - A descriptive term for evolving digital technologies that provide consumers with integrated access to voice, high-speed data service, video-demand services, and interactive delivery services (e.g. DSL, cable Internet).

**BTOP - Broadband Technology Opportunities Program** - Part of the American Recovery and Reinvestment Act (ARRA), BTOP is the program created by the U.S. Department of Commerce

focused on expanding broadband access, expanding access to public computer centers, and improving broadband adoption.

## C

**Cable Modem** - A modem that allows a user to connect a computer to the local cable system to transmit data rather than video. It allows broadband services at speeds of five Mbps or higher.

**CAP - Competitive Access Provider** - (or “Bypass Carrier”) A company that provides network links between the customer and the Inter-Exchange Carrier or even directly to the Internet Service Provider. CAPs operate private networks independent of Local Exchange Carriers.

**Cellular** - A mobile communications system that uses a combination of radio transmission and conventional telephone switching to permit telephone communications to and from mobile users within a specified area.

**CLEC - Competitive Local Exchange Carrier** - Wireline service provider that is authorized under state and federal rules to compete with ILECs to provide local telephone and Internet service. CLECs provide telephone services in one of three ways or a combination thereof: a) by building or rebuilding telecommunications facilities of their own, b) by leasing capacity from another local telephone company (typically an ILEC) and reselling it, or c) by leasing discreet parts of the ILEC network referred to as UNEs.

**CMTS - Cable Modem Termination System** - A component (usually located at the local office or head end of a cable system) that exchanges digital signals with cable modems on a cable network, allowing for broadband use of the cable system.

**CO - Central Office** - A circuit switch where the phone and DSL lines in a geographical area come together, usually housed in a small building.

**Coaxial Cable** - A type of cable that can carry large amounts of bandwidth over long distances. Cable TV and cable modem broadband service both utilize this technology.

**Community Anchor Institutions (CAI)** - Institutions that are based in a community and larger user of broadband. Examples include schools, libraries, healthcare facilities, and government institutions.

**CWDM - Coarse Wavelength Division Multiplexing** - Multiplexing (more commonly referred to as WDM) with less than 8 active wavelengths per fiber.

## D

**Dial-Up** - A technology that provides customers with access to the Internet over an existing telephone line. Dial-up is much slower than broadband.

**DLEC - Data Local Exchange Carrier** - DLECs deliver high-speed access to the Internet, not voice. DLECs include Covad, Northpoint, and Rhythms.

**Downstream** - Data flowing from the Internet to a computer (surfing the net, getting e-mail, downloading a file).

**DSL - Digital Subscriber Line** - The use of a copper telephone line to deliver “always on” broadband Internet service.

**DSLAM - Digital Subscriber Line Access Multiplier** - A piece of technology installed at a telephone company's CO that connects the carrier to the subscriber loop (and ultimately the customer's PC).

**DWDM - Dense Wavelength Division Multiplexing** - A SONET term which is the means of increasing the capacity of Sonet fiber-optic transmission systems.

## E

**E-rate** - A federal program that provides subsidy for voice and data lines to qualified schools, hospitals, Community-Based Organization (CBOs), and other qualified institutions. The subsidy is based on a percentage designated by the FCC.

**Ethernet** - A local area network (LAN) standard developed for the exchange data with a single network. It allows for speeds from 10 Mbps to 10 Gbps.

**EON - Ethernet Optical Network** - The use of Ethernet LAN packets running over a fiber network.

**EvDO - Evolution Data Only** - A new wireless technology that provides data connections that are 10 times faster than a regular modem.

## F

**FCC - Federal Communications Commission** - A federal regulatory agency that is responsible for, among other things, regulating VoIP.

**Fixed Wireless Broadband** - The operation of wireless devices or systems for broadband use at fixed locations such as homes or offices.

**Franchise Agreement** - An agreement between a cable provider and a government entity that grants the provider the right to serve cable and broadband services to a particular area - typically a city, county, or state.

**FTTH - Fiber To The Home** - Another name for fiber to the premises, where fiber optic cable is pulled directly to an individual's residence or building allowing for extremely high broadband speeds.

**FTTN - Fiber To The Neighborhood** - A hybrid network architecture involving optical fiber from the carrier network, terminating in a neighborhood cabinet that converts the signal from optical to electrical.

**FTTP - Fiber To The Premise (Or FTTB – Fiber To The Building)** - A fiber optic system that connects directly from the carrier network to the user premises.

## G

**Gbps - Gigabits per second** - 1,000,000,000 bits per second or 1,000 Mbps. A measure of how fast data can be transmitted.

**GPON - Gigabyte-Capable Passive Optical Network** - Uses a different, faster approach (up to 2.5 Gbps in current products) than BPON.

**GPS - Global Positioning System** - A system using satellite technology that allows an equipped user to know exactly where he is anywhere on earth.

**GSM - Global System for Mobile Communications** - This is the current radio/telephone standard in Europe and many other countries except Japan and the United States.

## H

**HFC - Hybrid Fiber Coaxial Network** - An outside plant distribution cabling concept employing both fiber optic and coaxial cable.

**Hotspot** - See *Wireless Hotspot*.

## I

**IEEE** - Institute of Electrical and Electronics Engineers (pronounced “Eye-triple-E.”).

**ILEC - Incumbent Local Exchange Carrier** - The traditional wireline telephone service providers within defined geographic areas. They typically provide broadband Internet service via DSL technology in their area. Prior to 1996, ILECs operated as monopolies having the exclusive right and responsibility for providing local and local toll telephone service within LATAs.

**IP-VPN - Internet Protocol - Virtual Private Network** - A software-defined network offering the appearance, functionality, and usefulness of a dedicated private network.

**ISDN - Integrated Services Digital Network** - An alternative method to simultaneously carry voice, data, and other traffic, using the switched telephone network.

**ISP - Internet Service Provider** - A company providing Internet access to consumers and businesses, acting as a bridge between customer (end-user) and infrastructure owners for dial-up, cable modem, and DSL services.

## K

**Kbps - Kilobits per second** - 1,000 bits per second. A measure of how fast data can be transmitted.

## L

**LAN - Local Area Network** - A geographically localized network consisting of both hardware and software. The network can link workstations within a building or multiple computers with a single wireless Internet connection.

**LATA - Local Access and Transport Areas** - A geographic area within a divested Regional Bell Operating Company is permitted to offer exchange telecommunications and exchange access service. Calls between LATAs are often thought of as long-distance service. Calls within a LATA (IntraLATA) typically include local and local toll telephone services.

**Local Loop** - A generic term for the connection between the customer’s premises (home, office, etc.) and the provider’s serving central office. Historically, this has been a wire connection; however, wireless options are increasingly available for local loop capacity.

**Low Income** - Low income is defined by using the poverty level as defined by the U.S. Census Bureau. A community’s low-income percentage can be found at [www.census.gov](http://www.census.gov).

## M

**MAN - Metropolitan Area Network** - A high-speed data intra-city network that links multiple locations with a campus, city, or LATA. A MAN typically extends as far as 50 kilometers (or 31 miles).

**Mbps - Megabits per second** - 1,000,000 bits per second. A measure of how fast data can be transmitted.

**Metro Ethernet** - An Ethernet technology-based network in a metropolitan area that is used for connectivity to the Internet.

**Multiplexing** - Sending multiple signals (or streams) of information on a carrier (wireless frequency, twisted pair copper lines, fiber optic cables, coaxial, etc.) at the same time. Multiplexing, in technical terms, means transmitting in the form of a single, complex signal and then recovering the separate (individual) signals at the receiving end.

## N

**NTIA** - National Telecommunications and Information Administration, which is housed within the United State Department of Commerce.

**NIST** - National Institute of Standards and Technology.

## O

**Overbuilders** - Building excess capacity. In this context, it involves investment in additional infrastructure projects to provide competition.

**OVS - Open Video Systems** - A new option for those looking to offer cable television service outside the current framework of traditional regulation. It would allow more flexibility in providing service by reducing the build-out requirements of new carriers.

## P

**PON - Passive Optical Network** - A Passive Optical Network consists of an optical line terminator located at the Central Office and a set of associated optical network terminals located at the customer's premises. Between them lies the optical distribution network comprised of fibers and passive splitters or couplers.

## R

**Right-of-Way** - A legal right of passage over land owned by another. Carriers and service providers must obtain right-of-way to dig trenches or plant poles for cable and telephone systems and to place wireless antennae.

**RPR - Resilient Packet Ring** - Uses Ethernet switching and a dual counter-rotating ring topology to provide SONET-like network resiliency and optimized bandwidth usage, while delivering multi-point Ethernet/IP services.

**RUS - Rural Utility Service** - A division of the United States Department of Agriculture that promotes universal service in un-served and underserved areas of the country through grants, loans, and financing.

## S

**Satellite** - Satellite brings broadband Internet connections to areas that would not otherwise have access, even the most rural of areas. Historically, higher costs and lower reliability have prevented the widespread implementation of satellite service, but providers have begun to overcome these obstacles, and satellite broadband deployment is increasing. A satellite works by receiving radio signals sent from the Earth (at an uplink location also called an Earth Station) and resending the radio signals back down to the Earth (the downlink). In a simple system, a signal is reflected, or "bounced," off the satellite. A communications satellite also typically converts the radio transmissions from one frequency to another so that the signal getting sent down is not confused with the signal being sent up. The area that can be served by a satellite is determined by the "footprint" of the antennas on the satellite. The "footprint" of a satellite is the area of the Earth that is covered by a satellite's signal. Some satellites are able to shape their footprints so that only certain areas are served. One way to do this is by the use of small beams called "spot beams." Spot beams allow satellites to target service to a specific area, or to provide different service to different areas.

**SBI** - State Broadband Initiatives, formerly known as the State Broadband Data & Development (SBDD) Program.

**SONET - Synchronous Optical Network** - A family of fiber-optic transmission rates.

**Streaming** - A Netscape innovation that downloads low-bit text data first, then the higher bit graphics. This allows users to read the text of an Internet document first, rather than waiting for the entire file to load.

**Subscribership** - Subscribership is the number of customers that have subscribed for a particular telecommunications service.

**Switched Network** - A domestic telecommunications network usually accessed by telephones, key telephone systems, private branch exchange trunks, and data arrangements.

## T

**T-1 - Trunk Level 1** - A digital transmission link with a total signaling speed of 1.544 Mbps. It is a standard for digital transmission in North America.

**T-3 - Trunk Level 3** - 28 T1 lines or 44.736 Mbps.

## U

**UNE - Unbundled Network Elements** - Leased portions of a carrier's (typically an ILEC's) network used by another carrier to provide service to customers.

**Universal Service** - The idea of providing every home in the United States with basic telephone service.

**Upstream** - Data flowing from your computer to the Internet (sending e-mail, uploading a file).

## V

**VDSL (or VHDSL) - Very High Data Rate Digital Subscriber Line** - A developing technology that employs an asymmetric form of ADSL with projected speeds of up to 155 Mbps.

**Video On Demand** - A service that allows users to remotely choose a movie from a digital library and be able to pause, fast-forward, or even rewind their selection.

**VLAN - Virtual Local Area Network** - A network of computers that behave as if they were connected to the same wire even though they may be physically located on different segments of a LAN.

**VoIP - Voice over Internet Protocol** - A new technology that employs a data network (such as a broadband connection) to transmit voice conversations.

**VPN - Virtual Private Network** - A network that is constructed by using public wires to connect nodes. For example, there are a number of systems that enable one to create networks using the Internet as the medium for transporting data. These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.

**Vulnerable Groups** -Vulnerable groups will vary by community, but typically include low-income, minority, senior, children, etc.

## W

**WAN - Wide Area Network** - A communications system that utilizes cable systems, telephone lines, wireless, and other means to connect multiple locations together for the exchange of data, voice, and video.

**Wi-Fi - Wireless Fidelity** - A term for certain types of wireless local networks (WLANs) that uses specifications in the IEEE 802.11 family.

**WiMax** - A wireless technology that provides high-throughput broadband connections over long distances. WiMax can be used for a number of applications, including last mile broadband connections, hotspots, and cellular backhaul and high-speed enterprise connectivity for businesses.

**Wireless Hotspot** - A public location where Wi-Fi Internet access is available for free or for a small fee. These could include airports, restaurants, hotels, coffee shops, parks, and more.

**Wireless Internet** - 1) Internet applications and access using mobile devices such as cell phones and palm devices. 2) Broadband Internet service provided via wireless connection, such as satellite or tower transmitters.

**Wireline** - Service based on infrastructure on or near the ground, such as copper telephone wires or coaxial cable underground, or on telephone poles.