

Berkeley County

Technology Action Plan



Prepared by
Berkeley County and
Connect South Carolina



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ACCESS



ADOPTION



USE

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INTRODUCTION

The purpose of this report is to summarize the community's assessment of local broadband access, adoption, and use, as well as the best next steps for addressing any deficiencies or opportunities for improving the local technology ecosystem.

Background

Today, technology plays a pivotal role in how businesses operate, the type of service consumers expect, how institutions provide services, and where consumers choose to live, work, and play. The success of a community has also become dependent on how broadly and deeply the community adopts technology resources, which includes access to reliable high-speed networks, digital literacy of residents, and the use of online resources locally for business, government, and leisure. As noted in the National Broadband Plan (NBP), broadband Internet is “a foundation for economic growth, job creation, global competitiveness and a better way of life.”¹

Despite the growing dependence on technology, the United States Census reports that 27% of Americans do not have a high-speed connection at home.² Connected Nation's studies also indicate that 19.1 million children do not have broadband at home, and 6.1 million of those children live in low-income households.³

In 2014, Connected Nation also surveyed 4,206 businesses in 7 states. Based on these data, Connected Nation estimates that at least 1.5 million businesses (20%) in the United States do not use broadband technology today.⁴

Deploying broadband infrastructure, services, and application, as well as supporting the universal adoption and meaningful use of broadband, are challenging – but required – building blocks of a twenty-first century community. To assist communities, Connected Nation developed the Connected Community Engagement Program to help your community identify

¹ *Connecting America: The National Broadband Plan*, Federal Communications Commission, April 2010, <http://www.broadband.gov/download-plan/>.

² United States Census Bureau's American Community Survey Report, “Computer and Internet Use in the United States: 2013.” <http://www.census.gov/content/dam/Census/library/publications/2014/acs/acs-28.pdf>.

³ National estimates calculated using Connected Nation's 2014 Residential Technology Assessments.

⁴ Estimates based on Connected Nation's *2014 Business Technology Assessment* (<http://www.connectednation.org/survey-results/business>) and 2013 County Business Pattern data from the United States Census Bureau (<http://www.census.gov/econ/cbp/>).

local technology assets, complete an assessment of local broadband access, adoption, and use, and develop an action plan for pursuing solutions.⁵

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

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.

Methodology

By actively participating in the Connected Community Engagement Program, Berkeley County is boosting the community's capabilities in education, healthcare, and public safety, and stimulating economic growth and spurring job creation. Berkeley County 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.

⁵ Connected Nation, parent company of Connect South Carolina, is a national non-profit 501(c)(3) organization that 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.

What Is Connected Certification?

Connected certification recognizes that a community has measurably demonstrated proficiency for effective access, adoption, and use of broadband and broadband supported technologies. This national platform recognizes communities that are excelling in their pursuit of accelerated access, adoption, and use of broadband. While an exciting accomplishment for any community, it is critical to stress that Connected certification is not the end of the Connected program. In fact, Connected certification, while recognizing work completed to date, marks the launch of the Technology Action Plan and the beginning of a community's journey to continually improve its broadband landscape. Maintaining community collaboration and progress during plan implementation is a difficult task, but one that will result in an improved standing in the digital economy. Additionally, Connected certified communities, and all communities engaged in the Connected program, are part of a nationwide network of stakeholders all working toward the same goal: improved broadband access, adoption, and use. While every community is different, many share common issues and Connected works to identify the best practices for solving these issues and share them with this network. Together, we can work to bring affordable, reliable, and high-capacity infrastructure to underserved areas; promote adoption via skills training and education; and facilitate the advanced use of technology among all sectors to create more sustainable, resilient, and prosperous communities.

CONNECTED ASSESSMENT

The Connected assessment framework is broken into 3 areas: **ACCESS**, **ADOPTION**, and **USE**. Each area has a maximum of 40 points. To achieve Connected certification, the community must have at least 32 points in each section and 100 points out of 120 points overall.

The **ACCESS** focus area checks to see whether the broadband and technology foundation exists for a community. The criteria within the **ACCESS** focus area endeavor to identify gaps that could affect a local community broadband ecosystem including last 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.”

Broadband **ADOPTION** is important for consumers, institutions, and communities alike to take the next step in fully utilizing broadband appropriately. The **ADOPTION** component of the Connected Assessment seeks to ensure the ability of all individuals to access and use broadband.

Broadband **USE** is the most important component of **ACCESS**, **ADOPTION**, and **USE** 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 National Broadband Plan, meaningful **USE** of broadband includes those areas of economic opportunity, education, government, and healthcare where values to individuals, organizations, and communities can be realized.

Analysis of Connected Assessment

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 toward meeting universal fixed broadband service national benchmarks, ubiquitous mobile service, and growing access to higher speed next-generation services. Berkeley County has fostered an environment of innovation through technology, particularly by leading South Carolina in establishing its first gigabit community. 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 34 out of a possible 40 points in broadband access primarily due to high percentages of its residents benefiting from excellent broadband availability and speeds.
- The community scored 32 out of a possible 40 points in broadband adoption. While the community scores well in many areas of adoption, the assessment indicates there is an opportunity for Berkeley County to increase efforts in providing greater public computer access to those who may not be able to subscribe at home.
- The community scored 39 out of a possible 40 points in broadband use. This score indicates that Berkeley County has leveraged broadband applications to enhance the quality of life of its residents in the categories explored.
- Berkeley County achieved a score of 105 points out of 120 for overall broadband and technology readiness, which ranks it among the upper echelon of the state's communities.
- Berkeley County exceeded the 32 points in each focus area that are required for certification and has qualified for full certification.

Community Technology Scorecard

Community Technology Scorecard Community Champion: Donna Worden Community Advisor: Leslie Callison				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	96.93% of homes have access to 3 Mbps	8	10
	Broadband Speeds	92.65% of households with access to at least 50 Mbps	5	5
	Broadband Competition	69.30% of households with access to more than 1 broadband provider	1	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99.91% of households have access to mobile broadband	10	10
	ACCESS SCORE			34
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1,000 residents over the past year	10	10
	Public Computer Centers	100 computer hours per 1,000 low-income residents per week	2	10
	Broadband Awareness	Campaigns reach 100% of the community	10	10
	Vulnerable Population Focus	at least 5 groups	10	10
	ADOPTION SCORE			32
USE	Economic Opportunity	5 advanced, 6 basic uses	10	10
	Education	6 advanced, 9 basic uses	10	10
	Government	7 advanced, 0 basic uses	10	10
	Healthcare	3 advanced, 3 basic uses	9	10
	USE SCORE			39
COMMUNITY ASSESSMENT SCORE			105	120

Itemized Key Findings

Berkeley County identified the following key findings (in addition to findings illustrated in the community scorecard) through its technology assessment:

ACCESS

- 20 last mile broadband providers currently provide service in Berkeley County:
 - 96.93% of households have access to 3 Mbps
 - 96.65% of households have access to at least 50 Mbps
 - 69.30% of households have access to more than 1 broadband provider
- Availability of middle mile fiber infrastructure from more than 1 provider
- 99.91% of households with access to mobile wireless

ADOPTION

- 7 Digital Literacy Programs exists in the community resulting in 5,558 Program grads over the past year
- 10 Public Computer Centers (PCC) with a total of 139 computers available to the public
- 6 Broadband Awareness Campaigns are reaching 100% of Berkeley County
- 6 organizations are working with vulnerable populations

USE

- At least 11 uses of broadband were identified in the area of economic opportunity including 5 advanced uses and 6 basic uses
- At least 15 uses of broadband were identified in the area of education including 6 advanced uses and 9 basic uses
- At least 7 uses of broadband were identified in the area of government including 7 advanced uses and 0 basic uses
- At least 6 uses of broadband were identified in the area of healthcare including 3 advanced uses and 6 basic uses

In addition to the items identified above, Berkeley County identified the following technology resources in the community:

Technology Facilities

- 12 public computer centers
- 14 wireless hotspots

Community Websites

- 2 Business-related websites (excluding private businesses)
- 2 Education-related websites
- 5 Government-related websites
- 2 Healthcare-related websites
- 1 Library-related website
- 2 Tourism-related websites
- 1 Community-based-related website

Berkeley County Priority Projects

The Connected Assessment has culminated in the outlining of projects designed to empower the community to accelerate broadband access, adoption, and use. There are 4 projects that the community has identified as priority projects.

Priority Projects Identified by Berkeley County

1. Improve and Enhance Educational Opportunities for Residents Through Digital Learning
2. Complete a Vertical Assets Inventory
3. Promote Telemedicine in Remote Areas
4. Procure a Multipurpose Mobile Technology Center

Berkeley County Additional Projects

Berkeley County proposes to undertake two additional projects in order to accelerate broadband use in Berkeley County. These projects are:

- Develop Public/Private Partnership to Deploy Broadband Service(Broadband Availability)
- Perform a Broadband Buildout Analysis in Unserved Areas(Broadband Availability)
- Facilitate a Technology Summit(Broadband Awareness)
- Develop or identify a Broadband Training and Awareness Program for Small and Medium Businesses (Economic Opportunity)
- Pursue Next General 911 Upgrades (Government)

Detailed descriptions of each solution proposed by Connect South Carolina can be found in the *Action Plan* section of this report.



DETAILED FINDINGS

Current Community Technology Developments in Berkeley County

Berkeley County Geographic Information System (GIS) has served as a model for GIS development for the state of South Carolina and is the primary database repository and administrative site for Berkeley County's GIS data. The GIS department maintains and updates more than 200 digital data layers such as zoning, political boundaries, and street centerlines. Berkeley County GIS also provides custom GIS-based map development, applications development, data development, custom cartography, and GIS training. Digital and hard copy map requests by County staff, Consortium members, and the general public are accommodated as well.

Clemson Extension offers a variety of resources at its site including an online course entitled *Sustainable Small Farms and Backyards*. It has a mobile app for pesticide spraying, and online content for home and garden information containing over 600 fact sheets and food safety and nutrition information.

Nexton, at the intersection of I-26 and 17A, is a place where businesses, shops, homes, restaurants, and schools are connected by trails and parks. The entire community is connected to the world through leading-edge technology. Late in 2013, Nexton became the first community in South Carolina to offer gigabit speed Internet. Known as GigaFi, the gigabit project is a partnership between Home Telecom and Mead West Vaco, and offers Internet speeds as much as 100 times faster than the average Internet service.

Through the Rural Healthcare Pilot Program, doctors in both Trident and Roper Hospitals in Berkeley County use telepsychiatry services to consult with out-of-area psychiatrists about patients admitted to the hospitals.

Carnes Crossroads is the 1st gigabit community.

Google is providing Free WI-FI for Summerville and Goose Creek communities.

Berkeley County Assessment Findings

Today, residents in Berkeley County (or sections of the community) are served by many providers. At the time of broadband assessment, broadband was defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream. According to Connect South Carolina's latest broadband mapping update, the following providers have a service footprint in Berkeley County.

Broadband Providers	Website	Technology Type
AT&T Mobility LLC	http://www.wireless.att.com	Mobile Wireless
AT&T South Carolina	http://www.att.com	DSL
Home Telephone Company, Inc.	http://www.hometelco.com	Cable, DSL, Fiber
Comcast Cable Communications	http://www.comcast.com	Cable
Verizon Wireless	http://www.verizonwireless.com	Mobile Wireless
Farmers Telephone Cooperative	http://www.ftc-i.net	DSL
Frontier Communications of the Carolinas, Inc.	http://www.frontier.com	DSL
Hughes Network Systems, LLC	http://www.hughes.com	Satellite
NTInet, Inc.	http://ntinet.com	Fixed Wireless
Skycasters	http://www.skycasters.com	Satellite
Spacenet, Inc.	http://starband.com/	Satellite
Sprint	http://www.sprint.com	Mobile Wireless
TDS Telecom	http://www.tdstelecom.com	DSL
Time Warner Cable Inc.	http://www.timewarnercable.com	Cable
T-Mobile USA, Inc.	http://www.t-mobile.com	Mobile Wireless
ViaSat	http://www.wildblue.com	Satellite
WOW!	http://www.wowway.com/home-map	Cable
FTC Wireless	http://www.ftc-i.net	Mobile Wireless
Cricket Communications, Inc.	http://www.mycricket.com	Mobile Wireless
Level 3 Communications, LLC	http://www.level3.com	Fiber
TW Telecom of South Carolina	http://www.twtelecom.com	DSL

Below is a list of organizations that are making technological resources available to the community. These resources may include videoconferencing, public computer facilities, and/or wireless hotspots.

Organization Name	Website	Resource Type
SC Works	http://www.scworks.org	Public Computer Facility
Goose Creek Library - Berkeley County Library System	www.bcls.sc.gov	Public Computer Facility
Moncks Corner Library - Berkeley County Library System	www.bcls.sc.gov	Public Computer Facility
St. Stephen Library - Berkeley County Library System	www.bcls.sc.gov	Public Computer Facility
Daniel Island Library - Berkeley County Library System	www.bcls.sc.gov	Public Computer Facility

Sangaree Library - Berkeley County Library System	www.bcls.sc.gov	Public Computer Facility
Hanahan Library - Berkeley County Library System	www.bcls.sc.gov	Public Computer Facility
Trident Technical College - Berkeley Campus	http://www.tridenttech.edu	Public Computer Facility
Berkeley Prosperity Center	www.tuw.org	Public Computer Facility
Berkeley County Mobile Library	www.bcls.sc.gov	Public Computer Facility
Trident Literacy	www.tridentlit.org	Public Computer Facility
Trident Literacy	www.tridentlit.org	Public Computer Facility
Felkel Field	www.cityofgoosecreek.com	Wireless Hotspot
Central Ave Area	www.cityofgoosecreek.com	Wireless Hotspot
McDonald's	www.mcdonalds.com	Wireless Hotspot
Chick-Fil-A	www.chick-fil-a.com	Wireless Hotspot
Mellow Mushroom	www.mellowmushroom.com	Wireless Hotspot
Panera Bread	www.panerabread.com	Wireless Hotspot
Starbucks	www.starbucks.com	Wireless Hotspot
Dunkin' Donuts	www.dunkindonuts.com	Wireless Hotspot
Ye Ole Fashioned	www.yeolefashioned.com	Wireless Hotspot
Atlanta Bread Company	www.atlantabread.com	Wireless Hotspot
Governor's Park	n/a	Wireless Hotspot
Train Depot	www.townofmonckscorner.sc.gov	Wireless Hotspot

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

Organization Name	Website	Category
Berkeley County Economic Development	www.berkeleycountybusiness.com	Business
SC Works	www.toscc.org	Business
Berkeley Chamber of Commerce	www.berkeleysc.org	Community Based
Berkeley County School District-BCSD	www.berkeley.k12.sc.us	Education
BCD Council of Governments	www.bcdcog.com	Government
Berkeley County Government	www.berkeleycountysc.gov	Government
Roper Hospital-Berkeley	www.rsfh.com	Healthcare
Berkeley County Library System-BCLS	www.bcls.sc.gov	Libraries
Berkeley County Official Tourism Website	www.visitberkeleycounty.com	Tourism

Connected Assessment Analysis



Access Score Explanation

Broadband Availability (8 out of 10 Possible Points). Broadband Availability is measured by analyzing provider availability of 3 Mbps broadband service gathered by Connected Nation's 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 the October 2014 data collected by Connect South Carolina, 96.93% of Berkeley County residents had access to broadband speeds of 3 Mbps or greater.**

Broadband Speeds (5 out of 5 Possible Points). Broadband Speeds are measured by analyzing the speed tiers available within a community. Data are 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 the October 2014 data collected by Connect South Carolina, 96.65% of Berkeley County residents had access to broadband speeds of 50 Mbps.**

Broadband Competition (1 out of 5 Possible Points). Broadband Competition 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 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 the October 2014 data collected by Connect South Carolina, 69.30% of Berkeley County residents had access to more than one broadband provider.**

Middle Mile Access (10 out of 10 Possible Points). Middle Mile Access is measured based on a community's availability to fiber. Three aspects of availability exist: proximity to fiber 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.

- **Berkeley County is served by more than 1 middle mile fiber providers.**

Mobile Broadband Availability (10 out of 10 Possible Points). Mobile Broadband Availability 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 the October 2014 data collected by Connect South Carolina, 99.91% of Berkeley County residents had access to mobile broadband service.**



Adoption Score Explanation

Digital Literacy (10 out of 10 Possible Points). Digital Literacy is measured by first identifying all digital literacy programs in the community. Once the programs are identified, 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
Trident Literacy	Provide one-on-one training for adults working toward a GED	36
Berkeley County Library System	Hold training classes and one-on-one training year round	350
Trident Technical College - Berkeley Campus	Offer basic computer classes in computer labs	530
Berkeley County School District	Offer resource centers providing parents with basic digital literacy skills	250
Berkeley County Adult Education	Provide basic digital literacy classes for adults	200
Joint Base Charleston Libraries	How to conduct Internet searches. Using tablets, e-readers, and other portable devices	192
Verizon	Classes on how to use digital devices, both scheduled classes and one-to-one instruction	4,000

Public Computer Centers (2 out of 10 Possible Points). Public Computer Centers 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 Berkeley County is below.

Organization Name	Number of Open Hours Per Week	Number of Computers	Available Computer Hours Per Week
SC Works	37.5	12	450
Goose Creek Library - Berkeley County Library System	60	18	1,080
Moncks Corner Library - Berkeley County Library System	60	19	1,140
St. Stephen Library - Berkeley County Library System	48	9	432
Daniel Island Library - Berkeley County Library System	48	9	432
Sangaree Library - Berkeley County Library System	48	13	52
Hanahan Library - Berkeley County Library System	50	20	1,000
Trident Technical College - Berkeley Campus	42.5	21	892.5
Berkeley Prosperity Center	42.5	12	510
Berkeley County Mobile Library	30	6	180

Broadband Awareness (10 out of 10 Possible Points). Broadband Awareness 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 Berkeley County is below.

Organization Name	Campaign Description	Community Reach
Berkeley County Library System	Advertises workshops in the community through flyers and website	35%
Local Broadband Providers	Promotes broadband services in the area through various multimedia platforms	97%
Carnes Crossroads Gigabit Community	Promotes first gigabit community in South Carolina	10%
Berkeley County Library	Advertises classes, computers and laptops, and free WiFi in the community	80%
Berkeley Chamber of Commerce	Promotes broadband services, computer classes, continuing education	90%
Home Telecom	Advertises and promotes broadband access and adoption	60%

Vulnerable Population Focus (10 out of 10 Possible Points). 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. Programs that focus on vulnerable populations in Berkeley County are listed below.

Organization Name	Program Description	Vulnerable Group
Berkeley County Library System	Basic computing classes for seniors	Seniors, low-income population, adult learners, digitally illiterate, unemployed, and underemployed people
Trident Literacy	Offers digital literacy classes and GED preparations in the community	Illiterate, digitally illiterate, high school drop-outs
SC Works	Offers various training opportunities for job seekers	Unemployed, underemployed
Trident Technical College	Offers technical training to various vulnerable population groups	Veterans, low-income, adult learners
Berkeley County School Districts	Utilizes technology to offer ESL training	non-English speakers
TUW Prosperity Center	Employment Readiness Workshops	Unemployed, underemployed



Use Score Explanation

Economic Opportunity (10 out of 10 Possible Points). A community receives one point per basic use of broadband and two points per advanced, or interactive, 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
SC Works Website and Public Computer Center	Computer center and website provides information and the ability to search and apply for jobs	Advanced
Berkeley County Economic Development Website	Offers general information and services for businesses in the area	Basic
Berkeley County Chamber of Commerce Website	Offers a business directory search, community events, general contacts, and networking resources	Basic
Google-sponsored free WiFi in Summerville and Goose Creek	Offers free WiFi to citizens or visitors	Basic
Berkeley County Library Job Resources	Offers classes on how to search for jobs, writing resumes, and other skills	Advanced
Ready SC	Offers technology training in the tri-county area	Advanced
Personal Pathways	State program that offers skills training for job seekers	Advanced
Carnes Crossroads Gigabit Community	First gigabit community in South Carolina; planned development consisting of civic, retail, and residential spaces.	Advanced
Berkeley County Official Tourism Site	Tourism	Basic
Various banks offer Online Banking	Online Banking	Basic
Clemson Extension	Agricultural Services	Basic

Education (10 out of 10 Possible Points) 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
Berkeley County School District	Connected to the Internet via broadband	Basic
Berkeley County Library System	100% of libraries connected to Internet via broadband	Basic
Berkeley County School District	Digital literacy instruction for teachers	Basic
Berkeley County Library System	Integrated library automation system	Basic
Berkeley County School District	Online courses for students in grades 7-12	Advanced
Berkeley County Library System	Online catalog available to county residents including interactive databases, educational resources and digital materials	Advanced
Berkeley County School District	STEM programs	Advanced
Berkeley County Library System	Technology instruction classes for community	Basic
Berkeley County School District	Adult education	Basic
Trident Technical College	Free computer classes	Basic
Berkeley County School District	Website for each school	Basic
Berkeley County Library System	Wireless connectivity in each location	Basic
Berkeley County School District	Online parent portal	Advanced
Berkeley Prosperity Center	Provides financial education counseling, credit counseling and foreclosure prevention, and assistance to residents	Advanced
Trident Literacy	Offers digital literacy training, GED preparations, and other services	Advanced

Government (10 out of 10 Possible Points). 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
Berkeley County Government Website	Offers access to available jobs, court information, property research, live streaming of council meetings, online permitting, and other various services	Advanced
Berkeley County Government Self-Service Kiosks	Offers citizens the ability to easily pay taxes and fees	Advanced
Berkeley County Sheriff's Department	Offers a variety of public safety resources and information such as Reverse 911, sex offender database, and inmate tracking	Advanced
Berkeley County Emergency Management Services	Offers storm tracking, evacuation information, and facilitates disaster preparedness training	Advanced
Berkeley-Charleston-Dorchester	Offers information on services, contacts, and	Advanced

Council of Governments Website	online mapping tools	
Berkeley County GIS	GIS	Advanced
911	Emergency Services; Reverse 911	Advanced

Healthcare (9 out of 10 Possible Points). 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
Berkeley County EMT Services	Offers WIFI in ambulances to connect EMTs to hospital staff	Basic
Palmetto Primary Care Patient Portal	Offers general information and access to online bill pay, patient medical information online	Advanced
Trident Medical Center Patient Portal	Offers general information and access to patient portal	Advanced
Roper St. Francis Hospital Website	Provides general information, online bill pay, and patient portal	Advanced
The Ernest E. Kennedy Center Website	Offers general information on emotional health, addiction services, and counseling	Basic
SCDHEC	Offers restaurant health scores	Basic

ACTION PLAN

Complete List of Berkeley County Projects

The following is a comprehensive list of the priority projects and additional projects Berkeley County proposes to accelerate broadband access, adoption, and use in Berkeley County. Detailed descriptions of each solution are provided.



ACCESS

Broadband Availability

Perform a Broadband Build-Out Analysis in Unserved Areas

Goal

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

Project Description

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, 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.

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

Conduct a wireless assessment to:

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

Develop Public-Private Partnerships to Deploy Broadband Service

Goal

Fund broadband network deployment

Project Description

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.

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.

Mobile Broadband Availability

Complete a Vertical Assets Inventory

Goal

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.

Project Description

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.

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

Procure a Multipurpose Mobile Technology Center

Goal

Provide unserved and underserved residents with computer and Internet access.

Project Description

Partner with the public library or school system to acquire a bus (or equip a bookmobile) with laptop computers and wireless Internet service to deliver technology access and programs to unserved residents in remote areas in the community. Equipped with an instructor, the mobile technology center should provide digital literacy classes, job search assistance, e-learning programs, information during community events, and emergency assistance. Beyond training and education, the mobile technology center should be utilized to target and reach unserved or underserved members of the community and to provide them a medium for participating in the community's technology planning process.

Examples of existing mobile technology centers include:

[St. Louis Community College Mobile Tech Center](#)

[El Paso Public Library Tech-Mobile](#)

[State Library of Ohio Mobile Technology Training Center](#)

[Pike County Public Library District Mobile Technology Center](#)

Benefits

1. Improves digital literacy skills of community.
2. Provides outreach and awareness.
3. Provides opportunity for residents to participate in community's technology planning process.

Action items

Equip the vehicle with:

1. 10-20 laptops loaded with appropriate software.

2. A wireless modem that interfaces with a wireless relay station on the vehicle. Signals can be sent from any remote site in the community to partnering organization (e.g., public library) for deployment to the Web, television, or other medium.
3. Large screen TV.
4. Smart board for instruction.
5. Wheelchair accessible workstations.
6. Networked printer.
7. Full-time instructor(s).
8. Develop schedule of mobile technology center visits.

Broadband Awareness

Facilitate a Technology Summit

Goal

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.

Project Description

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.

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.

**USE**

Economic Opportunity

Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses

Goal

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

Project Description

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 releasing 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, cybersecurity, 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.

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 2014 Business Technology Assessment, online sales represented \$2.3 trillion in sales revenues for U.S. businesses in 2013.

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: http://srdc.msstate.edu/ebeat/small_business.html#.

Education

Improve and Enhance Educational Opportunities for Residents Through Digital Learning (User Submitted)

Goal

Increase learning engagement and encourage learners of all ages to assume responsibility for their personal development and education. Increase awareness of digital learning opportunities for all residents by promoting free access online learning resources, such as Universal Class and Learning Express, available through the Berkeley County Library System website, <http://berkeleylibrarysc.org>.

Project Description

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). People of all ages may access free learning portals from the library or at home with their library card. Universal Class, which offers over 500 classes on a wide variety of topics, and Learning Express, a resource for learners of all ages offering seven different learning “centers,” including a Career Center, an Adult Education Center, a College Preparation Center, provide resources for people to achieve their education, career, and personal learning goals. Growing in popularity, too, are MOOC (Massive Online Education Courses) free higher education level courses on a wide variety of topics.

Benefits

1. Increase learning time by extending learning beyond a formal learning setting.
2. Encourage self-directed learning.
3. Improve skills to enhance employability or improve career opportunities.
4. Improve self-discipline.

Action Items

1. Develop an awareness campaign, bringing together educational institutions, libraries, community organizations, to inform residents of the county of the online learning resources available to them.
2. Utilize local media, social media and public events to make people aware of these resources.
3. Enhance access to these online resources through the promotion of available public computer centers.

Implementation Team

Berkeley County Library System, Berkeley County School District, Trident Technical College and other community organizations such as Trident United Way and Trident Literacy.

Government

Pursue Next Generation 911 Upgrades

Goal

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.

Project Description

The overall system architecture of 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 prevents 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 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.

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:
 - a. Quicker and more accurate information to responders;
 - b. Better and more useful forms of information;
 - c. More flexible, secure and robust PSAP operations; and
 - d. Lower capital and operating costs.

Action Items

If you're involved in PSAP decision making and are faced with replacing aging systems or purchasing new technology for the very first time, consider what your most immediate requirements are and where your community needs 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:

1. A public-safety-class, IP-based network
2. IP-based call processing equipment (CPE) in PSAPs
3. Geographic information system (GIS) data enhancements

4. Advanced 911 data capabilities and applications

Healthcare

Promote Telemedicine in Remote Areas

Goal

Deliver improved healthcare services to rural residents.

Project Description

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, understanding the main features of telemedicine, being aware of the technologies required for telemedicine, and understanding how to develop, deliver, use, and evaluate telemedicine services.

One relevant funding opportunity includes [Distance Learning and Telemedicine Loans and Grants Program](#). 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.

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 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 map’s initial 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 fall of 2014 depict a geographic representation of provider-based broadband data represented by cable, DSL, fiber, fixed wireless and mobile wireless. These maps also incorporate data such as political boundaries and major transportation networks in the state. Vertical assets that can be utilized for broadband network facilitation or transmission have also added to the interactive mapping application. A statewide map is found at <http://www.connectsc.org/mapping/state>. The county maps are found at http://www.connectsc.org/community_profile/find_your_county/south%20carolina/abbeville.

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
At Least 768 Kbps/200 Kbps	56	1,746	96.91
At Least 1.5 Mbps/200 Kbps	59	1,742	96.71
At Least 3 Mbps/768 Kbps	101	1,700	94.37
At Least 6 Mbps/1.5 Mbps	215	1,587	88.08
At Least 10 Mbps/1.5 Mbps	218	1,583	87.91
At Least 25 Mbps/1.5 Mbps	306	1,495	83.01
At Least 50 Mbps/1.5 Mbps	353	1,448	80.40
At Least 100 Mbps/1.5 Mbps	1,113	689	38.23
At Least 1 Gbps/1.5 Mbps	1,801	0	0.00

Source: Connect South Carolina, November 2014

Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband service inventory (excluding mobile wireless 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 approximately 4 million people. Table 1 indicates that 96.91% of households are able to connect to broadband at speeds of at least 768 Kbps download and 200 Kbps upload. 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 55,585 households in the fall of 2014. Further, approximately 1,699,747 households across South Carolina have broadband speeds available of at least 3 Mbps download and 768 Kbps upload. The percentage of South Carolina households having fixed broadband speeds available of at least 6 Mbps download and 1.5 Mbps upload is estimated at 88.08%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.97% of South Carolina households have broadband available from at least one provider at speeds of 768 Kbps download/200 Kbps upload or higher. This implies that .03% of households remain unserved by a terrestrial broadband connection (including mobile wireless, but excluding satellite services).

As differences in broadband availability estimates between the fall of 2010 and the fall of 2014 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 map's data. The National Broadband Map can be found here: <http://www.broadbandmap.gov> and the Map's specific page for South Carolina can be found here: <http://www.broadbandmap.gov/summarize/state/south-carolina>.

Interactive Map

Connect South Carolina provides My ConnectViewTM, an online interactive map, 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.

<http://www.connectsc.org/interactive-map>

For additional maps and other related information, visit:

<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? And, 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 revealed the following key findings:

- Statewide, 76% of households in the state subscribe to home broadband service, leaving more than 424,000 households not connected. Among these households, the main barrier to home broadband adoption is the belief that broadband is not relevant or beneficial to them.
- Approximately 967,000 working-age adults in South Carolina would need assistance with tasks that are often required by employers, such as creating a spreadsheet, going online from a mobile device, using a word processor, or sending an e-mail.
- More than three out of four non-adopters in South Carolina (78%) say that it would be easier for them to shop, seek out healthcare information, or interact with government offices if they had Internet access at home.

Additionally, an assessment on technology in businesses released in September of 2014 in a report titled *Technology Adoption Among South Carolina Businesses* revealed the following key findings:

- Across South Carolina, 78% of businesses subscribe to broadband service, representing approximately 22,000 South Carolina businesses that still do not use or benefit from broadband.
- 16,000 Internet-connected businesses want more bandwidth; of those, nearly two out of five (37%) report that they can't get faster service where they are located.
- Over two-fifths of South Carolina businesses (43%) earn revenues online. These represent approximately \$30.3 billion in annual revenues from online sales.

For more information on the statewide information described, visit the Connect South Carolina website at <http://www.connectsc.org/>.

APPENDIX 2: PARTNER AND SPONSORS

Connect South Carolina, in partnership with the State of South Carolina Office of the Governor, supports the state'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.

<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.

<http://www.connectednation.org>

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, NTIA's State Broadband Initiative 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.

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 have used 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 NTIA to update the National Broadband Map, the first public, searchable nationwide map of broadband availability launched February 17, 2011.

APPENDIX 3: THE NATIONAL BROADBAND PLAN

The National Broadband Plan, released in 2010 by the Federal Communications Commission, has the express mission of creating a high-performance America – a more productive, creative, efficient America in which affordable broadband is available everywhere and everyone has the means and skills to use valuable broadband applications. The plan seeks to ensure that the entire broadband ecosystem – networks, devices, content, and applications – is healthy. The plan recommends that the country adopt and track the following six goals to serve as a compass over the next 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.

To learn more, visit: www.broadband.gov.

APPENDIX 4: WHAT IS CONNECTED?

The goal of: Connect South Carolina’s Connected program is to empower locally informed and collaborative technology planning that addresses each community's need for improved access, adoption, and use of technology:

- **ACCESS:** Does your community have access to affordable and reliable broadband service?
- **ADOPTION:** Is your community addressing the barriers to broadband adoption?
- **USE:** Are residents using technology to improve their quality of life?

Connected Nation leverages state-based public-private partnerships to engage residents at the local level. Regionally based staff provides “train-the-trainer” activities to local leaders, such as librarians, school administrators, economic development professionals, and public officials and help them organize multi-sector technology planning teams, inventory local technology resources and initiatives, assess local technology access, adoption, and use, and develop local strategies that target specific technology gaps in the community.

Connected's community technology-planning framework is cyclical. As with other forms of community planning – and especially so with technology planning – change is the only constant. At the community level, changing technology requirements, shifting demographics, economic drivers, and workforce requirements may expose or create new digital divides. Connected's community technology planning framework supports a sustained effort.

Connected Planning Process

Connected's community technology planning framework provides a clear path for the sustainable acceleration of broadband access, adoption, and use.



Step 1: Engage. Successful strategies to bridge the local digital divide and increase broadband access, adoption, and use are predicated on broad and sustained stakeholder participation. A successful local technology planning team should include people from multiple sectors, including:

- State and Local Government
- Public Safety
- Education (K-12, Higher Ed)
- Library
- Business & Industry, Agriculture, Recreation and Tourism
- Healthcare
- Community Organizations
- Technology Providers

Step 2: Assess. The Connected planning process guides the local technology planning team through an assessment of community technology resources, strengths, assets, needs, and gaps in order to identify and develop strategies to address specific technology gaps and opportunities in the community. Bolstered by benchmarking data that had been gathered through: Connect South Carolina’s mapping and market research, the local technology planning team works with community members to benchmark local broadband access, adoption, and use via the Connected Assessment, which measures:

Access	Adoption	Use
<ol style="list-style-type: none"> 1. Broadband Availability 2. Broadband Speeds 3. Broadband Competition 4. Middle Mile Access 5. Mobile Broadband Availability 	<ol style="list-style-type: none"> 6. Digital Literacy 7. Public Computer Centers 8. Broadband Awareness 9. Vulnerable Population Focus 	<ol style="list-style-type: none"> 10. Economic Opportunity 11. Education 12. Government 13. Healthcare

Step 3: Plan. Once community resources and needs are identified, the community planning team begins to identify local priorities and policies, programs, and technical solutions that will accelerate broadband access, adoption, and use. Connected Nation provides recommended actions based on best practices from communities across the United States.

Step 4: Act. The technology planning team works together to ensure that selected policies, programs, and technical solutions are adopted, implemented, improved, and maintained. The Connected program provides a platform for collaboration and the sharing of best practices between communities. Connected Nation also provides communications support to raise awareness of your community’s efforts. For communities that measurably demonstrate proficiency in broadband access, adoption, and use in the Connected Assessment, Connected Nation offers Connected certification, a nationally recognized certification that provides an avenue for pursuing opportunities as a recognized, technologically advanced community.

APPENDIX 5: GLOSSARY OF TERMS

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.

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.

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 unserved 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.