COUNTY OF LEXINGTON TECHNOLOGY ACTION PLAN

PREPARED BY CONNECT SOUTH CAROLINA

AND THE

COUNTY OF LEXINGTON BROADBAND COMMITTEE

DECEMBER 8, 2014

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 – this 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, 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, as of 2013, 30% of Americans did not have a high-speed connection at home.[2] 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. In 2014, Connected Nation also surveyed 4,206 businesses in 7 states. Based on this data, Connected Nation estimates that nearly 1.5 million businesses - 20% - in the United States do not utilize broadband technology today.[3]

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 local technology assets, complete an assessment of local broadband access, adoption, and use, and develop an action plan for pursuing solutions.[4]

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

2 *Pew Research Internet Project – Broadband Technology Fact Sheet*

3 Connected Nation, *2014 Business Technology Assessment,* http://www.connectednation.org/survey-results/business

4 Connected Nation, parent company for 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.

Methodology

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

TECHNOLOGY IN COUNTY OF LEXINGTON

The County of Lexington's Broadband Story

As an anchor community of central South Carolina, the County of Lexington is widely heralded by leaders of the state and region as one of the most progressive counties in the Palmetto State, a fact reiterated through the extensive Connect South Carolina/Connected Nation assessment process. This process confirms that the County of Lexington is excelling in the fields of new and emerging technologies and in preparing students and workforce to compete in an increasingly competitive, diverse, and global marketplace. A centerpiece of the County's commitment to technological advancement is the construction of the County's new 220 acre technology park in Chapin, South Carolina. Once completed, the new park will include point-to-point fiber delivery to individual buildings, as well as CAT 6 Ethernet cable installation on the complex.

Lexington's school systems are also leading the way in advancing the use of broadband technology in the community. For example, Lexington School District One is generally recognized as one of the most innovative districts in the state with its use of technology, having for several years operated a virtual high school and being among the first school systems in the state to launch a one-to-one student iPad program. Lexington/Richland School District Five also leads in these technology efforts as their Center for Advanced Technical Studies is a prestigious test site for Google Glass, a wearable computer, only available to a few thousand students in the entire country. Moreover, groundbreaking technology integration is occurring in School District's Two, Three, and Four, which each have vigorous technology plans. Lexington County's five school districts are proudly among the leaders in the story of broadband growth through their integration of comprehensive technology plans with real world instruction.

The County is working aggressively to close the digital divides that exist in the community and is committed to ensuring that the most vulnerable populations are digitally literate and prepared for 21st Century jobs. The school systems, libraries, parks and non-profit organizations collaborated over the past year to offer more than 50,000 free hours of community digital literacy programming. This programming included online job assistance, GED programming, services for persons with disabilities as well as programming for those living in the rural areas of the County and digital literacy programming for individuals for whom English is not their primary language.

In short, the County of Lexington and its partners are working collectively to improve the digital advancement opportunities for everyone in the community. This ongoing effort contributes greatly to consistently being recognized for vast economic opportunities, innovative school systems, and exceptional quality of life. Earning the prestigious designation of a Certified Connected Community further lays the foundation for continued technological successes.

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 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 endeavors 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 (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.

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. Lower scores indicate weaknesses in the community's broadband ecosystem, but do not necessarily signify a lack of service.

- The County of Lexington achieved a score of 114 points out of 120 for overall broadband and technology readiness which indicates that the community is exhibiting high success in technology access, adoption, and use and has surpassed the score of 100 required for Connected certification.
- The county scored 34 out of a possible 40 points in broadband access primarily because of some gaps in broadband availability. While broadband availability is 91.82% of households having access to 3 Mbps, Lexington County is below the state average of 94%.

- The County of Lexington exceeded the 32 points in each focus area that are required for certification and has qualified for full certification.

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

Community Technology Scorecard Community Champions: Joe Mergo/Stephany Snowden Community Advisor: Leslie Callison				
FOCUS AREA	**ASSESSMENT CRITERIA**	**DESCRIPTION**	**SCORE**	**MAXIMUM POSSIBLE SCORE**
ACCESS	Broadband Availability	91.82% of homes have access to 3 Mbps	6	10
	Broadband Speeds	89.47% of households with access to at least 50 Mbps	5	5
	Broadband Competition	85% of households with access to more than 1 broadband provider	3	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99% to 100% of households with access to mobile broadband	10	10
	ACCESS SCORE		**34**	**40**
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1,000 residents over the past year	10	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
	ADOPTION SCORE		**40**	**40**
USE	Economic Opportunity	9 advanced, 11 basic uses	10	10
	Education	18 advanced, 2 basic uses	10	10
	Government	18 advanced, 1 basic use	10	10
	Healthcare	5 advanced, 10 basic uses	10	10
	USE SCORE		**40**	**40**
	COMMUNITY ASSESSMENT SCORE		**114**	**120**

Itemized Key Findings

The County of Lexington's County Broadband Committee identified the following key findings (in addition to findings illustrated in the community scorecard) through its technology assessment:

ACCESS

- 8 last-mile broadband providers currently provide service in the County of Lexington:
  - Nearly 92% of households have access to 3 Mbps.
  - Almost 90% of County homes have access to 50 Mbps.
  - 85% of County of Lexington households have access to more than 1 provider.
- Middle mile fiber infrastructure is available from multiple providers in the County.
- All County of Lexington households have access to mobile broadband.

ADOPTION

- 8 Digital Literacy Programs exist in the community resulting in almost 18,000 graduates over the past year.
- 9 Public Computer Centers (PCC) with a total of 463 computers are open to the public.
- 16 Broadband Awareness Campaigns have been identified in reaching 100% of the County.
- 15 organizations are working with vulnerable populations, including persons with disabilities, seniors, minority populations, the homeless, and those of low and moderate incomes.

USE

- At least 20 uses of broadband were identified in the area of economic opportunity including 9 advanced uses and 11 basic uses.
- At least 20 uses of broadband were identified in the area of education including 18 advanced uses and 2 basic uses.
- At least 19 uses of broadband were identified in the area of government including 18 advanced uses and 1 basic use.
- At least 15 uses of broadband were identified in the area of healthcare including 5 advanced use and 10 basic uses.

In addition to the items identified above, the County of Lexington's Broadband Committee identified the following technology resources in the community:

Technology Providers

- 8 broadband providers were identified in the County
- 4 hardware providers
- 2 software providers
- 2 web developers
- 7 other technology providers

Technology Facilities

- 8 public computing centers
- 15 wireless hotspots
- 5 video conference facilities

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 6 priority projects, followed by a complete list of all action items.

1. Identify, Map, and Validate Broadband Demand
2. Perform a Broadband Build-out Analysis in Unserved Areas
3. Perform an Analysis of Local Policies and Ordinances
4. Study and Possibly Reassess Major Telecom Purchases Contracts
5. Deploy Educational WiMAX
6. Develop Public-Private Partnerships to Deploy Broadband Services

Complete List of Action Items

Below is a complete list of 15 action items proposed by the Lexington County Broadband Team to accelerate broadband access, adoption, and use. Detailed descriptions of each solution proposed by Connect South Carolina can be found in the *Action Plan* section later in this report.

ACCESS

Broadband Availability

1. Deploy Educational WiMAX
2. Develop & Issue a RFP for Build-out
3. Perform an Analysis of Local Policies and Ordinances
4. Perform a Broadband Build-out Analysis in Unserved Areas
5. Identify, Map, and Validate Broadband Demand

Broadband Speeds – No Action Items.

Broadband Competition

7. Develop Public-Private Partnerships to Deploy Broadband Service
8. Study and Possibly Reassess Major Telecom Purchase Contracts

Middle Mile Access – No Action Items.

Mobile Broadband Availability

9. Complete a Vertical Assets Inventory

ADOPTION

Digital Literacy– No Action Items.

Public Computer Centers – No Action Items.

Broadband Awareness

10. Facilitate a Technology Summit

Vulnerable Population Focus – No Action Items.

USE

Economic Opportunity

11. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses
12. Create Local Jobs Via Teleworking Opportunities

Education

13. Continue to Support Digital Learning Programs

Government

14. Improve Online Business Services Offered by the Government

Healthcare

15. Promote Telemedicine in Rural Areas

DETAILED FINDINGS

Current Community Technology Developments in the County of Lexington

During the assessment process, the community team identified projects that are currently in development or implementation. These projects are helping to enhance technology in Lexington County:

Consensus has been built among the Lexington County Community (15 municipalities, non-profits, industries, schools, churches, healthcare agencies, parks and recreation facilities) for the support of strengthening the community's broadband resources.

The County's five school systems and public library system are aggressively adopting tactics to serve our underserved communities, to include ESOL populations, those of low and moderate income to our rural populations. The County and its partner agencies have presented a balanced technology plan which is both focused on urban and rural broadband development.

The County of Lexington's new Technology Park located in Chapin will have point-to-point fiber to individual buildings and CAT6 Ethernet cables inside the buildings on the 200 acre complex.

Consistently recognized as a technology leader in the State of South Carolina, Lexington School District One has launched a one to one student iPad program.

The County of Lexington's economic development initiatives include the support of existing technology companies, while creating a sustainable environment for new emerging technology companies.

The County of Lexington has fostered a multi-operator broadband market, which bodes well for our citizens (end-users). Connected South Carolina reports that the County has 8 broadband providers with at least 91.82% of households in Lexington County having access to at least 3Mbps.

The County's state of the art 911 Communications and Emergency Operations Center incorporates the newest and most innovative broadband solutions available. The facility maintains two (2) separate WIFI systems, one Public and the other Closed. Having two separate systems allows for redundancy. The facility also includes bi-directional antennas throughout the facility, which ensures 100% coverage. The 911 Center maintains an enhanced 911 capability that provides for cellular Phase II, which identifies the general location of a caller from a cellular device.

County of Lexington Assessment Findings

Today, residents in the County of Lexington (or sections of the community) are served by 8 providers. Currently, broadband is 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 the Lexington Community:

Broadband Providers (Provide speeds of at least 3 mbps.)	Website	Technology Type
Time Warner	http://www.timewarnercable.com/	Cable
Sprint	http://www.sprint.com/	Mobile Wireless
AT&T	http://www.att.com/	DSL, Mobile Wireless
Windstream	http://www.windstream.com	Fiber
Verizon Wireless	http://www.verizonwireless.com/	Mobile Wireless
Comporium	https://www.comporium.com	Cable
T-Mobile	http://www.t-mobile.com/	Mobile Wireless
Frontier Communications	http://frontier.com/	DSL

Below is a non exhaustive list of local technology companies that are providing technical services or distributing/selling technical resources.

Company Name	Website	Provider Type
A3 Communications	http://www.a3communications.com/	Hardware Provider
AVTEC	http://www.avtecinc.com/	Hardware Provider
Best Buy	http://stores.bestbuy.com/1466/	Hardware Provider
Data Network Solutions	http://datanetworksolutions.com/contact-us/	Hardware Provider
Busy Bee IT,LLC	www.busybeeit.com	Other
Computer Paramedics	http://www.compmedsc.com/#!services/c1pna	Other
Grand Computers	http://www.grandcomputers.net	Other
Laser Recharge System Inc.	http://www.pclasertech.com	Other
PC Laser Tech	http://www.pclasertech.com/	Other
Roger's Computer Service	http://www.rogerscomputer.com/	Other
SComputerDoc LLC	http://www.scomputerdoc.com	Other
General Information Services	http://www.geninfo.com/	Software Provider

Teamia	http://www.teamia.com/	Software Provider
Compustation	http://compustation.com/	Web Developer
Computer Consulting Design Service, LLC	http://www.cdcsllc.com/index.htm	Web Developer

Below is a non exhaustive 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
Columbiana Centre	http://www.columbianacentre.com/	Public Computer Facility
Lexington County Public Library	http://www.lex.lib.sc.us/	Public Computer Facility
Lexington School District Five Adult Education/Continuing Education	http://www.lexrich5.org/departments.cfm?subpage=637	Public Computer Facility
Lexington School District One Adult Education/Continuing Education	http://www.lexington1.net/adulted/maps/map-rclc.htm	Public Computer Facility
Lexington School District Three Adult Education/Continuing Education	http://www.lex3.k12.sc.us/	Public Computer Facility
Lexington School District Two/Four Adult Education/Continuing Education	https://sites.google.com/a/lex2.org/adult-education/Home	Public Computer Facility
Midlands Technical College	http://www.midlandstech.edu/cce/	Public Computer Facility
SC Works Lexington	http://midlandsworkforce.org/contact-us/	Public Computer Facility
Brookland Banquet and Conference Center	www.brooklandbaptist.org	Video Conference Facility
Midlands Technical College	http://www.midlandstech.edu/cce/	Video Conference Facility
Midlands Technical College	http://www.midlandstech.edu/cce/	Video Conference Facility
South Carolina Department of Emergency Management	http://www.scemd.org/	Video Conference Facility
Town of Lexington Third Floor Conference Room	http://www.lexsc.com/facility_rentals_index.htm	Video Conference Facility

Comfort Suites of Lexington	http://www.comfortsuiteslexington.com/html/things-to-do-south-carolina.asp	Wireless Hotspot
Corley Mill House and Gardens	http://www.corleymillhouse.com/contact/	Wireless Hotspot
County of Lexington	http://www.lex-co.sc.gov	Wireless Hotspot
Greater Lexington Chamber and Visitor's Center	http://www.lexingtonsc.org/	Wireless Hotspot
Hampton Inn	http://hamptoninn3.hilton.com/en/hotels/south-carolina/hampton-inn-columbia-lexington-CAELXHX/index.html	Wireless Hotspot
Holiday Inn	https://www.google.com/search?hl=en&source=hp&q=Hotels+in+Lexington+South+Carolina+&gbv=2&oq=Hotels+in+Lexington+South+Carolina+	Wireless Hotspot
Lexington Family YMCA	http://columbiaymca.org/	Wireless Hotspot
Quality Inn& Suites	http://www.qualityinn.com/hotel-lexington-south_carolina-SC081?source=gglocaloz	Wireless Hotspot
Ramada	http://www.ramada.com/hotels/south-carolina/lexington/ramada-limited-lexington/hotel-overview?cid=local	Wireless Hotspot
Red Bank Community Facility (County of Lexington)	http://www.lex-co.sc.gov	Wireless Hotspot
Town of Lexington Eli Mack Room	http://www.lexsc.com/facility_rentals_eli_mack.htm	Wireless Hotspot
Town of Lexington Municipal Conference Center	http://www.lexsc.com/facility_rentals_conference_center.htm	Wireless Hotspot
Truly Scrumptious@Reflections	http://www.trulyscrumptioussc.net/	Wireless Hotspot
Value Place	http://www.valueplace.com/extended-stay-hotels/locations/South-Carolina/Columbia-SC-Lexington/	Wireless Hotspot
Wingate by Wyndham Lexington	carolina/lexington/wingate-by-wyndham-columbia-lexington/hotel-overview?hotel_id=30544	Wireless Hotspot

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

Organization Name	Website	Website Category
The Farmer's Shed	farmersshed@windstream.net	Agriculture
The State Farmer's Market	http://agriculture.sc.gov/StateFarmersMarket/ContactUs	Agriculture
Lake Murray Radio	Lake Murray Radio.Com	Business
Lexington Chronicle	lexingtonchronicle.com	Business
Lexington Life Magazine	http://www.lexingtonlifemagazine.com/	Business
Mid-Carolina Electric Cooperative	http://mcecoop.com/	Business
SCANA Corporation	http://www.scana.com/en/	Business
Twin City News	thetwincitynews.com	Business
Boys and Girls Club of The Midlands	http://www.bgcmidland.org/	Community Based
Central South Carolina Chapter of the American Red Cross	http://www.redcross.org/templates/render/rendererCanonical.jsp?pageCan=/sc/columbia	Community Based
Columbia Urban League	http://www.columbiaurbanleague.org/	Community Based
Community Relations Council	http://www.comrelations.org/	Community Based
Goodwill Industries Midlands/Upstate	http://www.goodwill.org/	Community Based
Harvest Hope Food Bank /Lexington Pantry	http://www.harvesthope.org/	Community Based
Irmo Chapin Recreation Commission	http://www.icrc.net	Community Based
Lexington County Recreation & Aging Commission	http://www.lcrac.com/	Community Based
Lexington Interfaith Community Services	http://licssc.org/	Community Based
Midlands Fatherhood Coalition	http://www.scfathersandfamilies.com/programs/midlands_fatherhood_coalition/	Community Based
Pasos	http://www.scpasos.org/	Community Based
Sistercare Inc.	http://sistercare.com/	Community Based
The Cayce West Columbia News	thecaycewestcolumbianews.com	Community Based

Transitions Homeless Center	http://transitionssc.org/	Community Based
United Way of the Midlands	http://uway.org/	Community Based
County of Lexington Website (Community Links)	http://www.lex-co.sc.gov/community/Pages/index.aspx	Government
Department of Social Services (DSS)	https://dss.sc.gov/content/about/counties/counties.aspx?ID=32	Government
Lexington County Museum	http://www.lex-co.sc.gov/departments/DeptIQ/museum/Pages/index.aspx	Government
Lexington County Public Library	http://www.lex.lib.sc.us/	Government
South Carolina Emergency Management Division	http://www.scemd.org/	Government
Lexington Medical Center	http://www.lexmed.com/	Healthcare
Pelion Family Practice	http://www.ecchc.org/Locations/PelionFamilyPractice.aspx	Healthcare
Columbia Metropolitan Convention Center	http://www.columbiaconventioncenter.com/	Tourism
Lake Murray Country	http://www.lakemurraycountry.com/	Tourism
Riverbanks Zoo and Gardens	http://www.riverbanks.org/	Tourism

Connected Assessment Analysis

Access Score Explanation

Broadband Availability (6 out of 10 Points Possible) – 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 April, 2014 data collected by Connect South Carolina, 91.82% of County residents had access to broadband speeds of 3 Mbps or greater.**

Broadband Speeds (5 out of 5 Points Possible) – is measured by analyzing the speed tiers available within a community. Connected Nation will analyze broadband data submitted through its broadband mapping program. Specifically, Connected Nation will break down the

coverage by the highest speed tier with at least 75% of households covered. 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 April, 2014 data collected by Connect South Carolina, 89.47% of County residents had access to broadband speeds of 50 Mbps/1Mbps.**

Broadband Competition (3 out of 5 Points Possible) – is measured by analyzing the number of broadband providers available in a particular 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 the 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 April, 2014 data collected by Connect South Carolina, 85.57% of County residents had access to more than one broadband provider.**

Middle Mile Access (10 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. Data was collected by the community in coordination with Connected Nation.

- **The County of Lexington is served by 1 or more 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 the April, 2014 data collected by Connect South Carolina, 100% of County residents had access to mobile broadband service.**

Adoption Score Explanation

Digital Literacy (10 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
Midlands Workforce Development Board	Free online job skills/training/support for the County's unemployed/underemployed individuals.	12,886 annually
Transitions Homeless Shelter	Homeless facility offering computer training twice a day to some 32 participants weekly.	1,280 annually
Midlands Technical College	Web Design and Maintenance Certificate	7 annually
Lexington County Public Library (total online annual patron computer usage at 139, 749)	The library system offers basic and advanced computer workshops, often providing one-on-one intensive training to seniors and vulnerable populations.	1,800 annually,
School District One Adult Education	Continuing Education Center offers ESL, GED, Literacy Online Classes)	600 annually
Turning Pages Adult Literacy Program	Community based adult literacy program using online resources	20 annually
School District Two and Four Adult Education	Continuing Education Center offers ESL, GED, Literacy Online Classes)	935 annually
Lexington School District Three	Continuing Education Center offers ESL, GED, Literacy Online Classes)	378 annually
Total Graduates [2013-2014]		17,906

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 is 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 Lexington County is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Lexington County Public Library	401 hours	77 computers (desktop)	30,877
Lexington School District Three Adult Literacy/Continuing Education	28 hours	88 computers (desktop, laptops, IPads)	2,464
Midlands Workforce Development	42.5 hours	24 computers (desktop)	1,020

Turning Pages Adult Literacy Program	16 hours	5 computers (desktop)	80
Transitions Homeless Facility	35 hours	8 Computers (desktop)	280
Lexington One Adult Education	48 hours	25 computers (desktops, laptops)	1,200
Lexington Two/Four Adult Education	41.5 hours	76 computers (desktops, IPad, Chromebooks)	3,154
Lexington/Richland Five Adult Education	66 hours	160 computers (desktop, IPads, Laptops)	10,560

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 Lexington County is below.

Organization Name	Campaign Description	Community Reach
Lexington County Sheriff's Department	Online Youth Safety Programs	90%
Lexington County Sheriff's Department	Crime Prevention Tips	100%
Lexington County Public Library	Provide internet use to approximately 15,253 residents annually and internet use to approximately 140,503	100%
Greater Lexington Chamber of Commerce and Visitors Center	Digital Ambassadors are official goodwill representatives of the Lexington Chamber on Social Media. They help the Chamber engage	85%
Lexington County Sheriff's Department	Business Watch--Online Crime Prevention Program for Businesses	75%
IWC STEM front page	Indian Waters Boy Scout Online Stem Training Program for Scout Masters	15%
Time Warner Cable	Broadband Marketing/Printed Materials Mailed to Homes	100%
Windstream	Broadband Marketing/Printed Materials Mailed to Homes	100%
Irmo/Chapin Recreation Commission	Parents ability to register youth for after school programs and recreational activities	100%
Connected Living Campaign	Assisted living residents of Brookdale Assisted Living facility can access a customized home page , allowing them to surf the web in a protected environment	25%
Lexington Medical Center Blog	Dynamic online blog/podcast dedicated to improving the health outcomes of Lexington residents	90%
Lake Murray Radio.Com	Online website/community portal providing community events, as well as livestreaming radio programming	100%

Kid's Corner	Online agricultural tool featured by the State Farmers Market that teaches children about the benefits of fresh fruits and vegetables	50%
Kindermusik	Irmo Chapin online music application for youth ,ages 0-4	85%
Emergency Management Training	During 2013 the South Carolina Department of Emergency Services (Lexington Based) provided training to some32,000 individuals	80%
Saluda Shoals Environmental Science Program	Summer program for elementary school students that teaches them to use YouTube as an environmental science tool	80%

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 Lexington County is listed below.

Organization Name	Program Description	Vulnerable Group
Columbia Urban League	Online computer training targeting the County's LMI population.	LMI/Minority Population
School District One	Online GED/ESOL/High School Diploma/Literacy Programs	GED/ESOL Population
School District Two/Four	Online GED/ESOL/High School Diploma/Literacy Programs	GED/ESOL Population
School District Three	Online GED/ESOL/High School Diploma/Literacy Programs	GED/ESOL Population
School District Five	Online GED/ESOL/High School Diploma/Literacy Programs	GED/ESOL Population
Midlands Technical College Batesburg-Leesville Campus	This satellite campus has a computer lab with online access and provides courses to the underserved rural residents of our community	Rural Underserved Populations
Sistercare Inc.	Assisted approximately 120 women with online job applications	Battered Women
Pasos	Online technical assistance for the County's Hispanic/Latino Population detailing medical, immigration, and child health resources	Minority Population

South Carolina Association for the Deaf	Online Technical Assessment Resource	Persons With Disabilities
South Carolina Vocational Rehabilitation Center	Online Evaluation Center	Persons With Disabilities
Transitions Homeless Facility	Online GED Readiness Programming	Homeless Population
Vocational Rehabilitation	Online Job Training/Placement	Homeless Population
South Carolina State Library	SC Talking Book Services Online Information	Persons With Disabilities
Irmo Chapin Recreation and Commission on Aging	Online support services for seniors	Seniors
Lexington County Recreation & Aging Commission	Online support services for seniors	Seniors

Use Score Explanation

Economic Opportunity (10 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
Batesburg-Leesville Chamber of Commerce Website	Online resource promoting economic investment, community engagement, as well as small business support	Basic
Business Opportunities	Online resource for the Columbia Metropolitan Airport for small and minority owned businesses	Basic
Cayce-West Columbia Chamber of Commerce	Online resource assisting business owners with individualized training	Basic

Chapin Chamber of Commerce Website	Website serves as a catalyst for economic and community growth. Online resources include advocacy and membership support.	Basic
Entertainment on The Fly	free wireless/entertainment uploads at Columbia Metropolitan Airport	Basic
Greater Irmo Chamber of Commerce Website	Online resource for Lexington business and civic community, additionally quality re-location information.	Basic
Greater Lexington Chamber of Commerce and Visitor's Center	Online resource that catalogues 100% of the community's local attractions to include the State Farmer's Market, Lake Murray, Peachtree Rock, the Veterans Memorial Monument, 911 Memorial on Main Street, Riverbanks Zoo, and Gardens, as well as the Lexington Museum	Basic
Lake Murray Country Website	Online resource of recreational attractions, as well as a relocation resource for new residents	Basic
Lexington County Recreation & Aging Commission Website	Comprehensive information about area arts, entertainment, golf courses, and other community assets	Basic
Meeting Planning	Online resource hosted by the Columbia Metropolitan Convention Center	Basic
Wireless/Internet Access	County of Lexington Airport at Pelion	Basic
Central South Carolina Alliance Website/Online Portal	Comprehensive online portal identifying broadband availability at key industrial parks & sites	Advanced
County of Lexington Economic Development Portal	Online resource providing industry with information on the County's workforce, amenities, tax incentives, and industrial parks	Advanced
Digital Ambassadors Campaign	Digital Ambassadors are official goodwill representatives of the Lexington Chamber on Social Media. They help the Chamber engage	Advanced
Fort Jackson	Interactive website detailing cyber security prevention, as well as community events and inner workings of Fort Jackson	Advanced
IT-oLogy Online/Offline Resource	Area non-profit fostering economic development and advancing the IT profession	Advanced
Membership Incense	USC/Technology Incubator online training/support platform for entrepreneurs	Advanced
Midlands Technical College	Corporate and Continuing Education Programs, such as computer network certificate, database analyst, business analyst etc.	Advanced
Midlands Technical College	Web Design and Maintenance Certificate	Advanced

Education (10 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
CATE Program	School District Three has deployed this high school STEM Program emphasizing math, technology and digital literacy skills	Basic
Google Applications	A Course offered by School District Two that builds students digital literacy skills beyond the traditional computer concepts and capitalizes on emerging technologies.	Basic
Adaptive Technology	School District Three uses adaptive technology for vulnerable school populations, i.e. students with disabilities	Advanced
Aerospace Engineering Program	School District Five course which exposes youth to the world of aeronautic, flight, and engineering	Advanced
APEX /South Carolina Virtual School	School District Four uses online learning environment for students pursuing high school diploma in an online environment	Advanced
Classroom Connectivity	100% of School District Three Classrooms are connected to the internet via broadband	Advanced
Digital Literacy	90% of School District Two 12th graders have excellent digital literacy skills	Advanced
Digital Literacy Skills	90% of 12th graders have excellent digital literacy skills in School District Four	Advanced
Follett School Solutions	School District Three uses this library automation system	Advanced
Google Apps	All grades and students equipped with email addresses. All teachers and students taught to use Google apps in and out of the classroom in School District One	Advanced
Google Glass Test Site	School District Five Center for Advanced Technical Studies	Advanced
Infosnap (On-line registrations)	On-line system that allows School District One parents to register their children for the upcoming school year	Advanced
Networking 1 (CISCO)	School District One Program designed to provide students with classroom and laboratory experience and emerging networking technologies.	Advanced
One-to-One computing	All students in School District One grades 6-12 and 2 elementary schools (K-5) equipped with iPads and digital content. All other elementary schools at a ratio of 5-8:1.	Advanced

Online Use of Google Docs	School District Four encourages students, parents and teachers to use Google Docs and has interactive tutorials	Advanced
Power School	School District Two provides students and parents with an online interactive portal whereby information such as grades, attendance, homework and other information is easily accessible	Advanced
Power School	School District Four public online interactive portal for students and parents	Advanced
Raz-Kids	School District Two uses this online/interactive reading comprehension tool to increase fluency and literacy among the students	Advanced
Research & Learn Database	Lexington Pubic Library's Online Catalog	Advanced
Schoology	School District One Learning Management System (LMS) accessed by teachers, students and parents; utilizes Google applications and Google email, also synced with PowerSchool	Advanced

Government (10 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
Central Midlands Council of Governments	Online resource providing local governments with planning and technical support to improve the quality of life	Basic
911 Next Generation 911 System	NG9-1-1) refers enables the public to transmit text, image, and video data to the County's 911 center and acknowledges our mobile community.	Advanced
City of Cayce Website	100% of City services are available online	Advanced
City of West Columbia	100% of City services available online, including the ability to sign up for e-billing, as well as electronic water advisories.	Advanced
County of Lexington Website	90% of County of Lexington services available online	Advanced
County of Lexington Online Video/Web Portal	Video and Web Portal allows County of Lexington citizens to access video of council meetings and agendas, other videos.	Advanced
Crime Mapping	Online resource which allows residents to map crime data using GIS Technology	Advanced

Online Youth Emergency Preparedness Program	Emergency Preparedness Division Offers Web Based Emergency Preparedness Program for Community's Youth	Advanced
STEMI System	Mobile technology relaying cardiac information from ambulances to emergency room physicians using wireless broadband	Advanced
Town of Batesburge-Leesvile Website	More than 50% of municipal services available online, including access to permits, as well as utility payments.	Advanced
Town of Chapin Website	100% of Town services available online, including utility payments.	Advanced
Town of Gaston Website	More than 50% of Town services available online	Advanced
Town of Irmo Website	More than 90% of Town services available online, residents also have the ability to sign up for law enforcement e-alerts	Advanced
Town of Lexington Website	100% of Town services available online, in addition to paying utilities and tickets, residents have access to video on demand	Advanced
Town of Pine Ridge	50% of Town services available online	Advanced
Town of South Congaree	50% of Town services available online	Advanced
Town of Springdale	50% of Town services available online	Advanced
Town of Swansea	50% of Town services available online	Advanced
Web Based Public Safety Applications	The Lexington County Sheriff's Department offers a variety of interactive crime prevention programs/data online.	Advanced

Healthcare (10 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
Agape University	Online healthcare training portal which allows employees access to training anywhere at any time.	Basic
Be Well Educated Video Series	The Heritage at Lowman provides citizens access to health and wellness videos. Free to all seniors.	Basic
Brookdale Senior Webinar Series	Brookdale Assisted Living facility offers a free live senior webinar series on a senior related health topic.	Basic

Connected Living	Assisted living residents can access a customized home page that allows them to surf the Web in a protected environment.	Basic
DHEC Interactive Social Media Outlets	DHEC hosts interactive Facebook, Twitter, and blog called Live Healthy SC, as well as a YouTube channel	Basic
DHEC Website	Website for the South Carolina Department of Health and Environmental Control contains information on health and environmental issues, including restaurant scores.	Basic
Agape Free Wireless Internet	Agape Senior Assisted Living of Lexington offers its patients and visitors free wireless internet.	Basic
Long Term Care Ombudsman	The Central Midlands Council of Governments ns regional ombudsman investigates complaints related to residents in long-term care facilities.	Basic
Wireless Access	Lexington Medical Center has wireless access in waiting rooms, ER's. There are printers and computers and access to internet.	Basic
Wireless Internet Access	Assisted Living facility Morningside of Lexington offers its residents broadband internet services.	Basic
Lexington Medical Center Secure Patient Portal	Interactive patient portal allowing patients to interface with care providers while mobile; also access previous medical history.	Advanced
Personal Emergency Response System	Remote Healthcare Monitoring offered by Medical Services of America.	Advanced
Physicians and eHealth	Lexington Medical Center estimates that approximately 80-90% of physicians in the County use and access to eHealth.	Advanced
Remote Patient Monitoring	Lexington Medical Center in conjunction with Emergency Services has implemented the STEMI remote patient monitoring system.	Advanced
Remote Patient Monitoring Technology	Lexington Medical Center has remote patient monitoring capabilities	Advanced

ACTION PLAN

Community Priority Projects

This exercise has culminated in the outlining of projects to allow the community to continue its recognized excellence in technology and broadband planning across the community. Below are 6 priority projects, each describing a project plan with suggested steps. This is followed by a complete list of all action items.

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.

Goal

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: http://is0.gaslightmedia.com/wwwharborincorg/_ORIGINAL_/fs72-1369322556-20386.pdf

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.

Goal
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

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 ration 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.

Goal
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.

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.

Goal
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.

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.

Goal

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.

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.

Goal

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.

Complete List of Action Items

Below is a complete list of 15 action items proposed by the County of Lexington's Broadband Team to accelerate broadband access, adoption, and use.

ACCESS

Broadband Availability

1. 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.

Goal

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.

2. 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.

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Goal

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.
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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.

3. Develop & Issue a 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.

Goal

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.

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 ration 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.

Goal
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 unserved community and to gather site-specific information required for that purpose.

Goal
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.

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.

Goal

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: http://is0.gaslightmedia.com/wwwharborincorg/_ORIGINAL_/fs72-1369322556-20386.pdf

Broadband Speeds - No Action Items.

Broadband Competition

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.

Goal
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.

Goal
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.

Middle Mile Access - No Action Items.

Mobile Broadband Availability

9. 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.

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.

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 - No Action Items.

Public Computer Access - No Action Items.

Broadband Awareness

10. 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.

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.

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.

Vulnerable Population Focus - No Action Items.

USE

Economic Opportunity

11. 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, 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.

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.

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

12. 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.

Goal
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 http: //www.digitalworksjobs.com to learn more.

Education

13. Continue to Support Digital Learning Programs

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.

Goal

Increase student attention and engagement, and 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.

Government

14. 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.

Goal

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.

Healthcare

15. 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. 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.

Goal

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 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 spring of 2014 depict a geographic representation of provider-based broadband data represented by cable, DSL, wireless, 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 Speed Tiers	Unserved Households ('000)	Served Households ('000)	Percent Households by Speed Tier
At Least 768 Kbps/200 Kbps	54	1,747	96.98
At Least 1.5 Mbps/200 Kbps	58	1,743	96.79
At Least 3 Mbps/768 Kbps	107	1,695	94.08
At Least 6 Mbps/1.5 Mbps	**208**	**1,593**	**88.45**
At Least 10 Mbps/1.5 Mbps	212	1,589	88.24
At Least 25 Mbps/1.5 Mbps	328	1,474	81.81
At Least 50 Mbps/1.5 mbps	349	1,453	80.64
At Least 100 Mbps/1.5 Mbps	**1,116**	**685**	**38.02**
At Least 1 Gbps/1.5 Mbps	1,801	0	0.00

Source: Connect South Carolina, April 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 96.98% of households are able to connect to broadband at download speeds of at least 768 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 54,395 households in the spring of 2014. Further, approximately 1,694,551 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 is estimated at 88.45%.

Taking into account both fixed and mobile broadband service platforms, an estimated 96.98% of South Carolina households have broadband available from at least one provider at download speeds of 768 Kbps or higher. This implies that .05% 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 spring 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 ConnectView,™ 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.
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 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 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:

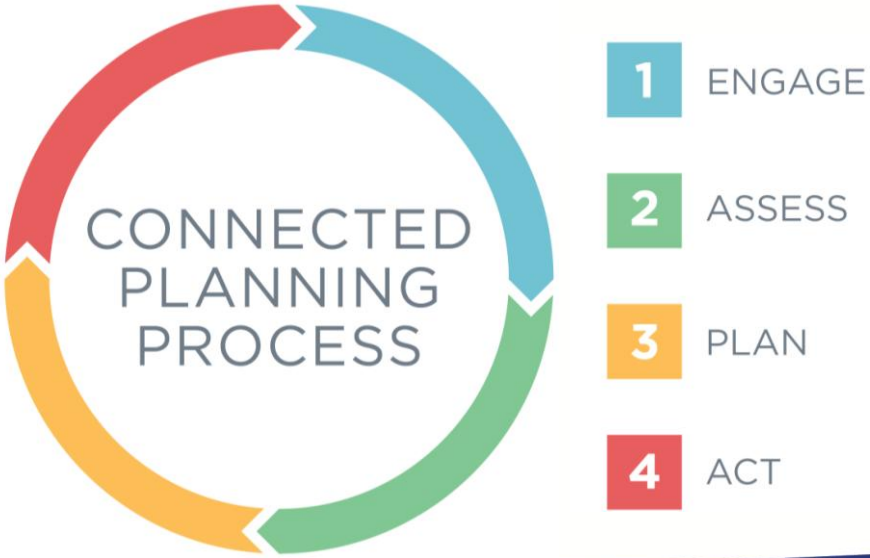
- ACCESS – **Does your community have access to affordable and reliable broadband service?**
- ADOPTION – **Is your community addressing the barriers to broadband adoption?**
- USE – **Are residents using technology to improve their quality of life?**

Connected Nation leverages state-based public-private partnerships to engage residents at the local level. Regionally based staff provide "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
1. Broadband Availability	6. Digital Literacy	10. Economic Opportunity
2. Broadband Speeds	7. Public Computer Centers	11. Education
3. Broadband Competition	8. Broadband Awareness	12. Government
4. Middle Mile Access	9. Vulnerable Population Focus	13. Healthcare
5. Mobile Broadband Availability		

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 also 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 implantations 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.

M

MAN - Metropolitan Area Network - A high-speed date 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.