



**CONNECTED**<sup>SM</sup>  
Community Engagement Program

# GREENWOOD COUNTY

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## TECHNOLOGY ACTION PLAN

PREPARED BY **CONNECT SOUTH CAROLINA**  
AND THE  
**GREENWOOD COUNTY TECHNOLOGY TEAM**



JULY 15, 2013



ACCESS



ADOPTION



USE

## TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>3</b>
BACKGROUND .....	3
METHODOLOGY.....	4
<b>CONNECTED ASSESSMENT</b> .....	<b>5</b>
ANALYSIS OF CONNECTED ASSESSMENT.....	5
COMMUNITY TECHNOLOGY SCORECARD.....	6
ITEMIZED KEY FINDINGS .....	8
PRIORITY PROJECTS .....	9
COMPLETE LIST OF RECOMMENDED ACTIONS.....	9
<b>DETAILED FINDINGS</b> .....	<b>12</b>
GREENWOOD COUNTY ASSESSMENT FINDINGS.....	12
GREENWOOD COUNTY ASSESSMENT ANALYSIS .....	18
<b>ACTION PLAN</b> .....	<b>26</b>
PRIORITY PROJECTS .....	26
COMPLETE LIST OF RECOMMENDED ACTIONS.....	32
<b>APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND</b> .....	<b>45</b>
STATEWIDE INFRASTRUCTURE.....	45
<b>APPENDIX 2: PARTNER AND SPONSORS</b> .....	<b>49</b>
<b>APPENDIX 3: THE NATIONAL BROADBAND PLAN</b> .....	<b>51</b>
<b>APPENDIX 4: WHAT IS CONNECTED?</b> .....	<b>52</b>
<b>APPENDIX 5: GLOSSARY OF TERMS</b> .....	<b>54</b>

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## INTRODUCTION

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The purpose of this report is to summarize the community's assessment of local broadband access, adoption, and use, 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.”<sup>1</sup>

Despite the growing dependence on technology, as of 2012, 30% of Americans did not have a high-speed connection at home.<sup>2</sup> Connected Nation's studies also show that 17 million families with children do not have broadband at home – and 7.6 million of these children live in low-income households. In 2012, Connected Nation also surveyed 7,004 businesses in 9 states. Based on this data, Connected Nation estimates that at least 1.8 million businesses - 24% - in the United States do not utilize broadband technology today.<sup>3</sup>

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.<sup>4</sup>

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

2 *Consumer Broadband Adoption Trends*, Connected Nation, Inc., March 2013, <http://www.connectednation.org/survey-results/residential>

3 Connected Nation, *Broadband and Business: Leveraging Technology to Stimulate Economic Growth*, <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 expands access to and use of broadband Internet and the related technologies that are enabled when individuals and communities have the opportunity and desire to connect. Connected Nation works in multiple states to engage community stakeholders, state leaders, and technology providers to develop and implement

## Methodology

By actively participating in the Connected Community Engagement Program, the Greenwood County Broadband Committee is boosting the community's capabilities in education, healthcare, and public safety, and stimulating economic growth and spurring job creation. The Greenwood 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, and the private sector.
2. With assistance from Connect South Carolina, identify the community's technology assets, including local infrastructure, providers, facilities, websites, and innovative uses employed by institutions.
3. Complete the Connected Assessment, a measurement of the community's access, adoption, and use of broadband based on the recommendations of the National Broadband Plan.
4. Match gaps in the local broadband ecosystem to solutions and best practices being utilized by communities across the nation.
5. Pursue Connected certification, a nationally recognized platform for spotlighting communities that excel in the access, adoption, and use of broadband.

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technology expansion programs with core competencies centered around the mission to improve digital inclusion for people and places previously underserved or overlooked.

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## CONNECTED ASSESSMENT

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The Connected Assessment framework is 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

- Greenwood County achieved a score of 110 points out of 120 for overall broadband and technology readiness.
- Although Greenwood County has surpassed the score of 100 required for Connected certification, it did not received the required 32 points in the Access section required for certification.
- The county scored 30 out of a possible 40 points in broadband access primarily because of some gaps in broadband competition and speed.
- The county scored 40 out of a possible 40 points for both the areas of broadband adoption and use, which indicates that the community is exhibiting excellence in these areas.

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

The Community Technology Scorecard provides a summary of the community's Connected Assessment. The Connected Assessment's criteria are reflective of the recommendations made by the Federal Communications Commission's National Broadband Plan. These scores reflect the community's progress to meeting these national benchmarks to universal fixed broadband service, ubiquitous mobile service, and growing access to higher speed next-generation services. Lower scores do not necessarily signify a complete lack of access to broadband service but instead reflect that the broadband infrastructure in the community has not met these national goals and benchmarks.



<b>Community Technology Scorecard</b> Community Champions: Heather Jones Community Advisor: Catalina Valencia				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	90% to 94.9% of homes have access to 3 Mbps	6	10
	Broadband Speeds	75% of households with access to at least 10 Mbps	3	5
	Broadband Competition	60.0% to 69.9% of households with access to more than 1 Broadband provider	1	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99.0% to 100.0% of households with access to mobile broadband	10	10
	<b>Total Access Score</b>			<b>30</b>
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
	<b>Total Adoption Score</b>			<b>40</b>
USE	Economic Opportunity	5 advanced, 6 basic uses	10	10
	Education	7 advanced, 3 basic uses	10	10
	Government	17 advanced, 3 basic uses	10	10
	Healthcare	14 advanced, 6 basic uses	10	10
	<b>Total Use Score</b>			<b>40</b>
<b>COMMUNITY ASSESSMENT SCORE</b>			<b>110</b>	<b>120</b>

## Itemized Key Findings

The following key findings were identified (in addition to findings illustrated in the community scorecard) through the technology assessment. Connect South Carolina gathered data for the Access portion, while the Greenwood County Broadband Committee provided input on the Adoption and Use sections:

### ACCESS

- 4 last-mile broadband providers currently provide service in Greenwood County:
  - 91.28% of households have access to 3 Mbps service.
  - 76.85% of Greenwood County households have access to 10 Mbps service.
  - 69.24% of Greenwood County households have access to more than one provider.
- Middle mile fiber infrastructure is available from at least one provider in Greenwood County.
- 99.77% of Greenwood County households have access to mobile broadband.

### ADOPTION

- 6 digital literacy programs exist in the community resulting in more than 1,600 graduates over the past year.
- 9 public computer centers (PCCs) with a total of 151 computers are open to the public.
- 10 broadband awareness campaigns are reaching 100% of Greenwood County.
- 9 organizations are working with at least 5 vulnerable populations.

### USE

- At least 11 uses of broadband were identified in the area of economic opportunity, including 5 advanced uses and 6 basic uses.
- At least 10 uses of broadband were identified in the area of education including, 7 advanced uses and 3 basic uses.
- At least 20 uses of broadband were identified in the area of government, including 17 advanced uses and 3 basic uses.
- At least 14 uses of broadband were identified in the area of healthcare, including 14 advanced uses and 6 basic uses.

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

#### **Technology Providers**

- 12 broadband providers were identified
- 4 hardware providers were identified
- 1 network integrator was identified



- 1 software provider was identified
- 5 equipment and repair services were identified
- 8 other providers of technology were identified

### **Technology Facilities**

- 9 public computing centers
- 1 wireless hotspot
- 1 video conference facility

### **Community Websites**

- 2 Business-related websites (excluding private businesses)
- 8 Education-related websites
- 48 Government-related websites
- 3 Healthcare-related website
- 1 Library-related website
- 3 Tourism-related websites

## **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 followed by a complete list of all recommended actions.

- Improve Education through Digital Learning
- Perform a Broadband Build-out Analysis in Unserved Areas
- Complete a Vertical Assets Inventory
- Identify, Map, and Validate Broadband Demand
- Complete an evaluation of grant programs (Federal and other) that are applicable and available to our community to pursue them
- Identify sites in Greenwood County suitable for data centers ensuring telecom/fiber criteria is met

## **Complete List of Recommended Actions**

Below is a complete list of 14 recommended actions. Numbered actions indicate those recommended by Connect South Carolina, whereas non-numbered actions indicate those developed by the Greenwood County Broadband Team. Detailed descriptions of each solution proposed by Connect South Carolina can be found in the *Complete List of Recommended Actions* section later in this report.

## ACCESS

### **Broadband Availability**

PRIORITY PROJECT – Complete an Evaluation of Grant Programs (Federal and other) That Are Applicable and Available to Our Community to Pursue Them

1. PRIORITY PROJECT – Perform a Broadband Build-out Analysis in Unserved Areas

### **Broadband Speeds**

2. PRIORITY PROJECT – Identify, Map, and Validate Broadband Demand

### **Broadband Competition**

3. Study and Possibly Reassess Major Telecom Purchase Contracts

**Middle Mile Access** – No recommended actions.

### **Mobile Broadband Availability**

4. PRIORITY PROJECT – Complete a Vertical Assets Inventory

## ADOPTION

**Digital Literacy** – No recommended actions.

**Public Computer Centers** – No recommended actions.

### **Broadband Awareness**

5. Facilitate a Technology Summit

**Vulnerable Population Focus** – No recommended actions.

## USE

### **Economic Opportunity**

PRIORITY PROJECT – Identify Sites in Greenwood County Suitable for Data Centers Ensuring Telecom/ Fiber Criteria is met

6. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses
7. Establish a "Digital Factory"



**Education**

- 8. PRIORITY PROJECT – Improve Education through Digital Learning
- 9. Connect all School Classrooms to the Internet

**Government**

- 10. Improve Online Business Services Offered by the Government
- 11. Pursue Next Generation 911 Upgrades

**Healthcare**

- 12. Promote Telemedicine in Remote Areas



## DETAILED FINDINGS

### Greenwood County Assessment Findings

Today, residents in Greenwood County (or sections of the community) are served by 12 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 Greenwood County Community:

Broadband Providers	Technology Type	Website Reference
AT&T Mobility LLC	Mobile Wireless	<a href="http://www.wireless.att.com">http://www.wireless.att.com</a>
Verizon Wireless	Mobile Wireless	<a href="http://www.verizonwireless.com">http://www.verizonwireless.com</a>
CenturyLink	DSL	<a href="http://www.centurylink.com">http://www.centurylink.com</a>
Hughes Network Systems, LLC	Satellite	<a href="http://www.hughes.com">http://www.hughes.com</a>
Northland Cable Television	Cable	<a href="http://www.northlandcabletv.com">http://www.northlandcabletv.com</a>
PRT Communications	Mobile Wireless/ DSL	<a href="http://www.prtcnet.com/">http://www.prtcnet.com/</a>
Skycasters	Satellite	<a href="http://www.skycasters.com">http://www.skycasters.com</a>
StarBand Communications	Satellite	<a href="http://starband.com/">http://starband.com/</a>
Sprint	Mobile Wireless	<a href="http://www.sprint.com">http://www.sprint.com</a>
T-Mobile	Mobile Wireless	<a href="http://www.t-mobile.com">http://www.t-mobile.com</a>
ViaSat	Satellite	<a href="http://www.wildblue.com">http://www.wildblue.com</a>
West Carolina Rural Telephone Cooperative, Inc.	Fiber	<a href="http://www.wctelephone.com">http://www.wctelephone.com</a>

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

Organization Name	Website	Website Category
Greenwood Partnership Alliance	<a href="http://www.partnershipalliance.com">www.partnershipalliance.com</a>	Business
Greenwood Chamber of Commerce	<a href="http://www.greenwoodscchamber.org/">www.greenwoodscchamber.org/</a>	Business
Lander University	<a href="http://www.lander.edu/">http://www.lander.edu/</a>	Education
Piedmont Technical College	<a href="http://www.ptc.edu/">http://www.ptc.edu/</a>	Education
School District 50	<a href="http://www.gwd50.org/">www.gwd50.org/</a>	Education
School District 51	<a href="http://www.gwd51.k12.sc.us/">www.gwd51.k12.sc.us/</a>	Education
School District 52	<a href="http://www.greenwood52.org/">www.greenwood52.org/</a>	Education



South Carolina Vocational Rehabilitation Department (SCVRD)	<a href="http://www.scvrd.net/">www.scvrd.net/</a>	Education
Burton Center for Disability and Special Needs	<a href="http://www.burtoncenter.org/">www.burtoncenter.org/</a>	Education
United Way of Greenwood and Abbeville Counties	<a href="http://www.unitedwaygac.org/">www.unitedwaygac.org/</a>	Education
Greenwood Commissioners of Public Works (CPW)	<a href="http://www.greenwoodcpw.com/">http://www.greenwoodcpw.com/</a>	Government
Greenwood Metropolitan District (GMD)	<a href="http://www.greenwoodmetro.com/">http://www.greenwoodmetro.com/</a>	Government
City of Greenwood	<a href="http://www.cityofgreenwoodsc.com/">http://www.cityofgreenwoodsc.com/</a>	Government
Greenwood County-GIS WEBSITE MAPS & SEARCH	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-GIS WEBSITE PROPERTY SALES COMPARABLES	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-GREENWOOD COUNTY DOCUMENT SEARCH	<a href="http://www.greenwoodsc.gov/DocSearch/Default.aspx">www.greenwoodsc.gov/DocSearch/Default.aspx</a>	Government
Greenwood County-PROPERTY TAX ESTIMATE	<a href="http://www.greenwoodsc.gov/taxestimator/default.html">www.greenwoodsc.gov/taxestimator/default.html</a>	Government
Greenwood County-GIS WEBSITE COMMUNITY INFORMATION TOOL	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-APPLY FOR SITE ADDRESS	<a href="http://www.greenwoodsc.gov/countywebsite/">www.greenwoodsc.gov/countywebsite/</a>	Government
Greenwood County-PAY PROPERTY OR VEHICLE TAX	<a href="http://www.greenwoodsctax.com/">www.greenwoodsctax.com/</a>	Government
Greenwood County-PAY EMS BILL ONLINE	<a href="http://www.emsbilling.info:8443/">www.emsbilling.info:8443/</a>	Government
Greenwood County-GREENWOOD COUNTY FACEBOOK	<a href="http://www.facebook.com/pages/GREENWOOD-COUNTY-SOUTH-CAROLINA/">www.facebook.com/pages/GREENWOOD-COUNTY-SOUTH-CAROLINA/</a>	Government
Greenwood County-GREENWOOD COUNTY TWITTER	<a href="http://www.twitter.com/ScGwd">www.twitter.com/ScGwd</a>	Government
Greenwood County-VARIOUS PERMIT APPLICATIONS	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=107">www.greenwoodsc.gov/countywebsite/index.aspx?page=107</a>	Government
Greenwood County-SCDOR SALES TAX NUMBER APPLICATION	<a href="http://www.sctax.org/default.htm">www.sctax.org/default.htm</a>	Government
Greenwood County-E-NOTIFICATION PAGE FOR MULTIPLE DEPTS.	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=41">www.greenwoodsc.gov/countywebsite/index.aspx?page=41</a>	Government
Greenwood County-BID PURCHASING NOTIFICATION	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=56">www.greenwoodsc.gov/countywebsite/index.aspx?page=56</a>	Government
GREENWOOD COUNTY HOME PAGE	<a href="http://www.greenwoodsc.gov/">www.greenwoodsc.gov/</a>	Government
Greenwood County-DOWNLOAD REGISTER TO VOTE FORM	<a href="http://www.scvotes.org/files/VR_Blank_Form.pdf">www.scvotes.org/files/VR_Blank_Form.pdf</a>	Government
Greenwood County-APPEAL PROPERTY VALUE	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=184">www.greenwoodsc.gov/countywebsite/index.aspx?page=184</a>	Government



Greenwood County-CITY / COUNTY ZONING ORDINANCES	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=232">www.greenwoodsc.gov/countywebsite/index.aspx?page=232</a>	Government
Greenwood County-HOMESTEAD EXEMPTION APPLICATION FORM	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=184">www.greenwoodsc.gov/countywebsite/index.aspx?page=184</a>	Government
Greenwood County-LAKE MANAGEMENT ONLINE FORMS	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=241">www.greenwoodsc.gov/countywebsite/index.aspx?page=241</a>	Government
Greenwood County-DOWNLOAD EMPLOYMENT APPLICATION	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=146">www.greenwoodsc.gov/countywebsite/index.aspx?page=146</a>	Government
Greenwood County-APPLICATION FOR LEGAL RESIDENCE	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=184">www.greenwoodsc.gov/countywebsite/index.aspx?page=184</a>	Government
Greenwood County-ABSENTEE VOTING LINK	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=247">www.greenwoodsc.gov/countywebsite/index.aspx?page=247</a>	Government
Greenwood County-APPLICATION FOR MARRIAGE LICENSE	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=288">www.greenwoodsc.gov/countywebsite/index.aspx?page=288</a>	Government
Greenwood County-COUNTY COUNCIL AGENDA & MINUTES	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=85">www.greenwoodsc.gov/countywebsite/index.aspx?page=85</a>	Government
Greenwood County-GREENWOOD CITY/COUNTY CRIME REPORT	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=451">www.greenwoodsc.gov/countywebsite/index.aspx?page=451</a>	Government
Greenwood County-PROPERTY TAX RECORDS on GIS Website	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-PROPERTY TAX MAPS on GIS Website	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-APPLICATIONS TOOLS ON GIS WEBSITE	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-SALES SEARCH TOOL ON GIS WEBSITE	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-DRAWING TOOLS ON GIS WEBSITE	<a href="http://www.greenwoodsc.gov/GreenwoodSL/">www.greenwoodsc.gov/GreenwoodSL/</a>	Government
Greenwood County-EMS BILLING	<a href="http://www.emsbilling.info:8443/">www.emsbilling.info:8443/</a>	Government
Greenwood County-TRAFFIC TICKETS	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=147">www.greenwoodsc.gov/countywebsite/index.aspx?page=147</a>	Government
Greenwood County-FIND ESTATE RECORDS	<a href="http://www.greenwoodsc.gov/Probate/default.aspx">www.greenwoodsc.gov/Probate/default.aspx</a>	Government
Greenwood County-REPORT CODE VIOLATIONS	<a href="http://www.greenwoodsc.gov/countywebsite/index.aspx?page=117">www.greenwoodsc.gov/countywebsite/index.aspx?page=117</a>	Government
Greenwood County-COUNTY TAX RECORDS	<a href="http://www.greenwoodsctax.com/">www.greenwoodsctax.com/</a>	Government
Upper Savannah Council of Gov.	<a href="http://www.upperscworks.com/">http://www.upperscworks.com/</a>	Government
GLEAMNS Human Resources Commission Inc.	<a href="http://www.gleamnshrc.org/">www.gleamnshrc.org/</a>	Government
Town of Ninety Six	<a href="http://www.townofninetysixsc.com/">http://www.townofninetysixsc.com/</a>	Government
City of Ware Shoals	<a href="http://www.wareshoals.org/Site/">http://www.wareshoals.org/Site/</a>	Government
Uptown Greenwood	<a href="http://www.uptowngreenwood.com">www.uptowngreenwood.com</a>	Government
Greenwood Arts Council	<a href="http://www.greenwoodartscouncil.org">www.greenwoodartscouncil.org</a>	Government

Greenwood Community Theater	<a href="http://www.greenwoodcommunitytheatre.com">www.greenwoodcommunitytheatre.com</a>	Government
Greenwood Museum	<a href="http://www.greenwoodmuseum.org">www.greenwoodmuseum.org</a>	Government
Golf Greenwood	<a href="http://www.golfgreenwoodsc.com">www.golfgreenwoodsc.com</a>	Government
Self Regional Healthcare	<a href="http://www.selfregional.org/">http://www.selfregional.org/</a>	Healthcare
Greenwood Regional Rehabilitation Hospital	<a href="http://grrh.ernesthealth.com/">http://grrh.ernesthealth.com/</a>	Healthcare
Wesley Commons	<a href="http://www.wesleycommons.org/">http://www.wesleycommons.org/</a>	Healthcare
Greenwood County Library System	<a href="http://www2.youseemore.com/greenwood/directory.asp">http://www2.youseemore.com/greenwood/directory.asp</a>	Libraries
Greenwood City-Regional Tourism & Visitor Bureau	<a href="http://www.visitgreenwoodsc.com/">http://www.visitgreenwoodsc.com/</a>	Tourism
The Cultural District of Greenwood	<a href="http://www.emeraldtriangle.sc/Theatre/Default.aspx">http://www.emeraldtriangle.sc/Theatre/Default.aspx</a>	Tourism
Greenwood Music Festival	<a href="http://greenwoodmusicfestival.org/">http://greenwoodmusicfestival.org/</a>	Tourism

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

Organization Name	Resource Type
Piedmont Technical College	Public Computer Facility
County Library	Public Computer Facility
SCWorks	Public Computer Facility
GLEAMNS Human Resources Commission, Inc.	Public Computer Facility
Lander University	Public Computer Facility
Lander University	Wireless Hotspot
Piedmont Technical College	Video Conference Facility

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

Organization Name	Website	Resource Type
Sprint Store by American Wireless	<a href="http://www.sprint.com">www.sprint.com</a>	Hardware Provider
Tree, LLC	<a href="http://www.treellc.com">http://www.treellc.com</a>	Other
Simple PC	<a href="http://www.simplepc.com/">http://www.simplepc.com/</a>	Other
Inksters	<a href="http://inkstersink.com">http://inkstersink.com</a>	Hardware Provider
OfficeMax - Greenwood	<a href="http://www.officemax.com">http://www.officemax.com</a>	Hardware Provider
Protech		Other



Computers Networking & Communications		Other
The Help Desk		Other
Aarons Sales & Lease Ownership	<a href="http://www.aarons.com">http://www.aarons.com</a>	Hardware Provider
Computer Consultants & Merchants	<a href="http://www.ccm2greenwood.com">http://www.ccm2greenwood.com</a>	Other
Technesis	<a href="http://www.gotechnesis.com">http://www.gotechnesis.com</a>	Network Integrator
EZ Computer Repairs	<a href="http://ezpccomputerrepair.com/">http://ezpccomputerrepair.com/</a>	Other
Prevention I.T.	<a href="http://preventionit.com">http://preventionit.com</a>	Other
Smith PC Repair	<a href="http://www.smithpcrepair.com">http://www.smithpcrepair.com</a>	Other
ARCS Computers		Other
J C Internet		Other
Watermark Solutions	<a href="http://www.wmerp.com/">http://www.wmerp.com/</a>	Software Provider
SCIT	<a href="http://www.scit.com">http://www.scit.com</a>	Other
Digital Office	<a href="http://www.digitaloffice.com/">http://www.digitaloffice.com/</a>	Other



<b>Community Technology Scorecard</b> Community Champions: Heather Jones Community Advisor: Catalina Valencia				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	90% to 94.9% of homes have access to 3 Mbps	6	10
	Broadband Speeds	75% of households with access to at least 10 Mbps	3	5
	Broadband Competition	60.0% to 69.9% of households with access to more than 1 Broadband provider	1	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99.0% to 100.0% of households with access to mobile broadband	10	10
	<b>Total Access Score</b>			<b>30</b>
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
	<b>Total Adoption Score</b>			<b>40</b>
USE	Economic Opportunity	5 advanced, 6 basic uses	10	10
	Education	7 advanced, 3 basic uses	10	10
	Government	17 advanced, 3 basic uses	10	10
	Healthcare	14 advanced, 6 basic uses	10	10
	<b>Total Use Score</b>			<b>40</b>
<b>COMMUNITY ASSESSMENT SCORE</b>			<b>110</b>	<b>120</b>

## Greenwood County Assessment Analysis



### ACCESS Score Breakdown

**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 May 2013 data collected by Connect South Carolina, 91.28% of Greenwood County residents had access to broadband speeds of 3 Mbps or greater.**

**Broadband Speeds** (3 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 May 2013 data collected by Connect South Carolina, 76.85% of Greenwood County residents had access to broadband speeds of 10 Mbps.**

**Broadband Competition** (1 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 May 2013 data collected by Connect South Carolina, 69.24% of Greenwood 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.

- Greenwood County 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 May 2013 data collected by Connect South Carolina, 99.77% of Greenwood County residents had access to mobile broadband service.



### ADOPTION Score Breakdown

**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
Piedmont Technical College	Computer classes for continuing education	249
SCWorks	Computers for Beginners, 1.5 hour workshop	120
Lander University	Microsoft Word, Microsoft Excel (Basics, Intermediate, Advanced), Beginning Computers (Baby Boomer Computing), Facebook for Small Business, Creating Documents with InDesign	15-24
School District	Require at least one course on digital literacy (high school for now)	689
Libraries	9 computer classes to adults from September-May and one Tech Tuesday every month	585-720
Piedmont Technical College	Computer Technology Program, AAS. CTP, (Programming), CTI, (Internet), CTN, (Networking).	25
<b>Total Graduates</b>		<b>1,683-1,827</b>

**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 Greenwood County is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Piedmont Technical College	52	12	624
Greenwood County Library (including laptops)	57.5	50	2,875
SCWorks	38	15	570
GLEAMNS workforce development and job training	42.5	19	807.5
School District Parenting Center	20	3	60
Lander University	79.5	2	159
GLEAMNS (available for resume preparations, online job search and/or completing online job application)	42.5	30	1,275
Ninety Six Branch Library (including laptops)	40	8	320
Ware Shoals Community Library (no laptops)	52	12	624

**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 Greenwood County is below.

Organization Name	Campaign Description	Community Reach
School districts	Parent portal	100%
School districts	Virtual classes	100%
School districts	Digital classes	100%
School districts	App for parents	100%
School districts	Website	100%
CenturyLink	Low cost options	100%
ConnectSC	State broadband initiative	100%
Piedmont Technical College	Classes	100%
Piedmont Technical College	Degrees	100%
Piedmont Technical College	Online applications	100%

**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, seniors, children, etc. A listing of programs focusing on vulnerable populations in Greenwood County is listed below.

Organization Name	Program Description	Vulnerable Group
Adult Education	Course offered to assist in completing high school, acquire GED, get/retain/advance in job, and to learn English	Low income, senior, minority
SCWorks	Tutorial program	Literacy minorities and low income
Vocational Rehab	Job finding assistance	Disabled
Burton Center for Disability and Special Needs	Job finding assistance	Disabled
Upper Savannah Council of Governments	Job finding assistance	Unemployed/low income
Staffsource	Job finding assistance	Unemployed/low income
Manpower	Job Finding assistance	Unemployed/low income
Kelly	Job finding assistance	Unemployed/low income
School Districts	Homework assistance for students	Children



### USE Score Breakdown

**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
Small Business Development Center	Online database for finding opportunities	Advanced
Community Theater Tickets	Online theater ticket purchase webpage	Advanced
Packaging Corporation of America	Training	Advanced
SCWorks	Virtual employment assistance	Advanced
MLS	Multiple List Service	Basic
Arts Center Fund	Arts promotion and education	Basic
Chamber of Commerce	Constant Contact	Basic
County GIS	Online GIS mapping	Advanced
Auto Dealers Online	Sales	Basic
County Tax Records	Tax records search for property, vehicles etc. View and pay options.	Basic
CVB	Tourism	Basic

**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
Power School	Parent Portal	Advanced
Distance Learning	Piedmont Technical College and Lander classes	Advanced
Smart Board Technologies	Classrooms and school district	Advanced
GLEANMS: WIN (Worldwide Interactive Network -Career Readiness Courseware). Workreadysc.com	Workforce development and job training	Advanced
County Library	Library Automation System	Advanced
STEM Education	Programs on improved STEM education	Advanced
Small Business Development Center at Lander	Business planning tools, exporting info, capital resources, small business resources for start-ups	Advanced
County Library	Computers connected to Internet	Basic
School district	Classrooms connected to Internet	Basic
Power School	Online access for students	Basic

**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
Voter registration	SC election commission	Advanced
Various permit applications	Permit application tool feature	Advanced
Property tax estimate	Tool for estimating properties taxes due	Advanced
Pay property or vehicle tax	Tool for paying property or vehicle tax	Advanced
Pay EMS bill online	Tool for paying EMS bill	Advanced
Greenwood County Twitter	Twitter updates about Greenwood County	Advanced
Greenwood County Facebook	Facebook updates about Greenwood County	Advanced
Greenwood County document search	Deed /plat/mortgage/lien search and print	Advanced
GIS website maps & search	Property and county layers search and selection	Advanced
GIS website community information tool	Tools on GIS for community features information	Advanced
GIS website	Property sales and comparable search	Advanced
CPW	Water and power online bill payment and inquiries	Advanced
County website	Property tax, EMS bill, tickets, vehicle taxes, find estate records, report code violation, maps	Advanced
Congressman Duncan	Website, interactivity, constituent services, Facebook	Advanced
City website	Online service request: report stray animal, report litter, business license info, city council info, light outage, report potholes	Advanced
Apply for site address	Application for new site address through email	Advanced
Absentee voting	SC election commission	Advanced
GMD	Sewer: employment application, rates schedule, education	Basic
Crime tracking	Police section of city web	Basic
Arts, culture, VTB	Marketing for three cultural organizations – Greenwood Community Theatre, The Museum, and The Arts Center	Basic

**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
Physician Practice Electronic Medical Record (Self Regional Healthcare)	Self Medical Group’s physician practices utilize an integrated electronic physician practice solution that provides continuity of care between physician offices. The solution includes electronic medical record for each patient, electronic prescription that can be sent directly to local pharmacies, electronic business management software and in some instances integration with hospital services such as laboratory services and radiological imaging.	Advanced
Self Regional Healthcare – Telemedicine	Self Regional utilizes or is implementing several telemedicine solutions. They are: Tele-stroke, eICU, translation services for the hearing impaired and tele-psychiatry. All the telemedicine products provide access to healthcare providers outside of Greenwood to improve the quality of care received at Self Regional Healthcare.	Advanced
Corporate Network	Wesley Commons-Online access to administrative staff and for system updates	Advanced
MS Exchange	Wesley Commons-Corporate e-mail system	Advanced
OsTicket	Wesley Commons-IT Helpdesk ticket system	Advanced
Medical Messenger	Wesley Commons-Nurse communication system	Advanced
REPS	Wesley Commons-Marketing CRM software	Advanced
Upstairs Solutions	Wesley Commons-Healthcare Training Software	Advanced
IVANS	Wesley Commons-Medicare submission	Advanced
Juniper Networks	Wesley Commons-Medicare submission for MDS	Advanced
Client Connect	Wesley Commons-Medical Insurance Portal	Advanced
Omniview	Omnicare Pharmacy software	Advanced
High Speed Broadband Connectivity	Self Regional Healthcare connects all physician practices and remote locations utilizing high-speed broadband connectivity.	Advanced
Electronic Medical Record – Remote Access (Self Regional Healthcare)	All Self Regional Healthcare providers have the ability to access necessary patient record information remotely. This accomplished through secure solutions maintained by Self Regional Information Technology Team.	Advanced
DHEC (SC Department of Health and Environmental Control)	Online restaurant health inspection scores	Basic
Self Regional Healthcare Website	Online listing of healthcare professionals	Basic
Wesley Commons	Online access to elderly residents	Basic
Greenwood Metropolitan District (GMD)	Safe disposal of medication on website	Basic



Covidien	Various web based applications	Basic
LabTest (Select Laboratories)	Wesley Commons-Lab test results	Basic



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## ACTION PLAN

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### 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 recommended actions.

#### ACCESS: Priority Actions

##### **Broadband Availability**

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

###### **Project Description:**

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

Wireless may be the best likely solution. To assist with that, 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:**

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

###### **Action Items:**

Conduct a wireless assessment to include:

- Determining the functionality of all potential transmit locations

- Surveying the availability of adequate power sources at each location
- Identifying any issues regarding ingress and egress at each location
- Designing a wireless broadband system using these potential transmit locations
- Creating a methodology for the expansion of wireless broadband coverage into the unserved areas of the community

**Implementation Team:**

To be determined.

***Complete an Evaluation of Grant Programs (Federal and Other) that Are Applicable and Available to Our Community to Pursue Them.***

**Project Description:**

It is necessary to understand what potential funding sources exist through grant programs that are applicable to our community and how to access them for the planning and budgeting of needed broadband infrastructure enhancements.

**Goals:**

Conduct an evaluation of the resources available to our community through grant programs at the Federal, State, local and private-sector levels to identify potential funding means for any future investments needed in enhancing broadband infrastructure.

**Benefits:**

The financial resources available through the community may not be sufficient to undertake some or all needed broadband infrastructure enhancements, which could be a deterrent to these efforts. Knowing what resources could become available to the community through grant monies increases the likelihood for the execution of all or part of these broadband infrastructure projects.

**Action Items:**

Conduct research on Federal, State, and other types of grant programs available for broadband infrastructure improvements, identifying:

- Grant amount(s)
- Requirements/eligibility
- Timeline
- How to apply
- How does the grant work: How funds are disbursed, reporting requirements, etc.
- Identify and select grant programs that our community is eligible for.

**Implementation Team:**

Greenwood Partnership Alliance, Connect SC, Greenwood County IT Department.

## **Broadband Speeds**

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

#### **Project Description:**

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:**

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

#### **Action Items:**

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

#### **Implementation Team:**

To be determined.

## **Mobile Broadband Availability**

### ***Complete a Vertical Assets Inventory***

#### **Project Description:**

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

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

**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:**

- 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.
- The inventory can encourage the expansion of affordable, reliable wireless broadband services to underserved areas by shortening project development time.

**Action Items:**

- 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.
- Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.
- 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.

**Implementation Team:**

To be determined.

**USE: PRIORITY ACTIONS**

**Economic Opportunity**

*Identify Sites in Greenwood County Suitable for Data Centers Ensuring Telecom/Fiber Criteria is met*

**Project Description:**

(Source: SCEDA's "Data Centers: A 2012 Opportunity for South Carolina's Economy.") In 2011, U.S. data centers provided roughly \$30 billion in total capital investments and are expected to experience significant market growth over the next 5-8 years. Also in 2011, the data center market was estimated to be worth about \$10 billion in construction costs alone. They provide substantial tax revenue to the counties in which they are located. Additionally, data centers do not stress local infrastructure such as roads, schools or utilities. In fact, data centers actually help improve IT infrastructure by adding bandwidth in rural areas that otherwise would not have access to the level of telecom providers data centers require. Some experts suggest that data centers, which are capital-intensive operations, generate more money for state and local governments than regional offices, which are labor-intensive. This is due in large part to the significant real property taxes and personal property taxes. Based on other states' experiences, a \$150 million data center would pay about \$30 million in local property taxes over 20 years.

This project is intended to help identify sites that are suitable for a data center operation ensuring that those sites comply with the required telecom/fiber criteria. In the event that improvements need to be made to reach required criteria levels, an evaluation of the capacity of the community to address those improvements needs to be made, as well as a decision on what improvements to implement and what additional funding sources exist for doing so. The ultimate goal is to create a new segment for industry recruitment opportunities that broaden our County's economic development potential.

**Goals:**

Identify sites in Greenwood County that comply with key requirements for the recruitment of data centers in order to create opportunities for economic development in this sector.

**Benefits:**

- Source: SCEDA's "Data Centers: A 2012 Opportunity for South Carolina's Economy." "There are long-term benefits to a community once a major data center project is landed. Other states have seen clustering occur as their reputation as a good home for data centers grows. Some companies purchase large tracts of land for the data center and eventually place call centers or regional headquarters in the same location, growing the job creation opportunities. Communities that are the home of one data center position themselves to become the home of a growing technology economy. In short, once one data center has a good experience in a community, another data center may follow - bringing the same economic investment, high-tech and construction jobs and brand prestige with it."

**Action Items:**

- Identify suitable data centers sites in Greenwood County based on Duke Energy's Key Factors in Recruitment of Large Data Centers.

- For those sites selected, identify areas of improvement, if required, particularly around telecom/fiber criteria.
- Work with telecom/fiber providers in analyzing alternatives for undertaking identified sites' enhancements.
- Decide enhancements to undertake.
- Budget resources needed to implement enhancements.
- Identify potential funding sources to implement enhancements.
- Pursue funding sources identified.
- Implement enhancements.
- Design and implement a promotion strategy for Greenwood County as a data center destination.

**Implementation Team:**

Greenwood Partnership Alliance, Connect SC, Duke Energy, Telecom/fiber providers, South Carolina Department of Commerce, McCallum Sweeney

**Education*****Improve Education through Digital Learning*****Project Description:**

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

[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:**

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

**Implementation Team:**

To be determined.

## Complete List of Recommended Actions

### ACCESS: Recommended Actions

#### Broadband Availability

##### 1) 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:*

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

*Action Items:*

Conduct a wireless assessment to include:

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

**Broadband Speeds**

**2) 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:*

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

*Action Items:*

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

**Broadband Competition**

**3) 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:*

- 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.
- The increased backhaul capacity can in turn benefit the whole community.

*Action Items:*

- 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 recommended actions.**

**Mobile Broadband Availability**

**4) 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:*

- 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.
- The inventory can encourage the expansion of affordable, reliable wireless broadband services to underserved areas by shortening project development time.

*Action Items:*

- 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.
- Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.
- 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: RECOMMENDED ACTIONS**

**Digital Literacy**

**No recommended actions.**

**Public Computer Centers**

**No recommended actions.**

**Broadband Awareness**

**5) 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:*

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

*Action Items:*

- Create community partnerships.
- Identify funding sources and hosts.
- Identify suitable speakers.
- Develop relevant content.

**Vulnerable Population Focus**

**No recommended actions.**

**USE: RECOMMENDED ACTIONS**

**Economic Opportunity**

**6) 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:*

- Provides entrepreneurial support.
- Eliminates knowledge gap about how best to utilize broadband tools, increasing productivity.
- Promotes business growth and workforce development.
- 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:*

- 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.
- Identify or develop a business awareness and training program.
- Identify or develop online training modules for businesses. For example, the Southern Rural Development Center, in partnership with the 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#](http://srdc.msstate.edu/ebeat/small_business.html#).

## 7) Establish a "Digital Factory"

A digital factory 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. Digital factories provide office space, computer and

broadband access, and conference space, as well training ranging from computer and digital literacy skills to computer programming.

“VisionPerry,” located in Perry County, Tennessee, provides an ideal example of the digital factory concept. VisionPerry provides office space, high-speed Internet service, a conference room, and training/work rooms that all act as a hub for employees, remote employers, and online training courses. Training at VisionPerry currently follows two main courses: Customer Service Representative and Programmer Training.

VisionPerry currently partners with companies such as LiveOps, Salesforce.com, and Kodak, that desire customer service representatives and remote programmers. Just like a co-working facility, workers who are employed and working at the digital factory pay, according to their salary and job levels, a small monthly fee for using the facilities and services of the digital factory, making the operation sustainable without ongoing government support. For more information, visit: <http://www.visionperry.com/>.

A further example would be Connected Nation’s recently unveiled Digital Works program. 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. For more information, visit: [http://www.connectednation.org/sites/default/files/connected-nation/files/cn\\_digital\\_works\\_launch\\_final.pdf](http://www.connectednation.org/sites/default/files/connected-nation/files/cn_digital_works_launch_final.pdf)

*Goal:*

Connect IT training and education with remote employment opportunities.

*Benefits:*

- 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.
- The physical infrastructure and training exposes a broad spectrum of residents to the benefits of telecommunications and productive uses of the Internet.

- 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:*

- The digital factory concept 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.
- Identify the physical, financial, and technological resources needed to establish a digital factory.
- 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.
- Develop partnerships with companies that would provide contractual employment to program graduates.
- This employment-focused program can be coupled with a digital literacy program, such as Connected Nation’s Every Community Online program, in order to provide basic computer and Internet skills. Connected Nation provides a discounted, turnkey training lab solution, including refurbished or new computers, presentation equipment, training curriculum, and broadband service.

## **Education**

### **8) Improve Education through Digital Learning**

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

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

*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:*

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

### 9) Connect all School Classrooms to the Internet

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

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

*Goal:*

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

*Benefits:*

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

- Teachers can actively participate in online professional learning communities to share lessons and to participate in professional development.

*Action Items:*

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

## **Government**

### **10) 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:*

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

- e-Government provides a greater amount of information to businesses and provides it in a more organized and accessible manner.

*Action Items:*

- 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.
- 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.

## 11) Pursue Next Generation 911 Upgrades

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

For example, in January 2013, the Federal Communications Commission proposed to amend its rules by requiring all wireless carriers and providers of “interconnected” text messaging applications to support the ability of consumers to send text messages to 911 in all areas throughout the nation where 911 Public Safety Answering Points (PSAPs) are also prepared to receive the texts (which requires an IP-based system). Text-to-911 will provide consumers with

enhanced access to emergency communications in situations where a voice call could endanger the caller, or a person with disabilities is unable to make a voice call. In the near term, text-to-911 is generally supported as the first step in the transition to a Next Generation 911.

*Goal:*

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

*Benefits:*

Transitioning to a “Next Generation” IP-based network will enable the public to make voice, text, or video emergency calls from any communications device. With Next Generation 911, responders and PSAPs will gain greater situational awareness, which will enable better-informed decisions, resulting in better outcomes and, ultimately, a safer community. By capitalizing on advances in technologies, you are enabling:

- Quicker and more accurate information to responders
- Better and more useful forms of information
- More flexible, secure and robust PSAP operations
- Lower capital and operating costs

*Action Steps:*

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

- A public-safety-class, IP-based network
- IP-based call processing equipment (CPE) in public-safety answering points (PSAPs)
- Geographic information system (GIS) data enhancements
- Advanced 911 data capabilities and applications

## **Healthcare**

### **12) 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.

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## APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND

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### Statewide Infrastructure

Connect South Carolina was commissioned by the Office of the Governor to work with each of the state's broadband providers to create detailed maps of broadband coverage and to assess the current state of broadband adoption - community-by-community - across South Carolina.

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

The most current statewide- and county-specific broadband inventory maps released in the fall of 2012 depict a geographic representation of provider-based broadband data represented by cable, DSL, fiber-to-the-home, fixed wireless, and mobile wireless services. 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 were added to the interactive mapping application in May 2013. Statewide broadband maps can be found at <http://www.connectsc.org/mapping/state>. County-specific maps and data can be found at: [http://www.connectsc.org/community\\_profile/find\\_your\\_county/south%20carolina/greenwood](http://www.connectsc.org/community_profile/find_your_county/south%20carolina/greenwood).

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

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

Source: *Connect South Carolina, May 2013*

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

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

As differences in broadband availability estimates between the fall of 2010 and the spring of 2013 show, additional participating broadband providers can have a large impact upon South Carolina broadband mapping inventory updates. Further, the measured broadband inventory provides an estimate of the true extent of broadband coverage across the state. There is a degree of measurement error inherent in this exercise, which should be taken into

consideration when analyzing the data. This measurement error will decrease as local, state, and federal stakeholders identify areas where the displayed coverage is underestimated or overestimated. Connect South Carolina welcomes such feedback to be analyzed in collaboration with broadband providers to correct errors identified in the maps.

In addition, the broadband availability data collected, processed, and aggregated by Connect South Carolina has been sent on a semi-annual basis to the NTIA to be used in the National Broadband Map, and comprises the source of South Carolina's broadband availability estimates reported by the NTIA and the FCC in the National Broadband Map. The National Broadband Map can be found here: <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 assessment revealed the following key findings:

- Statewide, nearly 2.4 million South Carolina adults subscribed to home broadband service in 2012— approximately 329,000 more than the year before. One of biggest jumps was among low-income rural households, where broadband adoption grew faster than in the rest of the state.



- Across the state, approximately 263,000 children live without broadband service at home. For many of these families, cost is the biggest hurdle to overcome - 21% of those households with children say the main reason they do not subscribe to broadband is because the price of a computer is too expensive, while 17% cite the monthly cost of broadband service.
- Mobile broadband usage is soaring in South Carolina. More than one-half of South Carolina adults go online using their cell phones or mobile devices, and young adults (age 18-34) are more likely to use the Internet on their cell phones than they are to have home broadband service.

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

- Across South Carolina, 80% of businesses subscribe to broadband service, which means that approximately 21,000 South Carolina businesses still do not use or benefit from broadband.
- South Carolina business establishments that use broadband report median annual revenues that are approximately \$300,000 higher than businesses that do not use broadband.
- More than nine out of ten South Carolina businesses owned by African Americans use broadband.

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

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## APPENDIX 2: PARTNER AND SPONSORS

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**Connect South Carolina**, in partnership with the State of South Carolina Office of the Governor, supports 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>

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

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



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

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

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## APPENDIX 3: THE NATIONAL BROADBAND PLAN

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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](http://www.broadband.gov).

## APPENDIX 4: WHAT IS CONNECTED?

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

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

### Connected Certification Process



The Connected certification process consists of a 4-step process to community certification:

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

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

**Step 2: Perform a technology assessment.** With support provided by a planning specialist, Connect South Carolina will provide communities with tools (electronic or print depending on the community needs) to benchmark local community technology. Bolstered by benchmarking data that had been gathered through Connect South Carolina’s mapping and market research, the Greenwood County Broadband Committee will work with community members to determine their overall broadband and technology grade on a 13-point “community certification AAU” model:

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

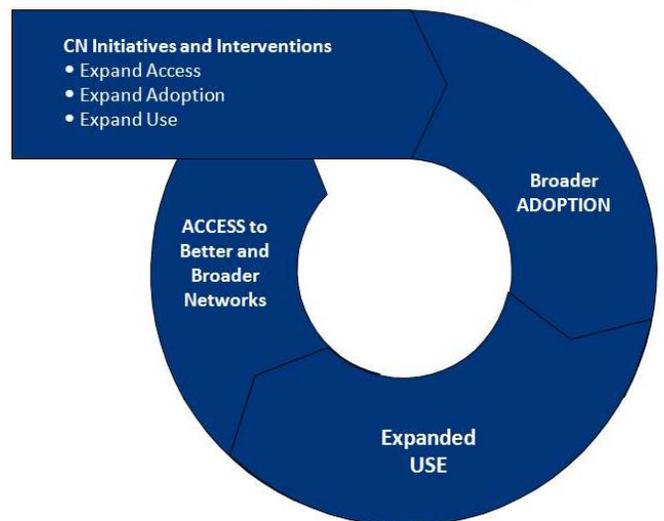
**Step 3: Action Planning & Implementation.**

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

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

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

**Broadband Catalysts for Change**



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## APPENDIX 5: GLOSSARY OF TERMS

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### #

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

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

### A

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

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

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

### B

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

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

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

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

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

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

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

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

## C

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

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

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

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

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

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

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

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

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

## D

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

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

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

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

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

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

## E

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

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

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

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

## F

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

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

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

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

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

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

## G

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

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

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

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

## H

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

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

## I

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

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

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

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

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

## K

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

## L

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

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

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

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

## M

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

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

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

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

## N

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

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

## O

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

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

## P

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

## R

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

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

**RUS - Rural Utility Service** - A division of the United States Department of Agriculture that promotes universal service in 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.