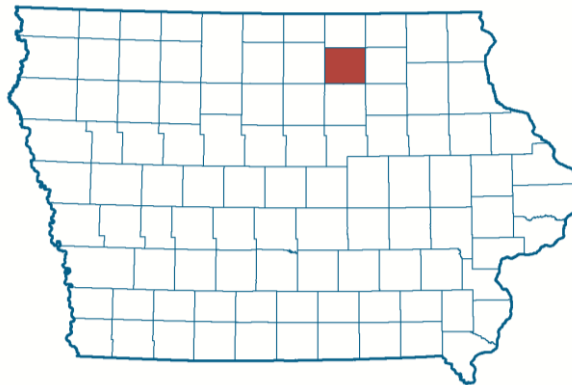


# Floyd County

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## Technology Action Plan



*Prepared by*

**Floyd County and  
Connect Iowa**

**November 2015**



ACCESS



ADOPTION



USE

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## INTRODUCTION

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

### Background

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

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

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

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

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

<sup>3</sup> National estimates calculated using Connected Nation's 2014 Residential Technology Assessments.

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

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

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

1. Provides entrepreneurial support.
2. Eliminates knowledge gap about how best to utilize broadband tools, increasing productivity.
3. Promotes business growth and workforce development.
4. Broadband empowers small businesses to achieve operational scale more quickly by lowering start-up costs through faster business registration and improved access to customers, suppliers, and new markets.

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<sup>5</sup> Connected Nation, parent company of Connect Iowa, is a national non-profit 501(c)(3) organization that works in multiple states to engage community stakeholders, state leaders, and technology providers to develop and implement technology expansion programs with core competencies centered around the mission to improve digital inclusion for people and places previously underserved or overlooked.

## Methodology

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

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

## What Is Connected Certification?

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

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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 at least 32 points in each section and 100 points out of 120 points overall.

The **ACCESS** focus area checks to see whether the broadband and technology foundation exists for a community. The criteria within the **ACCESS** focus area endeavor to identify gaps that could affect a local community broadband ecosystem including last and middle mile issues, cost issues, and competition issues. As noted in the National Broadband Plan, broadband **ACCESS** “is a foundation for economic growth, job creation, global competitiveness and a better way of life.”

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

Broadband **USE** is the most important component of **ACCESS**, **ADOPTION**, and **USE** because it is where the value of broadband can finally be realized. However, without **ACCESS** to broadband and **ADOPTION** of broadband, meaningful **USE** of broadband wouldn't be possible. As defined by the National Broadband Plan, meaningful **USE** of broadband includes those areas of economic opportunity, education, government, and healthcare where values to individuals, organizations, and communities can be realized.

### Analysis of Connected Assessment

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

### **Community Technology Scorecard Brief**

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

- The community scored 35 out of a possible 40 points in broadband access primarily because of a strong percentage of households with access to at least 3 Mbps of broadband service, availability of more than one fiber middle mile provider, and strong mobile service from multiple providers in the county.
- The community scored 34 out of a possible 40 points in broadband adoption. This score indicates an opportunity for Floyd County to continue improving in this area but does show an above-average focus in its efforts to overcome the local barriers to home broadband subscription.
- The community scored 35 out of a possible 40 points in broadband use. This score indicates that Floyd County exceeds the average score in this area and should continue to focus on improving how the community's economic, education, government, and healthcare sectors use broadband.
- Floyd County achieved a score of 104 points out of 120 for overall broadband and technology readiness, which indicates there is room for broadband improvement in Floyd County. The community has a firm grasp on the importance broadband plays in the community, from business to education, healthcare to government, and all other areas needed for a prosperous and thriving community.
- Floyd County exceeded the 32 points in each focus area that are required for certification and has qualified for full certification.



## Community Technology Scorecard

<b>Community Technology Scorecard</b> Community Champion: Timothy Fox Community Advisor: Dave Daack				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	95% to 97.9% of homes have access to 3 Mbps	8	10
	Broadband Speeds	75% of households with access to at least 25 Mbps	4	5
	Broadband Competition	80% to 89.9% of households with access to more than 1 broadband provider	3	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99% to 100% of households have access to mobile broadband	10	10
	<b>ACCESS SCORE</b>			35
ADOPTION	Digital Literacy	Program grads are greater than 7 per 1,000 residents over the past year	8	10
	Public Computer Centers	500 computer hours per 1,000 low-income residents per week	10	10
	Broadband Awareness	Campaigns reach 60% of the community	6	10
	Vulnerable Population Focus	At least 5 group(s)	10	10
	<b>ADOPTION SCORE</b>			34
USE	Economic Opportunity	3 advanced, 3 basic uses	9	10
	Education	3 advanced, 1 basic use	7	10
	Government	5 advanced, 5 basic uses	10	10
	Healthcare	3 advanced, 3 basic uses	9	10
	<b>USE SCORE</b>			35
<b>COMMUNITY ASSESSMENT SCORE</b>			104	120



## Itemized Key Findings

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

### ACCESS

- 17 last mile broadband providers currently provide service in Floyd County:
  - 95% to 97.9% of households have access to 3 Mbps
  - 75% of households have access to at least 25 Mbps
  - 80% to 89.9% of households have access to more than 1 broadband provider
- Availability of middle mile fiber infrastructure from more than 1 provider
- 99% to 100% of households with access to mobile wireless

### ADOPTION

- 4 Digital Literacy Programs exist in the community resulting in 155 Program grads over the past year
- 8 Public Computer Centers (PCC) with a total of 50 computers available to the public
- 3 Broadband Awareness Campaigns are reaching 60% of Floyd County
- 9 organizations are working with vulnerable populations

### USE

- At least 6 uses of broadband were identified in the area of economic opportunity including 3 advanced uses and 3 basic uses
- At least 4 uses of broadband were identified in the area of education including 3 advanced uses and 1 basic use
- At least 10 uses of broadband were identified in the area of government including 5 advanced uses and 5 basic uses
- At least 6 uses of broadband were identified in the area of healthcare including 3 advanced uses and 3 basic uses

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

### **Technology Providers**

- 17 broadband providers were identified in Floyd County
- 5 hardware providers were identified in Floyd County
- 6 network developers were identified in Floyd County
- 4 web developers were identified in Floyd County

**Technology Facilities**

- 3 public computer centers
- 20 wireless hotspots
- 2 videoconference facilities

**Community Websites**

- 30 Business-related websites
- 9 Education-related websites
- 19 Government-related websites
- 19 Healthcare-related websites
- 3 Library-related websites
- 6 Tourism-related websites
- 3 Agriculture-related websites
- 15 Community-based-related websites

## Floyd County Priority Projects

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

Priority Projects Identified by Floyd County
<b>Study and Possibly Reassess Major Telecom Purchase Contracts</b>
<b>Distribute Digital Literacy Content</b>
<b>Implement a Community-Based Technology Awareness Program</b>
<b>Create Local Jobs Via Teleworking Opportunities</b>

## DETAILED FINDINGS

### Floyd County Assessment Findings

Today, residents in Floyd County (or sections of the community) are served by 17 providers. At the time of broadband assessment, broadband was defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream. According to Connect Iowa's latest broadband mapping update, the following providers have a service footprint in Floyd County.

Broadband Providers	Website	Technology Type
AT&T Mobile	<a href="http://www.wireless.att.com">http://www.wireless.att.com</a>	Mobile
Verizon Wireless	<a href="http://www.verizonwireless.com">http://www.verizonwireless.com</a>	Mobile
CenturyLink	<a href="http://www.centurylink.com">http://www.centurylink.com</a>	DSL
OmniTel Communications	<a href="http://www.omnitel.biz">http://www.omnitel.biz</a>	DSL/Fiber/Fixed Wireless/Cable
Hughes Network	<a href="http://www.hughes.com">http://www.hughes.com</a>	Satellite
JAB Broadband	<a href="http://www.jabbroadband.com">http://www.jabbroadband.com</a>	Fixed Wireless
Level 3 Communications, LLC	<a href="http://www.level3.com">http://www.level3.com</a>	Fiber - Business
Mediacom	<a href="http://www.mediacomcc.com">http://www.mediacomcc.com</a>	Cable
Osage Municipal Utilities	<a href="http://www.osage.net">http://www.osage.net</a>	Fixed Wireless
Rockwell Coop Telephone Association	<a href="http://www.rockwellcoop.com">http://www.rockwellcoop.com</a>	DSL
Skycasters	<a href="http://www.skycasters.com">http://www.skycasters.com</a>	Satellite
StarBand Communications	<a href="http://starband.com">http://starband.com</a>	Satellite
Sprint	<a href="http://www.sprint.com">http://www.sprint.com</a>	Mobile
US Cellular	<a href="http://www.uscellular.com">http://www.uscellular.com</a>	Mobile
ViaSat	<a href="http://www.wildblue.com">http://www.wildblue.com</a>	Satellite
Windstream	<a href="http://www.windstream.com">http://www.windstream.com</a>	DSL
Unggoy	<a href="http://www.unggoybroadband.com">www.unggoybroadband.com</a>	Fixed Wireless

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

Organization Name	Website	Resource Type
Charles City Public Library		Public Computer Facility
North Iowa Area Community College		Public Computer Facility
Floyd County Courthouse		Public Computer Facility
Charles City Public Library		Wireless Hotspot
Charles City Arts Center		Wireless Hotspot
Aromas		Wireless Hotspot
McDonalds		Wireless Hotspot
Comet Bowl		Wireless Hotspot
3C Bistro		Wireless Hotspot
Hy-Vee		Wireless Hotspot
Pizza Ranch		Wireless Hotspot
Floyd County Courthouse		Wireless Hotspot
Iowa State University Extension		Wireless Hotspot
North Iowa Area Community College		Wireless Hotspot
Pub on the Cedar		Wireless Hotspot
O'Reilly Auto Parts		Wireless Hotspot
First Security Bank and Trust Co.		Wireless Hotspot
Floyd County Medical Center		Wireless Hotspot
North Iowa Area Community College		Video Conference Facility
Charles City Community School District		Video Conference Facility
Floyd Community Center		Wireless Hotspot
Marble Rock Library		Wireless Hotspot
Rockford Library		Wireless Hotspot
Nora Springs Library		Wireless Hotspot
Rudd Library		Wireless Hotspot

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

Organization Name	Website	Category
Farm Service Agency	<a href="http://fsa.usda.gov">fsa.usda.gov</a>	Agriculture
Floyd County Corn Growers	<a href="http://iowacorn.org/...county.../floyd_co">iowacorn.org/...county.../floyd_co</a>	Agriculture
Floyd County Farm Bureau	<a href="http://iowafarmbureau.com">iowafarmbureau.com</a>	Agriculture
Omnitel Communications	<a href="http://www.omnitel.biz">http://www.omnitel.biz</a>	Business
Unggoy Broadband	<a href="http://unggoybroadband.com">unggoybroadband.com</a>	Business
MidAmerican Energy	<a href="http://midamericanenergy.com">midamericanenergy.com</a>	Business
Heartland Power Cooperative	<a href="http://heartlandpower.com">heartlandpower.com</a>	Business
Butler County Rural Electric Cooperative	<a href="http://www.butlerrec.coop">www.butlerrec.coop</a>	Business
Black Hills Energy	<a href="http://blackhillsenergy.com">blackhillsenergy.com</a>	Business
Alliant Energy	<a href="http://alliantenergy.com">alliantenergy.com</a>	Business
North Iowa Air Service	<a href="http://northiowaair.com">northiowaair.com</a>	Business
Jendro Sanitation	<a href="http://jendrosanitation.com">jendrosanitation.com</a>	Business
Broadnet Connect	<a href="http://healthnetconnect.org">healthnetconnect.org</a>	Business
American Medical Response	<a href="http://amr.net/locations/operations/iowa/charles-city">amr.net/locations/operations/iowa/charles-city</a>	Business
Cambrex Charles City, Inc.	<a href="http://cambrex.com">cambrex.com</a>	Business
C US Bank	<a href="http://cusb.com">cusb.com</a>	Business
First Citizens National Bank	<a href="http://firstcitizensnb.com">firstcitizensnb.com</a>	Business
First Security Bank & Trust Co.	<a href="http://1stsecuritybank.com">1stsecuritybank.com</a>	Business
State Bank	<a href="http://statebankia.com">statebankia.com</a>	Business
Hawkeye Preferred Tooling Group	<a href="http://hawkeyemold.com/employment-application">hawkeyemold.com/employment-application</a>	Business
Hy-Vee	<a href="http://hy-vee.com/company/employment-application">hy-vee.com/company/employment-application</a>	Business
KMart 7767	<a href="http://searsholdings.com/careers">searsholdings.com/careers</a>	Business
Kwik Star	<a href="http://kwiktrip.com/our-story/careers">kwiktrip.com/our-story/careers</a>	Business
Machine Tool Engineering, Inc.	<a href="http://gomte.com">gomte.com</a>	Business
McDonalds of Charles City	<a href="http://mciowa.com/careers/jobs/?locales">mciowa.com/careers/jobs/?locales</a>	Business
Mitas Tires North America, Inc.	<a href="http://mitas-tires.com">mitas-tires.com</a>	Business
Valero Renewables - Charles City	<a href="http://valero.com/ourbusiness/ourlocations/plants">valero.com/ourbusiness/ourlocations/plants</a>	Business
Zoetis	<a href="http://zoetis.com/careers/jobsearch?keys=charles+">zoetis.com/careers/jobsearch?keys=charles+</a>	Business
Allied Manatts Group	<a href="http://manatts.com/working-here/apply">manatts.com/working-here/apply</a>	Business
Charles City Press	<a href="http://charlescitypress.com">charlescitypress.com</a>	Business
Mick Gage Plumbing & Heating	<a href="http://mickgage.com">mickgage.com</a>	Business
Winnebago Industries, Inc.	<a href="http://winnebagoind.com/company/career">winnebagoind.com/company/career</a>	Business
Viafield	<a href="http://viafield.com">viafield.com</a>	Business
Iowa State Extension Service	<a href="http://extension.iastate.edu/floyd">extension.iastate.edu/floyd</a>	Community Based
Ducks Unlimited	<a href="http://ducks.org/iowa/#">ducks.org/iowa/#</a>	Community Based

Floyd County Iowa Jobs	<a href="http://floydcoiajobs.com">floydcoiajobs.com</a>	Community Based
Home Base Iowa	<a href="http://homebaseiowa.org">homebaseiowa.org</a>	Community Based
International Economic Development Council	<a href="http://iedconline.org">iedconline.org</a>	Community Based
Small Business Development Center	<a href="http://iowasbdc.org">iowasbdc.org</a>	Community Based
Iowa Works, Region 2	<a href="http://iowaworkforce.org">iowaworkforce.org</a>	Community Based
Location One Information System	<a href="http://locationone.com">locationone.com</a>	Community Based
North Central Iowa Alliance	<a href="http://northcentraliowa.net">northcentraliowa.net</a>	Community Based
North Iowa Community Action Organization	<a href="http://nicao-online.org">nicao-online.org</a>	Community Based
North Iowa Area Council of Governments	<a href="http://niacog.org">niacog.org</a>	Community Based
Charles City Area Development Corporation	<a href="http://charlescityia.com">charlescityia.com</a>	Community Based
Community Revitalization of Charles City	<a href="http://ccrevite.com">ccrevite.com</a>	Community Based
Professional Developers of Iowa	<a href="http://pdiowa.com">pdiowa.com</a>	Community Based
USDA Rural Development	<a href="http://rurdev.usda.com/ia_offices.html">rurdev.usda.com/ia_offices.html</a>	Community Based
North Iowa Area Community College	<a href="http://niacc.edu">niacc.edu</a>	Education
Charles City Community School District	<a href="http://charles-city.k12.ia.us">charles-city.k12.ia.us</a>	Education
Immaculate Conception Elementary	<a href="http://icwildcats.org">icwildcats.org</a>	Education
Area Education Agency 267	<a href="http://iowaaeaonline.org">iowaaeaonline.org</a>	Education
TLC: The Learning Center	<a href="http://charlescitytlc.com">charlescitytlc.com</a>	Education
St. John Christian Preschool	<a href="http://sjcpreschool.org">sjcpreschool.org</a>	Education
Central Preschool	<a href="https://facebook.com/pages/central-preschool">facebook.com/pages/central-preschool</a>	Education
Rudd-Rockford-Marble Rock Community School District	<a href="http://rockford.k12.ia.us/">rockford.k12.ia.us/</a>	Education
ISU Community & Economic Development	<a href="http://extension.iastate.edu/communities">extension.iastate.edu/communities</a>	Education
City of Charles City Iowa	<a href="http://cityofcharlescity.org">cityofcharlescity.org</a>	Government
Floyd County Iowa	<a href="http://floydcoia.org">floydcoia.org</a>	Government
City of Colwell Iowa	<a href="http://floydcoia.org/340/City-of-Colwell">floydcoia.org/340/City-of-Colwell</a>	Government
City of Floyd Iowa	<a href="http://floydcoia.org/300/City-of-Floyd">floydcoia.org/300/City-of-Floyd</a>	Government
City of Marble Rock Iowa	<a href="http://floydcoia.org/301/City-of-Marble-Rock">floydcoia.org/301/City-of-Marble-Rock</a>	Government
City of Marble Rock Iowa	<a href="http://marblerocklive.com">marblerocklive.com</a>	Government
City of Nora Springs Iowa	<a href="http://floydcoia.org/303/City-of-Nora-Springs">floydcoia.org/303/City-of-Nora-Springs</a>	Government
City of Rockford Iowa	<a href="http://floydcoia.org/304/City-of-Rockford">floydcoia.org/304/City-of-Rockford</a>	Government
City of Rudd Iowa	<a href="http://.floydcoia.org/353/City-of-Rudd">.floydcoia.org/353/City-of-Rudd</a>	Government
Charles City Police Department	<a href="http://charlescitypolice.com">charlescitypolice.com</a>	Government
Charles City Fire Rescue	<a href="https://m.facebook.com/pages/Charles-City-Fire-Rescue/153232174694447?ref=ts%22">https://m.facebook.com/pages/Charles-City-Fire-Rescue/153232174694447?ref=ts%22</a>	Government
Floyd County Conservation	<a href="http://fossilcenter.com">fossilcenter.com</a>	Government
Floyd County Search and Rescue	<a href="https://facebook.com/floydcountysar">facebook.com/floydcountysar</a>	Government



Floyd Mitchell Chickasaw Solid Waste Management Agency	<a href="http://fmlandfill.org">fmlandfill.org</a>	Government
Floyd County Public Health	<a href="http://homehealthcareagencies.com/directory/ia/charles-city">homehealthcareagencies.com/directory/ia/charles-city</a>	Government
Iowa Department of Natural Resources	<a href="http://iowadnr.gov">iowadnr.gov</a>	Government
Iowa Finance Authority	<a href="http://iowafinanceauthority.gov">iowafinanceauthority.gov</a>	Government
Iowa Economic Development Authority	<a href="http://iowaeconomicdevelopment.com">iowaeconomicdevelopment.com</a>	Government
Floyd County Veterans Affairs	<a href="http://floydcoia.org/departments/veterans">floydcoia.org/departments/veterans</a>	Government
Floyd County Medical Center	<a href="http://fcmc.us.com">fcmc.us.com</a>	Healthcare
Floyd County Medical Center Patient Portal	<a href="http://myfcmhealth.com">myfcmhealth.com</a>	Healthcare
Mercy Family Clinic - Charles City	<a href="http://mercynorthiowa.com/charlescitiy">mercynorthiowa.com/charlescitiy</a>	Healthcare
Hy-Vee Online Pharmacy	<a href="http://hy-vee.com/health/pharmacy">hy-vee.com/health/pharmacy</a>	Healthcare
KMart Online Pharmacy	<a href="http://pharmacy.kmart.com">pharmacy.kmart.com</a>	Healthcare
Cedar Health	<a href="http://cedarhealthcc.com">cedarhealthcc.com</a>	Healthcare
Apple Valley Assisted Living	<a href="http://avassistedliving.com">avassistedliving.com</a>	Healthcare
Floyd County Home Health Care	<a href="http://floydcoia.com">floydcoia.com</a>	Healthcare
Hospice of North Iowa	<a href="http://mercynorthiowa.com/hospicepalliative-care">mercynorthiowa.com/hospicepalliative-care</a>	Healthcare
Dr. Greig R. Grimm	<a href="http://americashometowndentist.com">americashometowndentist.com</a>	Healthcare
Slinger Chiropractic	<a href="http://slingerchiropractic.com">slingerchiropractic.com</a>	Healthcare
Biggerstaff Family Chiropractic	<a href="http://biggerstafffamilychiropractic.com">biggerstafffamilychiropractic.com</a>	Healthcare
Pogemiller Country Chiropractic	<a href="http://thecountrychiro.com">thecountrychiro.com</a>	Healthcare
Central Park Dentistry	<a href="http://centralparkdentistrycc.com">centralparkdentistrycc.com</a>	Healthcare
Nora Springs Care Center	<a href="http://abcmcorp.com/facility.php?id=48">abcmcorp.com/facility.php?id=48</a>	Healthcare
Summit Heights Independent & Assisted Living	<a href="http://abcmcorp.com/facility.php?id=49">abcmcorp.com/facility.php?id=49</a>	Healthcare
Eagle Family Health	<a href="http://eaglefamilyhealth.com">eaglefamilyhealth.com</a>	Healthcare
Mercy Family Clinic – Rockford	<a href="http://mercynorthiowa.com/rockford">mercynorthiowa.com/rockford</a>	Healthcare
Floyd County Medical Center Jobs	<a href="http://fcmc.us.com/jobboard">fcmc.us.com/jobboard</a>	Healthcare
Charles City Public Library	<a href="http://charles-city.lib.ia.us">charles-city.lib.ia.us</a>	Libraries
Nora Springs Public Library	<a href="http://www1.youseemore.com/nilc/NoraSprings/">http://www1.youseemore.com/nilc/NoraSprings/</a>	Libraries
Charles City Community School District	<a href="http://www.charles-city.lib.ia.us/">http://www.charles-city.lib.ia.us/</a>	Libraries
Floyd County Historical Society	<a href="http://floydcountymuseum.org">floydcountymuseum.org</a>	Tourism
Carrie Chapman Catt Girlhood Home	<a href="http://catt.org">catt.org</a>	Tourism
Charles City Whitewater at Riverfront Park	<a href="http://ccwhitewater.com">ccwhitewater.com</a>	Tourism
Charles City Arts Center	<a href="http://charlescitiyarts.com">charlescitiyarts.com</a>	Tourism
All Iowa Lawn Tennis Club	<a href="http://alliowalawntennisclub.com">alliowalawntennisclub.com</a>	Tourism
Charles City Area Chamber of Commerce	<a href="http://charlescitiychamber.com">charlescitiychamber.com</a>	Tourism



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

Company Name	Website	Provider Category
First Internet Alliance	<a href="http://fiai.net">fiai.net</a>	Network Integrator
Merritt Computer Service Inc.	<a href="http://merritt-computer.com">merritt-computer.com</a>	Network Integrator
Trenton M. Parker		Network Integrator
Brian H. Charlton		Network Integrator
Charles City 365	<a href="http://charlescity365.com">charlescity365.com</a>	Network Integrator
CivicPlus	<a href="http://civicplus.com">civicplus.com</a>	Network Integrator
Jill Gray		Web Developer
Blink Marketing	<a href="http://blink26.com">blink26.com</a>	Web Developer
WebWise Websites Inc.	<a href="http://webwisewebsites.com">webwisewebsites.com</a>	Web Developer
Allen Murray Design	<a href="http://www.allenmurraydesign.com">www.allenmurraydesign.com</a>	Web Developer
Charles City Electronics	<a href="http://www.tjserviceappliances.com/">http://www.tjserviceappliances.com/</a>	Hardware Provider
Sisson & Associates		Hardware Provider
Data Solutions Inc.	<a href="http://www.datasolutionsinc.com">www.datasolutionsinc.com</a>	Hardware Provider
Computronics		Hardware Provider
Circle K Communications	<a href="http://www.circlekcomm.com">www.circlekcomm.com</a>	Hardware Provider

## Connected Assessment Analysis



### Access Score Explanation

**Broadband Availability** (8 out of 10 Possible Points). Broadband Availability is measured by analyzing provider availability of 3 Mbps broadband service gathered by Connected Nation's broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to the June 2015 data collected by Connect Iowa, 95% to 97.9% of Floyd County residents had access to broadband speeds of 3 Mbps or greater.**

**Broadband Speeds** (4 out of 5 Possible Points). Broadband Speeds are measured by analyzing the speed tiers available within a community. Data are collected by Connected Nation's broadband mapping program. The Connected Assessment analyzes broadband coverage by the highest speed tier with at least 75% of households covered. If broadband data is missing, the community team was able to improve the quality of data to ensure all providers are included.

- **According to the June 2015 data collected by Connect Iowa, 75% of Floyd County residents had access to broadband speeds of 25 Mbps.**

**Broadband Competition** (3 out of 5 Possible Points). Broadband Competition is measured by analyzing the number of broadband providers available in the community and the percentage of that community's residents with more than one broadband provider available. Connected Nation performed this analysis by reviewing the data collected through its broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to the June 2015 data collected by Connect Iowa, 80% to 89.9% of Floyd County residents had access to more than one broadband provider.**

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

- **Floyd County is served by 1 or more middle mile fiber providers.**

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

- **According to the June 2015 data collected by Connect Iowa, 99% to 100% of Floyd County residents had access to mobile broadband service.**



### Adoption Score Explanation

**Digital Literacy** (8 out of 10 Possible Points). Digital Literacy is measured by first identifying all digital literacy programs in the community. Once the programs are identified, a calculation of program graduates will be made on a per capita basis. A digital literacy program includes any digital literacy course offered for free or at very low cost through a library, seniors center, community college, K-12 school, or other group serving the local community. A graduate is a person who has completed the curriculum offered by any organization within the community. The duration of individual courses may vary. A listing of identified digital literacy offerings is below.

Organization Name	Program Description	Number of Grads
Iowa State University Extension and Outreach - Floyd County	Basic computing training for iPad	25
Charles City Public Library	Basic literacy courses - "New User Tutorial" (basic PC training), "Introduction to Windows PC" (basic Windows training)	40
Charles City Public Library	Learning Express - tutorials on Microsoft applications (Word, Excel, PowerPoint)	60
North Iowa Area Community College	Introduction to iPad; Digital Photography I, II, and III	30

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

Organization Name	Number of Open Hours Per Week	Number of Computers	Available Computer Hours Per Week
Charles City Public Library	51	18	918
North Iowa Area Community College Charles City Center	42.5	8	340
Floyd County Courthouse/Iowa Clerk of Court	42.5	2	85
Nora Springs Care Center	168	2	336
Rudd Public Library	21	2	42
Marble Rock Public Library	20	6	120
Nora Springs Public Library	33.5	9	301.5
Rockford Public Library	28	3	84

**Broadband Awareness** (6 out of 10 Possible Points). Broadband Awareness is measured based on the percentage of the population reached. All community broadband awareness programs are first identified, and then each program's community reach is compiled and combined with other campaigns. A listing of broadband awareness programs in Floyd County is below.

Organization Name	Campaign Description	Community Reach
Charles City Community School District	Offers and encourages access to student grades, assignments, attendance, class registration and scheduling online.	60%
Mediacom, CenturyLink	Broadband service commercials on cable TV, print ads, Channel 4	40%
Charles City Broadband Commission	Public meetings, public notices, broadband-related stories in newspaper	40%

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

Organization Name	Program Description	Vulnerable Group
North Iowa Area Community College	ESL classes; high school ed. Classes; Iowa Workforce/National Career Readiness;	Unemployed/Underemployed; students; Non-English speaking
Floyd County Veterans Affairs; Charles City Public Library; Charles City Area Development Corporation	Online job portal and employment assistance; basic computer skills training	Unemployed/Underemployed
CenturyLink	Lifeline Program offers basic internet training	Low income, elderly
Chautauqua Guest Homes; Cedar Health	Wireless internet connections for residents	Elderly
Charles City Community School District	Mac books for grades 9-12	Children, low income, minorities
Rudd-Rockford-Marble Rock Community School District	Computer station dedicated to Iowa Workforce Development job search	Unemployed
Rockford Public Library	One-on-one computer training	Seniors



## Use Score Explanation

**Economic Opportunity** (9 out of 10 Possible Points). A community receives one point per basic use of broadband and two points per advanced, or interactive, use of broadband. Categories within economic opportunity include: economic development, business development, tourism, and agriculture. Identified uses of broadband in the area of economic opportunity are listed below and identified as basic or advanced.

Application Provider	Description	Basic/Advanced
Charles City Area Development Corp website - <a href="http://www.charlescitiya.com/">www.charlescitiya.com/</a> ; Charles City Area Chamber of Commerce website -- <a href="http://www.charlescitiychamber.com/">http://www.charlescitiychamber.com/</a>	Local business development information and services	Advanced
Charles City Whitewater website - <a href="http://www.ccwhitewater.com">www.ccwhitewater.com</a>	Tourism information on whitewater rafting at Riverfront Park	Basic
Community Revitalization of Charles City website - <a href="http://www.ccrevite.com">www.ccrevite.com</a>	Information on local revitalization efforts and community calendar	Advanced
Online banking at multiple local banks	C US Bank, First Security Bank, First Citizens National Bank	Basic
North Central Iowa Alliance - <a href="http://www.northcentraliowa.net">www.northcentraliowa.net</a>	Regional business development, attraction and relocation assistance	Advanced
Iowa Small Business Development Center	Registrations, research, interactive business assistance	Basic

**Education** (7 out of 10 Possible Points) A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within education include K-12, higher education, and libraries. Identified uses of broadband in the area of education are listed below and identified as basic or advanced.

Application Provider	Description	Basic/Advanced
North Iowa Area Community College	Online courses, registration	Advanced
Iowa Education Agency Area 267	Iowa Core information, professional credentialing, jobs portal	Advanced
TLC: The Learning Center	Preschool operational information	Basic
Rudd-Rockford-Marble Rock Community School District and Charles City School Districts	Classrooms connected to internet via broadband; library connected to internet via broadband; teacher digital literacy program	Advanced

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

Application Provider	Description	Basic/Advanced
Floyd County Iowa website - <a href="http://www.floydcoia.org">www.floydcoia.org</a> ; City of Charles City, Iowa website <a href="http://www.cityofcharlescity.org">www.cityofcharlescity.org</a>	Public meeting minutes, agendas, property tax payments online, scheduling	Advanced
MidAmerican Energy, Heartland Power Cooperative, Butler County Rural Electric Cooperative	Utility account information, payments	Advanced
Charles City Police Department - <a href="http://www.charlescitypolice.com">www.charlescitypolice.com</a> ; Floyd County Sheriff	Next generation 911	Advanced
Floyd County Conservation	Reserve campgrounds, information about parks and activities, including Floyd County Fossil Park	Basic
North Iowa Air Service	Information about capacities, capabilities, buildings and grounds, aircraft rental, flight lessons at NE Iowa Regional Airport	Basic
Iowa State Extension Service - Floyd County	Online women's financial literacy, crop and pesticide application, youth and 4-H registration	Advanced
Floyd County Search and Rescue	NWS severe weather updates, Amber Alerts, outdoor burning notices	Basic
Floyd Mitchell Chickasaw Solid Waste Management Agency	Policies, hours, fees, waste stream information, hazardous waste information, disposal guide	Basic
Iowa Department of Revenue and Finance and Floyd County	Tax payments and property tax payments online	Basic
Cities of Floyd, Nora Springs, and Rockford	ACH water, sewer, electric (Rockford) payments	Advanced



**Healthcare** (9 out of 10 Possible Points). A community receives one point per basic use of broadband and two points per advanced use of broadband. Entities within healthcare can include, but are not limited to, hospitals, medical and dental clinics, health departments, nursing homes, assisted living facilities, and pharmacies. Identified uses of broadband in the area of healthcare are listed below and identified as basic or advanced.

Application Name	Description	Basic/Advanced
Floyd County Medical Center Patient Portal - <a href="https://www.myfcmchealth.com">https://www.myfcmchealth.com</a>	Information by department, classes listings, online bill pay; laboratory results, physician reports, account data	Advanced
Mercy Family Clinic - Charles City - <a href="http://www.mercynorthiowa.com/charlescitiy">www.mercynorthiowa.com/charlescitiy</a>	Access laboratory results, physician reports, account data	Advanced
Hy-Vee Online Pharmacy – <a href="http://www.hy-vee.com/health/pharmacy/default.aspx">www.hy-vee.com/health/pharmacy/default.aspx</a> ; Kmart Online Pharmacy	Hospital patient portal and clinic portal; prescription refill ordering	Advanced
Cedar Health - <a href="http://www.cedarhealthcc.com">www.cedarhealthcc.com</a> ; Apple Valley Assisted Living -- <a href="http://www.assistedliving.com">www.assistedliving.com</a> ; Floyd County Home Health- <a href="http://www.floy">www.floy</a>	Nursing home general and event information, employment portal, stats, case management, contact information and palliative care	Basic
Greig Grimm, DDS - <a href="http://www.americashometowntdentist.com">www.americashometowntdentist.com</a> ; Slinger Chiropractic Clinic - <a href="http://www.slingerchiropractic.com">www.slingerchiropractic.com</a> ; Biggerstaff Family	Office information, biography and patient forms	Basic
Eagle Family Health and Mercy Family Clinic - Rockford	Remote monitoring, telemedicine, electronic prescriptions and Telemedicine, electronic prescriptions	Basic

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## ACTION PLAN

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### Complete List of Floyd County Projects

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



**ACCESS**

### Broadband Competition

#### Study and Possibly Reassess Major Telecom Purchase Contracts

##### Goal

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

##### Project Description

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.

##### Benefits

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

##### Action Items

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.



## ADOPTION

### Digital Literacy

#### Distribute Digital Literacy Content

##### Goal

Facilitate partnerships in order to provide digital literacy training.

##### Project Description

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

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

##### Benefits

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

##### Action Items

1. Develop partnerships with local organizations and equip them with digital literacy content
2. Train staff to deliver the curriculum to potential adopters
3. Promote local organizations as a source of broadband access and training
4. Engage non-adopters with a comprehensive public outreach campaign, helping them understand the benefits of broadband service and inviting them to experience the value at their libraries

5. Provide curriculum to teach computer and Internet use, as well as the skills required to utilize the Internet effectively for essential services, education, employment, civic engagement, and cultural participation
6. Offer compelling promotion to participants, giving them the opportunity to adopt the technology for everyday use in their homes

## Broadband Awareness

### Implement a Community-Based Technology Awareness Program

#### Goal

Organize, promote, and deliver a technology awareness program that would increase utilization of technology resources in the community.

#### Project Description

Conduct an extensive advertising campaign to raise awareness about the benefits of broadband and related technology. Develop a strategy to help the community become more aware of the benefits associated with computers and Internet adoption in their daily lives and activities. Methods of delivery include, but are not limited to, classroom style awareness sessions, press conferences led by community leaders, hosting a speaker at a community event, posting community posters and handouts, and public service announcements.

Additionally, the campaign should specifically target technology non-adopters. By using established media, the campaign reaches non-adopters where they are. Public radio, broadcast and cable TV, utility bill stuffers, and print newspapers have been utilized to reach households of many types. The public awareness campaign should focus on helping residents, particularly those from underserved communities, understand the personal value they can derive from an investment in information technology.

There are also opportunities to leverage existing resources to expand and enhance workforce-training programs, encourage more post-secondary education, and create additional awareness within the community in regard to global resources. It is important to support the outcomes of awareness training with the development of technology training programs that will then teach community members how to use the technology.

#### Benefits

Success is achieved when a community experiences increased usage of computers and the Internet, improved basic computer skills, increased use of technology in day-to-day operations of a community, and increased access to economic opportunities.

### Action Items

1. Determine the type of public awareness campaign that is appropriate for your community. Connect Ohio's statewide Every Citizen Online public awareness campaign provides an excellent case study of a professionally developed campaign.  
<http://connectohio.org/public-awareness-campaigns>
2. Create a centralized technology portal/website that promotes local technology resources for use by residents. Resources would include calendars (promoting local tech events and showing available hours at public computer centers), online training resources, and local computer resources.



**USE**

## Economic Opportunity

### Create Local Jobs Via Teleworking Opportunities

#### Goal

Connect IT training and education with remote employment opportunities.

#### Project Description

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

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

**Benefits**

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

**Action Items**

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

## APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND

### Statewide Infrastructure

As part of the Iowa State Broadband Initiative (SBI), and in partnership and at the direction of the Iowa Utilities Board, Connect Iowa 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 Iowa has collected and released new data every six months, with updates in October and April annually.

The most current statewide and county-specific broadband inventory maps released in the fall of 2014 depict a geographic representation of provider-based broadband data represented by cable, DSL, fiber, fixed wireless and mobile wireless. These maps also incorporate data such as political boundaries and major transportation networks in the state. A statewide map can be found at <http://www.connectiowa.org/mapping/state>. The county maps can be found at [http://www.connectiowa.org/community\\_profile/find\\_your\\_county/iowa/adair](http://www.connectiowa.org/community_profile/find_your_county/iowa/adair).

**Table 1: Estimate of Broadband Service Availability in the State of Iowa 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>	20	1,202	98.38
<b>At Least 1.5 Mbps/200 Kbps</b>	42	1,180	96.59
<b>At Least 3 Mbps/768 Kbps</b>	73	1,148	93.99
<b>At Least 6 Mbps/1.5 Mbps</b>	215	1,006	82.37
<b>At Least 10 Mbps/1.5 Mbps</b>	237	985	80.62
<b>At Least 25 Mbps/1.5 Mbps</b>	308	913	74.76
<b>At Least 50 Mbps/1.5 Mbps</b>	333	889	72.74
<b>At Least 100 Mbps/1.5 Mbps</b>	388	834	68.27
<b>At Least 1 Gbps/1.5 Mbps</b>	1,187	35	2.86

Source: Connect Iowa, November 2014.

Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband



service inventory (excluding mobile and satellite service) across the state of Iowa; it presents the number and percentage of unserved and served households by speed tiers. The total number of households in Iowa in 2010 was 1,221,576, for a total population of 3 million people. Table 1 indicates that 98.38% 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 Iowa to be unserved has dropped from 53,335 households in the fall of 2010 to 19,820 households in the fall of 2014. Further, approximately 1,148,167 households across Iowa have broadband available of at least 3 Mbps download and 768 Kbps upload speeds. The percentage of Iowa households having fixed broadband access available of at least 6 Mbps download and 1.5 Mbps upload speeds is estimated at 82.37%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.99% of Iowa 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 about 50 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 fall of 2014 show, additional participating broadband providers can have a large impact upon Iowa 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 that 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 Iowa 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 Iowa has been sent on a semi-annual basis to the NTIA to be used in the National Broadband Map, and comprises the source of Iowa'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 Iowa can be found here: <http://www.broadbandmap.gov/summarize/state/iowa>.

### **Interactive Map**

Connect Iowa provides My ConnectView™, an online interactive map developed and maintained by Connected Nation, which allows users to create completely customized views and maps of broadband infrastructure across the state. The self-service nature of this application empowers Iowa'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.connectiowa.org/interactive-map>

For additional maps and other related information, visit:  
<http://www.connectiowa.org/broadband-landscape>

## Business and Residential Technology Assessments

To complement the broadband inventory and mapping data, Connect Iowa periodically conducts statewide residential and business technology assessments to understand broadband demand trends 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 Iowa. Key questions the data address are: who, where, and how are households in Iowa using broadband technology? How is this technology impacting Iowa households and residents? Who is not adopting broadband service and why? What are the barriers that prevent citizens from embracing this empowering technology?

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

- Broadband adoption in Iowa increased by 5 percentage points between 2012 and 2013.
- More than 113,000 school-age children in Iowa still do not have broadband access at home.
- More than three out of ten (31%) or 90,830 non-adopters in Iowa cite relevance as their main barrier to broadband adoption, while nearly one-fifth (16%) or 46,880 cite cost as their biggest barrier.

Additionally, an assessment of technology use among Iowa businesses released in September 2014 on Connect Iowa's website revealed the following key findings:

- Across Iowa, 81% of businesses subscribe to broadband service, leaving approximately 16,000 Iowa businesses that still do not use or benefit from broadband.
- 31% of Iowa businesses that want faster Internet service cannot get it at their location.
- More than 1 in 8 Iowa businesses say it is "important" or "very important" for new employees to be able to create or edit mobile apps, while 1 in 11 say it is important for new employees to know at least one programming language.
- Online sales in Iowa accounted for approximately \$20 billion in sales revenue last year, including nearly \$7.7 billion for small businesses with fewer than twenty employees and more than \$7 billion for rural Iowa businesses.

For more information on the statewide information described, visit the Connect Iowa website at <http://www.connectiowa.org/research>.

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## APPENDIX 2: PARTNER AND SPONSORS

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**Connect Iowa**, in partnership with the Iowa Economic Development Authority (IEDA), supports Iowa's reinvention and technological transformation through innovation, job creation, and entrepreneurship via the expansion of broadband technology and increased usage by Iowa residents. In 2009, Connect Iowa partnered with the Iowa Utilities Board 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.connectiowa.org/>

The **Iowa Economic Development Authority (IEDA)** offers a variety of programs and services to individuals, communities, and businesses to attract and grow business, employment, and workforce in Iowa. Groundbreaking economic growth strategies focusing on cultivating start-up companies and helping existing companies become more innovative complement the activities already underway to retain and attract companies that are creating jobs for Iowans. Developing sustainable, adaptable communities ready for this growth is also an essential part of our work at IEDA — providing programs and resources that help communities reinvest, recover, and revitalize to make each community's vision a reality.

<http://www.iowaeconomicdevelopment.com/>

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

<http://www.connectednation.org>

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

NTIA has awarded a total of \$293 million for the SBI program to 56 grantees, one each from the 50 states, 5 territories, and the District of Columbia, or their designees. Grantees such as Connect Iowa are using this funding to support the efficient and creative use of broadband technology to better compete in the digital economy. These state-created efforts vary depending on local needs but include programs to assist small businesses and community institutions in using technology more effectively, developing research to investigate barriers to broadband adoption, searching out and creating innovative applications that increase access to government services and information, and developing state and local task forces to expand broadband access and adoption.

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

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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).

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## APPENDIX 4: WHAT IS CONNECTED?

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

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

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

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

### **Connected Planning Process**

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





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

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

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



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

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

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

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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.

**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.