CITY OF BLOOMFIELD

TECHNOLOGY ACTION PLAN

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AND THE
CITY OF BLOOMFIELD BROADBAND COMMITTEE

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ACCESS ADOPTION USE

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INTRODUCTION

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

Background

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

Despite the growing dependence on technology, as of 2013, 30% of Americans did not have a high-speed connection at home.[2] Connected Nation's studies also show that 17 million families with children do not have broadband at home – and 7.6 million of these children live in low-income households. In 2014, Connected Nation also surveyed 4,206 businesses in 7 states. Based on this data, Connected Nation estimates that nearly 1.5 million businesses - 20% - in the United States do not utilize broadband technology today.[3]

Deploying broadband infrastructure, services, and application, as well as supporting the universal adoption and meaningful use of broadband, are challenging - but required - building blocks of a twenty-first century community. To assist communities, Connected Nation developed the Connected Community Engagement Program to help your community identify local technology assets, complete an assessment of local broadband access, adoption, and use, and develop an action plan for pursuing solutions.[4]

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

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

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

4 Connected Nation, parent company for Connect 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, the City of Bloomfield Broadband Committee is boosting the community's capabilities in education, healthcare, and public safety, stimulating economic growth, and spurring job creation. The City of Bloomfield Broadband Committee has collaborated with multiple community organizations and residents to:

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

CONNECTED ASSESSMENT

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

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

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

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

Analysis of Connected Assessment

The Community Technology Scorecard provides a summary of the community's Connected Assessment. The Connected Assessment's criteria are reflective of the recommendations made by the Federal Communications Commission's National Broadband Plan. Lower scores indicate weaknesses in the community's broadband ecosystem, but do not necessarily signify a lack of service.

- The community scored 36 out of a possible 40 points in broadband access. With 98% to 100% of households having access to 3 Mbps, the City of Bloomfield's broadband availability is above the state average of 88.56%.
- The community also scored 32 out of a possible 40 points in broadband adoption, indicating that the City of Bloomfield has valuable assets and programs to support continued adoption by its residents and small businesses. Focus on identifying or adding more public computer centers in the community would further improve this score.
- The community also scored 32 out of a possible 40 points in broadband use, indicating that

the City of Bloomfield has effectively employed broadband to deliver productive online services and applications to help improve the overall quality of life for local residents.

- The City of Bloomfield achieved a score of 100 points out of 120 for overall broadband and technology readiness which indicates that the community is exhibiting strong support of technology access, adoption, and use and has met the score of 100 required for Connected certification.
- The City of Bloomfield exceeded the 32 points in each focus area that are required for certification and has qualified as a Certified Connected Community.

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

Community Technology Scorecard Community Champions: David Birchmier Community Advisor: David Daack				
FOCUS AREA	**ASSESSMENT CRITERIA**	**DESCRIPTION**	**SCORE**	**MAXIMUM POSSIBLE SCORE**
ACCESS	Broadband Availability	98% to 100% of homes have access to 3 Mbps	10	10
	Broadband Speeds	75% of households with access to at least 50 Mbps	5	5
	Broadband Competition	95% to 100% of households with access to more than 1 broadband provider	5	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from only 1 provider	6	10
	Mobile Broadband Availability	99% to 100% of households with access to mobile broadband	10	10
	ACCESS SCORE		**36**	**40**
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1,000 residents over the past year	10	10
	Public Computer Centers	100 computer hours per 1,000 low-income residents per week	2	10
	Broadband Awareness	Campaigns reach 100% of the community	10	10
	Vulnerable Population Focus	At least 5 groups	10	10
	ADOPTION SCORE		**32**	**40**
USE	Economic Opportunity	3 advanced, 2 basic uses	8	10
	Education	4 advanced, 0 basic uses	8	10
	Government	1 advanced, 6 basic uses	8	10
	Healthcare	2 advanced, 4 basic uses	8	10
	USE SCORE		**32**	**40**
	COMMUNITY ASSESSMENT SCORE		**100**	**120**

Itemized Key Findings

City of Bloomfield Broadband Committee identified the following key findings (in addition to findings illustrated in the community scorecard) through its technology assessment:

ACCESS

- 2 last-mile non-mobile broadband providers currently provide service in the City of Bloomfield:
  - 98% to 100% of households have access to 3 Mbps.
  - 75% of the City of Bloomfield homes have access to at least 50 Mbps service.
  - 95% to 100% of the City of Bloomfield households have access to more than 1 provider.
- Middle mile fiber infrastructure is available from only 1 provider in the City of Bloomfield.
- 99% to 100% of the City of Bloomfield households have access to mobile broadband.

ADOPTION

- 3 Digital Literacy Programs exist in the community resulting in 207 graduates over the past year.
- 1 Public Computer Centers (PCC) with a total of 2 computers are open to the public.
- 7 Broadband Awareness Campaigns are reaching 100% of the City of Bloomfield.
- 3 organizations are working with vulnerable populations.

USE

- At least 5 uses of broadband were identified in the area of economic opportunity including 3 advanced uses and 2 basic uses.
- At least 4 uses of broadband were identified in the area of education including 4 advanced uses and 0 basic uses.
- At least 7 uses of broadband were identified in the area of government including 1 advanced use and 6 basic uses.
- At least 6 uses of broadband were identified in the area of healthcare including 2 advanced use and 4 basic uses.

In addition to the items identified above, the City of Bloomfield Broadband Committee identified the following technology resources in the community:

Technology Providers

- 10 broadband providers (fixed, mobile and satellite) were identified in the City of Bloomfield
- 1 hardware provider
- 1 network developer
- 1 web developer

Technology Facilities

- 15 public computer centers
- 1 wireless hotspot
- 0 videoconference facilities

Community Websites

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

Community Priority Projects

The Connected Assessment has culminated in the outlining of projects designed to empower the community to accelerate broadband access, adoption, and use. Below are 5 priority projects.

1. Facilitate a Technology Summit
2. Improve the Online Presence of Government
3. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses
4. Create Local Jobs Via Teleworking Opportunities
5. Improve Online Business Services Offered by the Government

Complete List of Action Items

Below is a list of the 5 action items proposed by the City of Bloomfield Broadband Team to accelerate broadband access, adoption, and use. Detailed descriptions of each solution proposed by Connect Iowa can be found in the *Action Plan* section later in this report.

ACCESS

Broadband Availability – No Action Items

Broadband Speeds – No Action Items

Broadband Competition – No Action Items

Middle Mile Access – No Action Items

Mobile Broadband Availability – No Action Items

ADOPTION

Digital Literacy – No Action Items

Public Computer Centers – No Action Items

Broadband Awareness

1. Facilitate a Technology Summit

Vulnerable Population Focus – No Action Items

USE

Economic Opportunity

2. Broadband Training and Awareness Program for Small and Medium Businesses
3. Create Local Jobs via Teleworking Opportunities

Education – No Action Items

Government

4. Improve the Online Presence of Government
5. Improve Online Business Services Offered by the Government

Healthcare – No Action Items

DETAILED FINDINGS

Current Community Technology Developments in the City of Bloomfield

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

- Citizens Mutual is currently heading up an initiative to bring GIGABIT internet access to every home and business in Bloomfield, IA.

  Our goal would be to coordinate our "Connected Community" certification with the launch of Gigabit internet access.

City of Bloomfield Assessment Findings

Today, residents in the City of Bloomfield (or sections of the community) are served by 10 providers. Currently, broadband is 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 the City of Bloomfield:

Broadband Providers	Website	Technology Type
Mediacom	www.mediacomcable.com	Cable
Citizens Mutual Telephone Cooperative	www.cmtel.com	DSL/Fiber
AT&T Wireless	www.wireless.att.com	Mobile Wireless
US Cellular	www.uscellular.com	Mobile Wireless
Verizon Wireless	www.verizonwireless.com	Mobile Wireless
Sprint	www.sprint.com	Mobile Wireless
Hughes Network Services	www.hughesnet.com	Satellite
Skycasters	www.skycasters.com	Satellite
StarBand Communications	www.starband.com	Satellite
ViaSat	https://www.viasat.com	Satellite

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

Company Name	Website	Provider Type
MPA	http://askmpa.com	Web Developer
Chris's Computer Repair	https://www.facebook.com/chrissccomputerrepair/	Hardware Provider
DP Solutions	https://www.facebook.com/pages/D-P-Solutions/	Network Integrator

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

Organization Name	Website	Resource Type
Southern Iowa Electric Cooperative	http://www.sie.coop	Public Computer Facility
Bloomfield Public Library	bloomfield.lib.ia.us	Public Computer Facility
Davis County Hospital	www.daviscountyhospital.org	Public Computer Facility
Old School Center	https://www.facebook.com/pages/Old-School-Social-Center/291738924260705	Public Computer Facility
Copy Cupp N' Keyboard	https://www.facebook.com/pages/Copy-Cuppn-Keyboard/123972160988084	Public Computer Facility
Citizens Mutual	www.mycmetech.com	Public Computer Facility
City of Bloomfield	www.cityofbloomfield.org	Public Computer Facility
MPA	www.askmpa.com	Public Computer Facility
Indian Hills Davis Center	www.indianhills.edu	Public Computer Facility
Davis County High School Library/Media Center	www.dcmustangs.com	Public Computer Facility
Davis County Genealogy Society	http://iagenweb.org/davis/davis.htm	Public Computer Facility
Bloomfield Main Street	www.bloomfieldmainstreet.com	Public Computer Facility

Davis County Development Corporation	www.daviscounty.org	Public Computer Facility
Cobblestone Inn	http://www.staycobblestone.com/ia/bloomfield/	Public Computer Facility
Southfork Motel	http://www.southforkmotel.com	Public Computer Facility
Oasis	https://www.facebook.com/pages/Oasis-CoffeeHouse/124476677592750	Wireless Hotspot

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

Organization Name	Website	Website Category
Bloomfield Livestock Market	http://www.iowaagriculture.gov/agMarketing/bloomfield.asp	Agriculture
Bloomfield Democrat	http://bdemo.com	Business
Opportunity Squared	http://www.op2iowa.com	Business
Bloomfield Mutchler Center	http://www.cityofbloomfield.org/index.php/recreation/mutchler-center	Community Based
Davis County Today	http://daviscountytoday.com	Community Based
Friends of Lake Wapello Shore to Shore Bloomfield Race	http://lakewapello.org/Shore_to_Shore.html	Community Based
Bloomfield Main Street	http://www.bloomfieldmainstreet.com/	Community Based
Davis County Development Corporation	http://www.daviscounty.org	Community Based
Davis County Schools	http://dcmustangs.com	Education
Davis County Middle School	http://www.dcmustangs.com/vnews/display.v/SEC/Middle%20School	Education
Davis County Elementary School	http://www.dcmustangs.com/vnews/display.v/SEC/Elementary	Education
Davis County High School	http://www.dcmustangs.com/vnews/display.v/SEC/High%20School	Education
City of Bloomfield	http://www.cityofbloomfield.org	Government
Bloomfield Public Library	http://www.bloomfield.lib.ia.us/	Libraries
Bloomfield Campground	http://www.cityofbloomfield.org/index.php/recreation/campground	Tourism
Bloomfield Pool	http://www.cityofbloomfield.org/index.php/recreation/bloomfield-pool	Tourism
Bloomfield Speedway	http://daviscountyfair.org/speedway.html	Tourism

Davis County Fair	http://daviscountyfair.org/	Tourism
Davis County Tourism	http://visitdaviscounty.com	Tourism
Davis County Welcome Center	http://www.visitdaviscounty.com/sample-page/historic-places/davis-county-welcome-center/	Tourism

Connected Assessment Analysis

Access Score Explanation

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

- **According to the October 2014 data collected by Connect Iowa, 98% to 100% of the City of Bloomfield residents have access to broadband speeds of 3 Mbps.**

Broadband Speeds (5 out of 5 Possible Points) – is measured by analyzing the speed tiers available within a community. Connected Nation will analyze broadband data submitted through its broadband mapping program. Specifically, Connected Nation will break down the coverage by the highest speed tier with at least 75% of households covered. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to the April 2014 data collected by Connect Iowa, 75% of the City of Bloomfield residents had access to broadband speeds of 50 Mbps.**

Broadband Competition (5 out of 5 Possible Points) – 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 October 2014 data collected by Connect Iowa, 95% to 100% of the City of Bloomfield residents had access to more than one broadband provider.**

Middle Mile Access (6 out of 10 Possible Points) – is measured based on a community's availability to fiber. Three aspects of availability exist: proximity to middle mile points of presence (POPs), number of POPs available, and available bandwidth. Data was collected by the community in coordination with Connected Nation.

- **The City of Bloomfield is served by only 1 middle mile fiber providers per Connected Nation October 2014 data.**

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

- **According to the October 2014 data collected by Connect Iowa, 99% to 100% of the City of Bloomfield residents had access to mobile broadband service.**

Access Score Explanation

Digital Literacy (10 out of 10 Possible Points) – 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
Southern Iowa Electric Cooperative	Social Media Best Practices in Communications (www.sie.coop)	30
Citizens Mutual Telephone Cooperative	Basic Computer Classes (www.mycmtech.com)	150
MPA	Social Media Classes for Business; Online Business Promotion & Advertising Classes; Google Partners Exclusive Event	27
Total Graduates [2013-2014]		207

Public Computer Centers (2 out of 10 Possible Points) – 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 the City of Bloomfield is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Bloomfield Public Library (bloomfield.lib.ia.us) beth.sullivan@bloomfield.lib.ia.us	40	2	80

Broadband Awareness (10 out of 10 Possible Points) – 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 the City of Bloomfield is below:

Organization Name	Campaign Description	Community Reach %
Citizens Mutual	Promotion to upgrade users from Dial-Up to Broadband at a discounted rate. (http://mycmtech.com); Campaign advertising Wi-Fi on the Bloomfield Square provided by Citizens Mutual. Campaign advertising Wi-Fi on the City Park provided by Citizens Mutual.	80%
Davis County Today	LIVE Video Stream of the Scenic Courthouse and Bloomfield Square (http://daviscountytoday.com/live) "Recorded Archive"	60%
MPA	Hosts free Google Partner Events	10%
KOJY-FM (God's Country Radio)	"LIVE Video Streaming Broadcast of Local Sports: (http://godscountry.com)	50%
Southern Iowa Electric Cooperative	Social Media Best Practices in Communications	10%
Hill Productions	Utilizes social media through broadband to communicate their artist's messages. (http://hillproductionsinc.com/)	10%
City of Bloomfield	Energy efficiency initiatives including the utilization of smart technology. (www.cityofbloomfield.org)	25%

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. A listing of programs focusing on vulnerable populations in City of Bloomfield is listed below.

Organization Name	Program Description	Vulnerable Group
Bloomfield Public Library	Low-Income program available to assist with communication costs; Workforce Development Program to assist with finding applicants jobs. Research Assistance for low-income students and general populace seeking betterment. Programs targeted at vulnerable youth	Low-income; unemployed; students and vulnerable youth
Citizens Mutual Telephone Cooperative	Low-Income program available to assist with communication costs.	Low-income individuals and families
Old School Social Center	Public Free Wi-Fi Access Program	Low-income, disabled, seniors, unattended youth, unemployed

Use Score Explanation

Economic Opportunity (8 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 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
City of Bloomfield - www.cityofbloomfield.org	Supports economic development through TIF incentives and cooperation with economic development org.	Basic

Davis County Tourism Corporation - www.visitdaviscounty.org	Promotes Tourism in Bloomfield and Davis County. Encourages tourist to visit Bloomfield and provides resources and guides for tourists when they arrive.	Basic
Area 15 Business Assistance & Loan / Grant Applications - www.area15rpc.com/business-assistance-programs	Online grant and loan applications for local business	Advanced
Bloomfield Main Street - www.bloomfieldmainstreet.com	Promotes business development in Bloomfield while working to obtain grants to maintain and improve the Bloomfield Square.	Advanced
Revolving Loan Funds - www.sie.coop; www.mycmtech.com	Revolving loan funds processing online	Advanced

Education (8 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
Davis County Community School District -- http://www.dcmustangs.com/	1-to-1 initiative using Google Chromebooks.	Advanced
Davis County Community School District -- http://www.dcmustangs.com/	Online catalog, online purchasing, e-books	Advanced
Indian Hills Community College -- www.indianhills.edu	Online learning programs	Advanced
Iowa AEA Online and Great Prairie Area Education Agency Resources	Web-based resources that work as educational partners with public and accredited, non-public schools to help students	Advanced

Government (8 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
The Bloomfield Democrat - Virtual Newsroom www.bdemo.com	Transfer Minutes to post to newspaper	Basic
City of Bloomfield website - City event and services information www.cityofbloomfield.org	Listings and information of various community services and events	Basic
Various community websites – Online Conference Registrations	Ability to register for conferences and meetings online	Basic
City of Bloomfield website - Department of Management – www.cityofbloomfield.org	Upload annual budget and amendments	Basic
City of Bloomfield website – Meeting Minutes www.cityofbloomfield.org	Minutes are posted on the City of Bloomfield's website.	Basic
Google Drive - Paperless Council Packets	Council packets are presented on iPad's and sync'd seamlessly by utilizing Google Drive within Google Apps.	Basic
City of Bloomfield -Online utility payment - www.cityofbloomfeild.org	Online credit and debit card payments for utilities & fines	Advanced

Healthcare (8 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
Bloomfield Care Center -- http://www.abcmcorp.com/	Information pertaining to care facility.	Basic
Dental Records Access	Access your Dental records online.	Basic
Patient Portal - Davis County Hospital -- https://app.relayhealth.com	Patient Portal access to medical records; Provides overview of services, including hospital, public health clinic...	Basic
Pharmacy information -- Multiple pharmacies	Provides basic pharmacy information	Basic
Davis County Hospital -- www.daviscountyhospital.org	Interactive question and answer; instructional video presentation	Advanced
New Patient Online Registration	Complete new patient registration online	Advanced

ACTION PLAN

Community Priority Projects

This exercise has culminated in the outlining of projects to allow the community to continue its recognized excellence in technology and broadband planning across the community. Below are 5 priority projects, each describing a project plan with suggested steps.

Facilitate a Technology Summit

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

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

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

Action Items:
1. Create community partnerships.
2. Identify funding sources and hosts.
3. Identify suitable speakers.

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

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

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

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

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

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

Action Items:

1. Identify federally or state sponsored business support programs (e.g. Chamber of Commerce, SBA, EDA, Agriculture, or Manufacturing extension) that include assistance with broadband or IT content.
2. Identify or develop a business awareness and training program.
3. Identify or develop online training modules for businesses. For example, the Southern Rural Development Center, in partnership with 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#.

Create Local Jobs Via Teleworking Opportunities

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

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

Goal:
Connect IT training and education with remote employment opportunities.

Benefits:

1. This type of project can educate, train, employ, and has the potential to ultimately increase the productivity and economic competitiveness of your community's workforce.

2. The physical infrastructure and training exposes a broad spectrum of residents to the benefits of telecommunications and productive uses of the Internet.
3. Through training and work, participants will rely heavily on local ISPs, broadband technology, and emerging IT technologies to provide services to a global marketplace, in turn fostering the demand-driven strengthening of your community's physical Internet infrastructure.

Action Items:

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

Improve the Online Presence of Government

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

Goal:

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

Benefits:

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

Action Items:

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

Improve Online Business Services Offered by the Government

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

Goal:

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

Benefits:

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

Action Items:

1. The first step in the process of providing e-government services to constituents is developing a functional web portal that allows businesses to have access to resources easily. Such a portal can enable outside businesses looking for new opportunities to make informed decisions about working in a certain community.
2. In addition, often overlooked in e-government deployment are the issues of audiences and needs. Local governments must determine who will visit the website and what sort of information and services they will typically seek. A first step toward meeting general needs

of constituents is to provide online access to as broad a swath of governmental information and data as is possible. The sort of information that should be included is:

- Hours of operation and location of facilities.
- Contact information of key staff and departments.
- An intuitive search engine.
- Access to documents (ideally a centralized repository of online documents and forms).
- Local ordinances, codes, policies, and regulations.
- Minutes of official meetings and hearings.
- News and events.

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 spring of 2014 depict a geographic representation of provider-based broadband data represented by cable, DSL, wireless, fiber, etc. residential services. 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/connectednationftp/iowa/Statewide_Maps/IA_Statewide_Broadband.pdf. The county maps can be found at http://www.connectiowa.org/community_profile/find_your_county/iowa/.

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
At Least 768 Kbps/200 Kbps	22	1,200	98.19
At Least 1.5 Mbps/200 Kbps	43	1,179	96.52
At Least 3 Mbps/768 Kbps	78	1,144	93.64
At Least 6 Mbps/1.5 Mbps	**228**	**993**	**81.30**
At Least 10 Mbps/1.5 Mbps	251	970	79.44
At Least 25 Mbps/1.5 Mbps	332	889	72.78
At Least 50 Mbps/1.5 mbps	355	867	70.94
At Least 100 Mbps/1.5 Mbps	**497**	**725**	**59.35**
At Least 1 Gbps/1.5 Mbps	1,196	26	2.10

Source: Connect Iowa, April 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 98.196% 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 22,146 households in the spring of 2014. Further, approximately 1,143,847 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 81.37%.

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 70 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 2014 show, additional participating broadband providers can have a large impact upon Iowa broadband mapping inventory updates. Furthermore, 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 tool 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 five 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 one in eight Iowa businesses say it is "important" or "very important" for new employees to be able to create or edit mobile apps, while one in eleven 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 20 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.

APPENDIX 2: PARTNER AND SPONSORS

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.

APPENDIX 3: THE NATIONAL BROADBAND PLAN

The National Broadband Plan, released in 2010 by the Federal Communications Commission, has the express mission of creating a high-performance America—a more productive, creative, efficient America in which affordable broadband is available everywhere and everyone has the means and skills to use valuable broadband applications. The plan seeks to ensure that the entire broadband ecosystem—networks, devices, content and applications— is healthy.

The plan recommends that the country adopt and track the following six goals to serve as a compass over the next decade:

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

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

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

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

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

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

To learn more, visit: www.broadband.gov

APPENDIX 4: WHAT IS CONNECTED?

The goal of Connect 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 provide "train-the-trainer" activities to local leaders, such as librarians, school administrators, economic development professionals, and public officials, and help them organize multi-sector technology planning teams, inventory local technology resources and initiatives, assess local technology access, adoption, and use, and develop local strategies that target specific technology gaps in the community.

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

Connected Planning Process

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

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

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

Step 2: Assess. The Connected planning process guides the local technology planning team through an assessment of community technology resources, strengths, assets, needs, and gaps in order to identify and develop strategies to address specific technology gaps and opportunities in the community. Bolstered by benchmarking data that had been gathered through Connect 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 also provides a platform for collaboration and the sharing of best practices between communities. Connected Nation also provides communications support to raise awareness of your community's efforts. For communities that measurably demonstrate proficiency in broadband access, adoption, and use in the Connected Assessment, Connected Nation offers Connected certification, a nationally recognized certification that provides an avenue for pursuing opportunities as a recognized, technologically advanced community.

APPENDIX 5: GLOSSARY OF TERMS

#

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

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

A

ARRA - American Recovery and Reinvestment Act.

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

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

B

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

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

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

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

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

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

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

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

C

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

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

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

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

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

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

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

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

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

D

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

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

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

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

DSLAM - Digital Subscriber Line Access Multiplier - A piece of technology installed at a telephone company's CO that connects the carrier to the subscriber loop (and ultimately the customer's PC).
DWDM - Dense Wavelength Division Multiplexing - A SONET term which is the means of increasing the capacity of SONET fiber-optic transmission systems.

E

E-rate - A federal program that provides subsidy for voice and data lines to qualified schools, hospitals, Community-Based Organization (CBOs), and other qualified institutions. The subsidy is based on a percentage designated by the FCC.
Ethernet - A local area network (LAN) standard developed for the exchange data with a single network. It allows for speeds from 10 Mbps to 10 Gbps.
EON - Ethernet Optical Network - The use of Ethernet LAN packets running over a fiber network.
EvDO - Evolution Data Only - A new wireless technology that provides data connections that are 10 times faster than a regular modem.

F

FCC - Federal Communications Commission - A federal regulatory agency that is responsible for, among other things, regulating VoIP.
Fixed Wireless Broadband - The operation of wireless devices or systems for broadband use at fixed locations such as homes or offices.
Franchise Agreement - An agreement between a cable provider and a government entity that grants the provider the right to serve cable and broadband services to a particular area - typically a city, county, or state.
FTTH - Fiber To The Home - Another name for fiber to the premises, where fiber optic cable is pulled directly to an individual's residence or building allowing for extremely high broadband speeds.
FTTN - Fiber To The Neighborhood - A hybrid network architecture involving optical fiber from the carrier network, terminating in a neighborhood cabinet that converts the signal from optical to electrical.
FTTP - Fiber To The Premise (Or FTTB – Fiber To The Building) - A fiber optic system that connects directly from the carrier network to the user premises.

G

Gbps - Gigabits per second - 1,000,000,000 bits per second or 1,000 Mbps. A measure of how fast data can be transmitted.
GPON - Gigabyte-Capable Passive Optical Network - Uses a different, faster approach (up to 2.5 Gbps in current products) than BPON.
GPS - Global Positioning System - A system using satellite technology that allows an equipped user to know exactly where he is anywhere on earth.

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

H

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

I

IEEE - Institute of Electrical and Electronics Engineers (pronounced "Eye-triple-E.").
ILEC - Incumbent Local Exchange Carrier - The traditional wireline telephone service providers within defined geographic areas. They typically provide broadband Internet service via DSL technology in their area. Prior to 1996, ILECs operated as monopolies having the exclusive right and responsibility for providing local and local toll telephone service within LATAs.
IP-VPN - Internet Protocol - Virtual Private Network - A software-defined network offering the appearance, functionality, and usefulness of a dedicated private network.
ISDN - Integrated Services Digital Network - An alternative method to simultaneously carry voice, data, and other traffic, using the switched telephone network.
ISP - Internet Service Provider - A company providing Internet access to consumers and businesses, acting as a bridge between customer (end-user) and infrastructure owners for dial-up, cable modem, and DSL services.

K

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

L

LAN - Local Area Network - A geographically localized network consisting of both hardware and software. The network can link workstations within a building or multiple computers with a single wireless Internet connection.
LATA - Local Access and Transport Areas - A geographic area within a divested Regional Bell Operating Company is permitted to offer exchange telecommunications and exchange access service. Calls between LATAs are often thought of as long-distance service. Calls within a LATA (IntraLATA) typically include local and local toll telephone services.
Local Loop - A generic term for the connection between the customer's premises (home, office, etc.) and the provider's serving central office. Historically, this has been a wire connection; however, wireless options are increasingly available for local loop capacity.
Low Income - Low income is defined by using the poverty level as defined by the U.S. Census Bureau. A community's low-income percentage can be found at www.census.gov.

M

MAN - Metropolitan Area Network - A high-speed date intra-city network that links multiple locations with a campus, city, or LATA. A MAN typically extends as far as 50 kilometers (or 31 miles).
Mbps - Megabits per second - 1,000,000 bits per second. A measure of how fast data can be transmitted.
Metro Ethernet - An Ethernet technology-based network in a metropolitan area that is used for connectivity to the Internet.
Multiplexing - Sending multiple signals (or streams) of information on a carrier (wireless frequency, twisted pair copper lines, fiber optic cables, coaxial, etc.) at the same time. Multiplexing, in technical terms, means transmitting in the form of a single, complex signal and then recovering the separate (individual) signals at the receiving end.

N

NTIA - National Telecommunications and Information Administration, which is housed within the United State Department of Commerce.
NIST - National Institute of Standards and Technology.

O

Overbuilders - Building excess capacity. In this context, it involves investment in additional infrastructure projects to provide competition.
OVS - Open Video Systems - A new option for those looking to offer cable television service outside the current framework of traditional regulation. It would allow more flexibility in providing service by reducing the build-out requirements of new carriers.

P

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

R

Right-of-Way - A legal right of passage over land owned by another. Carriers and service providers must obtain right-of-way to dig trenches or plant poles for cable and telephone systems and to place wireless antennae.
RPR - Resilient Packet Ring - Uses Ethernet switching and a dual counter-rotating ring topology to provide SONET-like network resiliency and optimized bandwidth usage, while delivering multi-point Ethernet/IP services.
RUS - Rural Utility Service - A division of the United States Department of Agriculture that promotes universal service in unserved and underserved areas of the country through grants, loans, and financing.

S

Satellite - Satellite brings broadband Internet connections to areas that would not otherwise have access, even the most rural of areas. Historically, higher costs and lower reliability have prevented the widespread implementation of satellite service, but providers have begun to overcome these obstacles, and satellite broadband deployment is increasing. A satellite works by receiving radio signals sent from the Earth (at an uplink location also called an Earth Station) and resending the radio signals back down to the Earth (the downlink). In a simple system, a signal is reflected, or "bounced," off the satellite. A communications satellite also typically converts the radio transmissions from one frequency to another so that the signal getting sent down is not confused with the signal being sent up. The area that can be served by a satellite is determined by the "footprint" of the antennas on the satellite. The "footprint" of a satellite is the area of the Earth that is covered by a satellite's signal. Some satellites are able to shape their footprints so that only certain areas are served. One way to do this is by the use of small beams called "spot beams." Spot beams allow satellites to target service to a specific area, or to provide different service to different areas.
SBI - State Broadband Initiatives, formerly known as the State Broadband Data & Development (SBDD) Program.
SONET - Synchronous Optical Network - A family of fiber-optic transmission rates.
Streaming - A Netscape innovation that downloads low-bit text data first, then the higher bit graphics. This allows users to read the text of an Internet document first, rather than waiting for the entire file to load.
Subscribership - Subscribership is the number of customers that have subscribed for a particular telecommunications service.
Switched Network - A domestic telecommunications network usually accessed by telephones, key telephone systems, private branch exchange trunks, and data arrangements.

T

T-1 - Trunk Level 1 - A digital transmission link with a total signaling speed of 1.544 Mbps. It is a standard for digital transmission in North America.
T-3 - Trunk Level 3 - 28 T1 lines or 44.736 Mbps.

U

UNE - Unbundled Network Elements - Leased portions of a carrier's (typically an ILEC's) network used by another carrier to provide service to customers.
Universal Service - The idea of providing every home in the United States with basic telephone service.
Upstream - Data flowing from your computer to the Internet (sending e-mail, uploading a file).

V

VDSL (or VHDSL) - Very High Data Rate Digital Subscriber Line - A developing technology that employs an asymmetric form of ADSL with projected speeds of up to 155 Mbps.
Video On Demand - A service that allows users to remotely choose a movie from a digital library and be able to pause, fast-forward, or even rewind their selection.
VLAN - Virtual Local Area Network - A network of computers that behave as if they were connected to the same wire even though they may be physically located on different segments of a LAN.
VoIP - Voice over Internet Protocol - A new technology that employs a data network (such as a broadband connection) to transmit voice conversations.
VPN - Virtual Private Network - A network that is constructed by using public wires to connect nodes. For example, there are a number of systems that enable one to create networks using the Internet as the medium for transporting data. These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.
Vulnerable Groups -Vulnerable groups will vary by community, but typically include low-income, minority, senior, children, etc.

W

WAN - Wide Area Network - A communications system that utilizes cable systems, telephone lines, wireless, and other means to connect multiple locations together for the exchange of data, voice, and video.
Wi-Fi - Wireless Fidelity - A term for certain types of wireless local networks (WLANs) that uses specifications in the IEEE 802.11 family.
WiMax - A wireless technology that provides high-throughput broadband connections over long distances. WiMax can be used for a number of applications, including last mile broadband connections, hotspots, and cellular backhaul and high-speed enterprise connectivity for businesses.
Wireless Hotspot - A public location where Wi-Fi Internet access is available for free or for a small fee. These could include airports, restaurants, hotels, coffee shops, parks, and more.
Wireless Internet - 1) Internet applications and access using mobile devices such as cell phones and palm devices. 2) Broadband Internet service provided via wireless connection, such as satellite or tower transmitters.
Wireline - Service based on infrastructure on or near the ground, such as copper telephone wires or coaxial cable underground, or on telephone poles.