



CONNECTEDSM
Community Engagement Program

CITY OF INDIANOLA

TECHNOLOGY ACTION PLAN

PREPARED BY **CONNECT IOWA**
AND THE
CITY OF INDIANOLA BROADBAND COMMITTEE



FEBRUARY 7, 2013



ACCESS



ADOPTION



USE

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EXECUTIVE SUMMARY

Key Findings

Connect Iowa, in conjunction with the City of Indianola Broadband Committee, has released a City of Indianola Community Technology Action Plan following a community assessment of overall broadband and technology readiness, using criteria that analyzes broadband access, adoption, and use.

Community Technology Scorecard

Community Champion: Chelle Klootwyk Community Advisor: Amy Kuhlert, Nichole Warren			
FOCUS AREA	ASSESSMENT CRITERIA	COMMUNITY SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	10	10
	Broadband Speeds	5	5
	Broadband Competition	5	5
	Middle Mile Access	6	10
	Mobile Broadband Availability	10	10
	TOTAL ACCESS SCORE	36	40
ADOPTION	Digital Literacy	10	10
	Public Computer Centers	10	10
	Broadband Awareness	10	10
	Vulnerable Population Focus	6	10
	TOTAL ADOPTION SCORE	36	40
USE	Economic Opportunity	10	10
	Education	10	10
	Government	10	10
	Healthcare	10	10
	TOTAL USE SCORE	40	40
COMMUNITY ASSESSMENT SCORE		112	120

Analysis of Scorecard

- The City of Indianola achieved a score of 112 points out of 120 for overall broadband and technology readiness which indicates that the community is exhibiting high success in technology access, adoption, and use, and has surpassed the score of 100 required for

Connected certification.

- The community scored 36 out of a possible 40 points in broadband access primarily because of some gaps in broadband availability.
- The City of Indianola exceeded the 32 points in each focus area that are required for certification and has qualified for full Connected certification.
- While the results indicate that the community has made tremendous strides and investments in technology, this technology plan will provide some insight and recommendations that will help the community continue to achieve success.

Introduction

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. For children to succeed, access to online resources has become crucial. More importantly, the success of a community has 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.

In order to determine if businesses and residents are maximizing the benefits from using high-speed Internet technologies, there is a need to determine the current state of technology before identifying gaps. Thus, the need to know the state of technology in a community – and subsequently in a state – is great. In response to this need, Connected Nation¹ developed the Connected community program to help guide a community through an assessment of its overall broadband and technology status, using criteria that Connected Nation has developed as a “community certification” model. The program helps train community team leaders and supports the formation of community planning teams made up of various sector representatives with the goal of creating an actionable plan for expanding the access to broadband infrastructure, adoption, and use of Internet technologies and becoming a certified technology community. Funded by the National Telecommunications and Information Administration (NTIA), this effort is part of the State Broadband Initiative.

The City of Indianola Broadband Committee is leading the way into a new economy for the City of Indianola by actively participating in Connect Iowa’s Connected community program. Using

¹ Connected Nation, parent company for Connect Iowa, is a national non-profit 501(c)(3) organization that expands access to and use of broadband Internet and the related technologies that are enabled when individuals and communities have the opportunity and desire to connect. Connected Nation works in multiple states to engage community stakeholders, state leaders, and technology providers to develop and implement technology expansion programs with core competencies centered around the mission to improve digital inclusion for people and places previously underserved or overlooked.

tools provided by Connect Iowa, the City of Indianola Broadband Committee collaborated with multiple community organizations and residents to assess the overall broadband and technology status in the City of Indianola.

Methodology

In order to determine the state of technology in the City of Indianola, the community team initiated a 4-step community engagement program that consisted of:

1. Identification and empowerment of a community team leader (local champion) and creation of 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. Assessment of community technology resources.
3. Development of a community technology plan and implementation of recommended actions that will lead to community certification as a Connected community (*ongoing*).
4. Once a community is certified, the community will have an avenue to discuss its success and pursue opportunities as a recognized, technologically advanced community.

Itemized Key Findings

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

ACCESS

- 10 last-mile broadband providers currently provide service in the City of Indianola:
 - 100% of households have access to 3 Mbps.
 - 75% of homes in the City of Indianola have access to 50 Mbps service.
 - 100% of households in the City of Indianola have access to more than 1 provider.
- Middle mile fiber infrastructure is available from one provider in the City of Indianola.
- 99% of households in the City of Indianola have access to mobile broadband.

ADOPTION

- 2 Digital Literacy Programs exist in the community, resulting in more than 32 graduates over the past year.
- 2 Public Computer Centers (PCC) with a total of 18 computers are open to the public.
- 2 Broadband Awareness Campaigns are reaching 95% of the City of Indianola.
- 4 organizations are working with vulnerable populations.

USE

- At least 7 uses of broadband were identified in the area of economic opportunity including 3 advanced uses and 4 basic uses.

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

Through the broadband mapping and inventory undertaken by both Connect Iowa and the City of Indianola Broadband Committee, several Community Anchor Institutions (CAI) were identified. They are broken down by type below for the City of Indianola:

CAI Type		Number of CAIs
1	School K-12	7
2	Library	1
3	Medical/Healthcare	1
4	Public Safety	3
5	University, College, Other Post-Secondary	1
6	Other Community Support – Government	2
7	Other Community Support – Nongovernment	0

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

Technology Providers

- 10 broadband providers were identified in the City of Indianola
- 1 web developer & software provider

Technology Facilities

- 2 public computing centers
- 3 wireless hotspots

Community Websites

- 1 Business-related website (excluding private businesses)
- 1 Education-related website
- 2 Government-related websites
- 2 Tourism-related websites



Current Community Technology Developments in the City of Indianola

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 Indianola:

- The Indianola Sustainability Committee hosts an annual e-cycling day, allowing all Indianola residents to recycle electronics at no cost.
- The Indianola Chamber of Commerce is in conversation with Google on hosting an event to help Indianola small businesses develop websites for free.

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 3 priority projects, each describing a project plan with suggested steps. This is followed by a complete list of all recommended actions.

Improve Education through Digital Learning

Project Description

Implement a 1:1 initiative, where every student has some type of electronic device to use on a daily basis, at any time, and anywhere.

Benefits

1. Increase learning time by extending learning beyond the classroom walls.
2. Increase student engagement in school.
3. Encourage self-directed learning.

Action Items

1. Work to complete a grant application.
2. Meet with national technology providers.
3. Work together with a local network service provider to offer the Lifeline Program - service at a reduced cost to qualifying students.

Implementation Team

To be determined.

Develop Public-Private Partnerships to Deploy Broadband Service

Project Description

Indianola has now taken the next major community development step that integrates Indianola's municipal broadband into our local approach to economic development. The overall

message to our Indianola customer base is that the broadband network is a community asset in terms of access to better service, ability to deliver new services in the future, and as an economic development tool.

In January, an economic gardening model was launched which ties our local Simpson College campus to the Indianola Development Association and IMU's municipal telecom utility. The tech business incubator will have access to the broadband utility's server platforms, wholesale bandwidth, local marketing/customer attraction efforts, and customer service activities which all reduce barriers to try to develop new tech start-ups.

There are five tech businesses that started in the incubator in mid-January. Their business stages range from being fully developed seeking market expansion and product refinement (www.playtagger.com) to just being a concept with basic coding completed.

Benefits

1. By working together, public and private parties can educate and build awareness.
2. A good partnership concentrates investment on non-duplicative networks and aims to ensure the community has access to adequate broadband services.
3. The program will expose students to potential career paths and a basis to see if they want to further their educations in the technology field.
4. Helps students to build on their technical competencies as they work with community leaders, peers, seniors, and other members of the community.
5. Entices businesses in the technology field to want to start up businesses in the community.

Action Items

1. Memorandum of Understanding between Simpson College, IMU, and The Indianola Development Association.
2. Identify and secure space on the Simpson campus for a technology hub.
3. Form a 28E partnership entity and advisory committees.

Implementation Team

To be determined.

Initiate a Community Computer Refurbishment Program

Project Description

Work with groups in the community to bring technology to low-income households.

Benefits

1. Training that can be used for career enhancement.
2. Learn new skills that will open opportunities for this group in the community.

3. Opportunity for new skills to be learned among students in computer refurbishment.

Action Items

1. Involve the Sustainability Committee to initiate and promote the program and partnerships.
2. Work with Simpson College, area high schools, and other local businesses to do refurbishment.
3. Have organizations such as We Lift, Red Rock, and the Christian Opportunity Center identify target households.

Implementation Team

To be determined.

Complete List of Recommended Actions

Below is a complete list of 9 recommended actions. Detailed descriptions of each solution proposed by Connect Iowa can be found in the *Recommended Actions* section later in this report.

ACCESS

Broadband Availability – No recommended actions.

Broadband Speeds – No recommended actions.

Broadband Competition

1. Develop Public-Private Partnerships to Deploy Broadband Service (Priority Project).
2. Study and Possibly Reassess Major Telecom Purchase Contracts.

Middle Mile Access

3. Perform a Broadband Build-out Analysis in Unserved Areas.

Mobile Broadband Availability – No recommended actions.

ADOPTION

Digital Literacy – No recommended actions.

Public Computer Centers – No recommended actions.

Broadband Awareness – No recommended actions.

Vulnerable Population Focus

4. Facilitate a Technology Summit.



5. Purchase Low-Cost Computers Via the Connect2Compete Program.
6. Initiate a Community Computer Refurbishment Program (Priority Project).
7. Establish a "Community Technology Academy."
8. Create a Technology Mentorship Program.

USE

Economic Opportunity – No recommended actions.

Education

9. Improve Education through Digital Learning (Priority Project).

Government – No recommended actions.

Healthcare – No recommended actions.



INTRODUCTION

Purpose

The purpose of this report is to summarize the assessment of the City of Indianola's current capacity for encouraging the Access, Adoption, and Use of technology as well as the best next steps for addressing any deficiencies or opportunities for improving the city's technology landscape. (Community assessment results and recommended actions are provided later in this report.)

Background

Today, high-speed Internet access plays an integral role in how we conduct our business and how we live our lives on a day-to-day basis. As noted in the National Broadband Plan, a high-speed network is "a foundation for economic growth, job creation, global competitiveness and a better way of life."² Despite the growing dependence on technology, as of 2012 nearly 34% of Americans did not have a high-speed connection at home.³ Further, 14 million Americans are lacking access to broadband infrastructure that can support today's and tomorrow's applications.⁴ 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 2010, Connected Nation surveyed 9,650 businesses in 11 states and Puerto Rico. Based on this data, Connected Nation estimates that at least 2.1 million businesses - 28% - in the United States do not utilize broadband technology today.⁵

In this age of technology, a number of factors have forced businesses to change time-honored models of operation, including global competition and a demand for faster and more personalized services from consumers. Research shows that businesses that use high-speed Internet generate more revenue⁶ and experience the most direct benefits of high-speed Internet with increased sales, profit, and growth. Gaining benefits from the implementation of high-speed Internet is not just for large corporations. For smaller businesses and entrepreneurs in small communities, technology creates an even playing field with companies much larger

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

3 Pew Internet and American Life Project <http://pewinternet.org/Trend-Data-%28Adults%29/Home-Broadband-Adoption.aspx> (suggests that 66% have access to Broadband).

4 Federal Communications Commission, *Connecting America: The National Broadband Plan*, March 17, 2010, p. 20.

5 Connected Nation, *Broadband and Business: Leveraging Technology to Stimulate Economic Growth*, <http://www.connectednation.org/survey-results/business>, 2010.

6 Connected Nation, *Broadband & Business Leveraging Technology to Stimulate Economic Growth*, http://www.connectednation.org/sites/default/files/broadband_and_business_-_connected_nation.pdf.

than themselves. Where small businesses were once limited to whatever local customers they could attract through local advertising, e-commerce allows small or even home-based businesses to operate and sell their goods on a national and sometimes international scale.

Schools, colleges, universities, and community and technical colleges continue to find new ways and tools to educate the students of the digital age. With the evolution of social networking and mobile applications, educational institutions are using these tools to communicate effectively with students.

The healthcare sector also relies on technology. On a daily basis, doctors must keep up with the latest research; patient records have to be easily accessible and accurate; and images, test results, and prescriptions have to be delivered promptly, without errors, to practitioners, pharmacies, and insurance providers. Network-based technologies like videoconferencing and digital stethoscopes allow specialists to consult with rural patients, reducing travel time and hazards. This ability to reach rural patients through technology has allowed many people to seek treatment that otherwise may not have done so.

Families are relying more and more on technology for services, education, information, communication, news, and improving their quality of life. Digital literacy training has become the most basic means by which communities and institutions work to teach community members basic skills that allow them to navigate the Internet, perform basic functions, and become a skilled workforce for potential investors.

Local governments have also seen the importance of an online presence. Local governments provide communities with many services, offer a great deal of local information, and encourage public involvement and awareness. The demand for faster and better services has increased the need for high-speed networks.

In order to address challenges associated with the lack of high-speed access, adoption, and use, Connect Iowa is working to help communities identify their technology needs and opportunities. Bolstered by benchmarking data that has been gathered through Connect Iowa's mapping and market research, the Connected community program is drilling down to the regional and local levels to facilitate community technology planning. Through this program, regions and communities are aiming to accelerate the access, adoption, and use of technology toward creating a better business environment, more effective community and economic development, improved healthcare, enhanced education, and more efficient government. Essentially, Connect Iowa is helping communities create a forum and structure to take informed actions that help to:

- Improve a community's technology and broadband landscape.
- Identify a community's technology assets.



- Increase economic opportunity, education, healthcare, and e-government in a community.
- Connect a community to technology opportunities and partnerships.
- Leverage a community's existing technology innovations.
- Help a community make strides towards achieving goals outlined in the statewide strategic plan.

DETAILED FINDINGS

City of Indianola Assessment Findings

Today, residents in the City of Indianola (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 Indianola:

Broadband Providers	Technology Type	Website Reference
Airband Communications	Fixed Wireless	www.prairieinet.net
AT&T Mobile LLC	Mobile Wireless	www.wireless.att.com
CenturyLink	DSL	www.centurylink.com
Indianola Communication Agency	Fiber-to-the-home	www.mahaska.org
JAB Broadband	Fixed Wireless	www.jabbroadband.com
Mediacom	Cable	www.mediacomcc.com
Sprint	Mobile Wireless	www.sprint.com
T-Mobile	Mobile Wireless	www.t-mobile.com
U.S. Cellular	Mobile Wireless	www.uscellular.com/uscellular/index.jsp
Verizon Wireless	Mobile Wireless	www.verizonwireless.com/b2c/index.html

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

Organization Name	Website	Website Category
The Record Herald	www.indianolarecordherald.desmoinesregister.com	Business
Indianola Community Schools	www.indianola.k12.ia.us	Education
Indianola Municipal Utilities	www.i-m-u.com	Government
City of Indianola	www.indianolaiowa.gov	Government
The Indianola Tourism Committee	www.visitindianola.com	Tourism
Indianola Chamber of Commerce	www.indianolachamber.com	Tourism

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

Company Name	Website	Provider Type
EDJE Technologies	www.edje.com	Web Developer & Software Provider

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

Organization Name	Resource Type
Indianola Public Library	Public Computing Facility
Indianola Activity Center	Public Computing Facility
Adorn	Wireless Hotspot
Beauty is Aveda	Wireless Hotspot
Uncommon Grounds	Wireless Hotspot

Connected Summary

Community Technology Scorecard Community Champion: Chelle Klootwyk Community Advisor: Amy Kuhlert, Nichole Warren			
FOCUS AREA	ASSESSMENT CRITERIA	COMMUNITY SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	10	10
	Broadband Speeds	5	5
	Broadband Competition	5	5
	Middle Mile Access	6	10
	Mobile Broadband Availability	10	10
	TOTAL ACCESS SCORE	36	40
ADOPTION	Digital Literacy	10	10
	Public Computer Centers	10	10
	Broadband Awareness	10	10
	Vulnerable Population Focus	6	10
	TOTAL ADOPTION SCORE	36	40
USE	Economic Opportunity	10	10
	Education	10	10
	Government	10	10
	Healthcare	10	10
	TOTAL USE SCORE	40	40
COMMUNITY ASSESSMENT SCORE		112	120



ACCESS Score Breakdown

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

- **According to the October 2012 data collected by Connect Iowa, 100% of residents in the City of Indianola had access to broadband speeds of 3 Mbps or greater.**

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

- **According to the October 2012 data collected by Connect Iowa, 75% of residents in the City of Indianola had access to broadband speeds of 50 Mbps.**

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

- **According to the October 2012 data collected by Connect Iowa, 100% of residents in the City of Indianola had access to more than one broadband provider.**

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

- **The City of Indianola is served by 1 middle mile fiber provider.**

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

- **According to the October 2012 data collected by Connect Iowa, 99% of residents in the City of Indianola had access to mobile broadband service.**



ADOPTION Score Breakdown

Digital Literacy (10 out of 10 Points Possible) – is measured by first identifying all digital literacy programs in the community. Once the programs have been 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
Indianola Public Library	4 session introductory computer classes	32
Vintage Hills Retirement Community	Watermark University, various computer courses for senior residents	varies

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

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Indianola Public Library	60	10	600
Indianola Activity Center	45	8	360

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

Organization Name	Campaign Description	Community Reach
City of Indianola/IMU	"Technology Working for You" article	95%
IMU	Customer Appreciation Event	95%

Vulnerable Population Focus (6 out of 10 Points Possible) – A community tallies each program or ability within the community to encourage technology adoption among vulnerable groups. Methods of focusing on vulnerable groups may vary, but explicitly encourage technology use among vulnerable groups. Example opportunities include offering online GED classes, English as a Second Language (ESL) classes, video-based applications for the deaf, homework assistance for students, and job-finding assistance. Communities receive points for each group on which they focus. Groups may vary by community, but include low-income, minority, senior, children, etc. A listing of programs focusing on vulnerable populations in the City of Indianola is listed below.

Organization Name	Program Description	Vulnerable Group
We Lift	Job search assistance, resume writing	Unemployment
Indianola Public Library	Job assistance - access point for IWD	Unemployment
Indianola Activity Center	Job assistance - access point for IWD	Unemployment
Iowa State Ext. Office	Small Business Consulting	Low income & Minority



USE Score Breakdown

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

Application Provider	Description	Basic / Advanced
WCEDC	Initiative to spur innovation within the community (campaign #3)	Advanced
ISED	Program to help small-medium businesses with Technology	Advanced
SourceLink	Online database for resources and funding opportunities for local businesses	Advanced
Community Bank	Free online banking for consumers and businesses	Basic
Chamber of Commerce	Local attractions online	Basic
City of Indianola	Online portal for the promotion of local attractions & events	Basic
Farm Service Agency - USDA	Online agriculture and farming information	Basic

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

Application Provider	Description	Basic/ Advanced
Indianola CSD	100% of schools have online interaction with parents via webpage	Advanced
Indianola CSD	100% of 6 - 12 students & parents have online access to grades/homework	Advanced
Discovery Tool	Online catalog for community library	Advanced
Indianola CSD	90% of 12th graders with digital literacy skills	Advanced

Indianola CSD	100% of libraries connected to Internet via broadband	Basic
Indianola CSD	100% of classrooms connected to Internet via broadband	Basic

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

Application Provider	Description	Basic/Advanced
Citizen Action Center	Online city services	Advanced
GovQA	Internal online work order system	Advanced
SSL VPN connections	Promoting & expanding teleworking in government sector	Advanced
Broadband use in IMU Vehicles	Presence of mobile government applications	Advanced
cityofindianola.gov	50% of essential government services online	Advanced
i-m-u.com	Local government website	Basic

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

Application Name	Description	Basic/Advanced
EMR	Electronic Medical Records - Telemedicine	Advanced
Iowa Rural Health Telecommunications Program Network	Works with communities to leverage existing fiber facilities	Advanced
Allscripts & EMR	75% of doctors using e-health	Advanced
www.mercydesmoines.org	Online listing of healthcare professionals	Basic
www.dia.iowa.gov/food	online restaurant health inspection scores	Basic
Vintage Hills Retirement Community	Assisted living facility providing Wi-Fi to residents & visitors	Basic
http://www.hy-vee.com/health/pharmacy/default.aspx	Manage prescriptions online	Basic



Current Community Technology Developments

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 Indianola:

- The Indianola Sustainability Committee hosts an annual e-cycling day, allowing all Indianola residents to recycle electronics at no cost.
- The Indianola Chamber of Commerce is in conversation with Google on hosting an event to help Indianola small businesses develop websites for free.

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 2012 depict a geographic representation of provider-based broadband data represented by cable, DSL, fiber-to-the-home, fixed wireless, and mobile wireless services. These maps also incorporate data such as political boundaries and major transportation networks in the state. Vertical assets that can be utilized for broadband network facilitation or transmission were added to the interactive mapping application in October 2012. Statewide broadband maps can be found at: <http://www.connectiowa.org/mapping/state>. And county-specific maps and data can be found at: http://www.connectiowa.org/community_profile/find_your_county/iowa/warren.

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 of Served Households by Speed Tier
At Least 768 Kbps/200 Kbps	25	1,197	97.98%
At Least 1.5 Mbps/200 Kbps	31	1,191	97.50%
At Least 3 Mbps/768 Kbps	68	1,154	94.47%
At Least 6 Mbps/1.5 Mbps	205	1,016	83.21%
At Least 10 Mbps/1.5 Mbps	230	992	81.18%
At Least 25 Mbps/1.5 Mbps	892	329	26.94%
At Least 50 Mbps/1.5 Mbps	1,000	221	18.10%
At Least 100 Mbps/1.5 Mbps	1,181	41	3.35%
At Least 1 Gbps/1.5 Mbps	1,222	0	0%

Source: *Connect Iowa, October, 2012*

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, based on the 2010 Census, is 1,221,576, for a total population of approximately 3,046,355 people. Table 1 indicates that 97.98% of households are able to connect to basic broadband service at speeds of at least 768 Kbps download/200 Kbps upload. 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 24,723 households in the fall of 2012. Further, approximately 1,153,979 households across Iowa have broadband available of at least 3 Mbps download/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 83.21%.

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 speeds of 768 Kbps download/200 Kbps upload or higher. This leaves 92 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 2012 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, which should be taken into consideration when analyzing the data. This measurement error will decrease as local, state, and federal stakeholders identify areas where the displayed coverage is underestimated or overestimated. Connect 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 Map. The National Broadband Map can be found here: <http://www.broadbandmap.gov> and the specific page for analyzing Iowa's data can be found here: <http://www.broadbandmap.gov/summarize/state/iowa>.

Connect Iowa also maintains an interactive version of their broadband inventory maps, My ConnectViewTM, available at: <http://www.connectiowa.org/interactive-map>.

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? And, 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 revealed the following key findings:

- Across Iowa, four out of five adults (80% or approximately 1.85 million residents) have a computer, and more than three out of five adults (63% or approximately 1.46 million) subscribe to home broadband service.
- Only 38% of Iowa residents with annual household incomes below \$25,000 subscribe to home broadband service, far below the state average.
- Nearly one-third of Iowa adults (32%) use mobile broadband, representing approximately 741,000 mobile users statewide.
- 57% of Iowa households with children report that their children use home Internet service for schoolwork.
- Only 27% of Iowa residents age 70 or older subscribe to home broadband service, compared to a statewide average of 63%. This means that approximately 260,000 Iowa residents who are 70+ years old do not benefit from the opportunities provided by home broadband service.
- 41% of Iowans with Internet access utilize e-Learning applications.
- Across the state, more than two out of five Iowans (44%) go online to access e-Health applications, while 6% use smartphones to access e-Health applications.
- Approximately 91,000 rural Iowans with disabilities are using e-Health tools to stay connected to their doctors and access the latest medical information.
- Nearly two-fifths (39%) or approximately 720,000 Iowans search or apply for jobs online.
- Rural Internet users are significantly less likely to use the Internet to search or apply for jobs. Forty-two percent (42%) of non-rural Iowa Internet users search or apply for jobs online, while only 35% of rural Iowa Internet users search or apply for jobs.
- More than one-half of adults with annual household incomes of less than \$25,000 (53%) go online and search or apply for jobs.

For more information on the statewide information described, visit the Connect Iowa website at www.connectiowa.org.



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

- Across Iowa, 73% of businesses subscribe to broadband service.
- Iowa business establishments that use broadband report median annual revenues that are approximately \$300,000 higher than businesses that do not use broadband.
- Online sales in Iowa account for approximately \$2.9 billion in annual sales revenue.
- 21,000 businesses in Iowa allow employees to telework, including 11,000 small businesses with fewer than five employees.
- 43,000 businesses in Iowa have websites, including 21,000 rural Iowa businesses.
- Nearly four out of five businesses in Iowa (79%) use the Internet to stay in touch with their customers and clients.
- 26,000 of the rural businesses in Iowa sell or advertise their products online.

Analyzing Iowa's Broadband Infrastructure and Business and Technology Assessments

Iowa broadband availability and adoption estimates were analyzed and presented as part of an initial working report titled *Iowa Broadband: Current Market Analysis & Initial Recommendations for Acceleration of Iowa's Broadband Market* which was released in September 2010. This report analyzes this complementary demand- and supply-side research and explores external factors, such as the impact of the federal Universal Service Fund (USF) and the policy implications of the Federal Communication Commission's (FCC) National Broadband Plan (NBP). Following the spirit of the NBP and based on the broadband availability and adoption data collected by Connect Iowa, the report proposes a series of policy recommendations aimed to spur discussion and feedback among key stakeholders across Iowa. This report is available at: <http://www.connectiowa.org/sites/default/files/connected-nation/iowa/connectiowabroadbandanalysis082010final.pdf>.

Other reports that have been compiled by Connect Iowa include:

Broadband and Business. Leveraging Technology in Iowa to Stimulate Economic Growth, May 2011: http://www.connectiowa.org/documents/IA_BizWhitePaper_FINAL.pdf

Technology Adoption among Iowa Businesses, May 2012:
http://www.connectiowa.org/sites/default/files/learn-sidebar-docs/ia_biz_2012.pdf

Iowa's Silent Generation: Resilient, More Experienced, but Disconnected, February 2012:
http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/iowa_elderly_technology_adoption.pdf



Broadband: Empowering Iowa's Workforce, July 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_online_jobs.pdf

Broadband Expanding Access to Healthcare in Iowa, August 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_ehealth_final.pdf

Broadband: Boosting Education in Iowa, September 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_elearning.pdf

Small Businesses – Using Broadband to Spur Iowa's Economy, October 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_small_biz.pdf

RECOMMENDED ACTIONS

This project has culminated in the outlining of projects to identify the needs of the community with regard to access, adoption, and use of broadband. Connect Iowa recommends the following actions:

ACCESS: Recommended Actions

Broadband Availability

1. Develop Public-Private Partnerships to Deploy Broadband Service

Public-private partnerships take many forms, limited only by the imagination and legal framework in which the municipality operates. Some communities issue municipal bonds to fund construction of a network, which they lease to private carriers, with the lease payments covering the debt service. Others create non-profit organizations to develop networks in collaboration with private carriers or provide seed investment to jumpstart construction of networks that the private sector is unable to cost-justify on its own.

A public-private partnership should not be simply seen as a method of financing. The strength of these partnerships is that each party brings something important to the table the other doesn't have or can't easily acquire. The community can offer infrastructure (publicly-owned building rooftops, light poles, towers, and other vertical assets for mounting infrastructure) for the deployment of the system, as well as committed anchor tenants. Private-sector partners bring network-building and operations experience.

Benefits:

- The public sector transfers much of the risk for private investment. For example, the public sector has many funding tools available, including incentivizing continued investment through tax credits, encouraging greater availability of private capital through government guaranteed loans, or government being a direct source of capital through loans or grants.
- The partnership can aggregate demand and reduce barriers to deployment. By working together, public and private parties can educate and build awareness needed for the public to better integrate the use of broadband into their lives, thereby improving the business case for broadband deployment.
- A good partnership concentrates investment on non-duplicative networks and aims to ensure that all residents have access to adequate broadband service.

2. Study and Possibly Reassess Major Telecom Purchase Contracts

Demand for broadband capacity across community institutions represents a key segment of the overall demand for broadband in many communities. The purchasing power of this collective should be leveraged to help promote greater competition in the broadband market and drive increased investment in backhaul and last mile broadband capacity.

Benefits:

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

Broadband Speeds

No recommended actions.

Broadband Competition

No recommended actions.

Middle Mile Access

3. Perform a Broadband Build-out Analysis in Unserved Areas

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

Wireless may be the best likely solution. To assist with that, you should conduct a visual assessment of the vertical assets (broadcast towers and water tanks) to determine the feasibility of deploying a fixed wireless broadband Internet system in the unserved community and to gather site-specific information required for that purpose.

Benefits:

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

Mobile Broadband Availability

No recommended actions.

ADOPTION: RECOMMENDED ACTIONS

Digital Literacy

No recommended actions.

Public Computer Access

No recommended actions.

Broadband Awareness

No recommended actions.

Vulnerable Population Focus

4. 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.

Benefits:

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

5. Purchase Low-Cost Computers Via the Connect2Compete Program

Connect2Compete (C2C) is a national nonprofit organization designed to help narrow the digital divide by making high-speed Internet access, computers, education and jobs content, and

digital literacy training more accessible for Americans without home connectivity. Connect2Compete will help Americans access technology through: free digital literacy training, discounted high-speed Internet, and low-cost computers. The program will expand to all 50 states in January 2013.

Connect2Compete will implement the following broadband, PC, and digital literacy offerings:

- Multiple cable providers are offering discounted Internet service at \$9.95.
- Computers will be available for purchase for two price points - \$150 for a refurbished computer and \$250 for new computers from Microsoft.

Through a partnership with Best Buy's Geek Squad and America's public libraries, Connect2Compete will offer in-person digital literacy training in communities nationwide and free online digital literacy training.

Eligibility:

At this time, families with a child enrolled in one of the selected pilot schools and receiving free school lunch are eligible for the \$9.95 Internet and low-cost computer offerings. In addition, for the Internet offer only, eligible families must not have subscribed to cable Internet within the last 90 days of signing up for C2C and cannot have any outstanding debt or unreturned equipment with the cable company. Families eligible for C2C will receive the reduced-price Internet for 2 years as long as they remain continuously subscribed to the Internet service. However, the computer is the family's to keep. Eligible families will be able to apply online at www.Connect2Compete.org or by phone.

6. Initiate a Community Computer Refurbishment Program

The first step in establishing computer refurbishing is recruiting community members to sanitize old computers and install new software. There are several target groups for performing refurbishments: community volunteers, high school and college students, and prison inmates. Community computer refurbishing provides an opportunity for volunteers and students to gain valuable new skills and training that can be used for career enhancement, and in some cases earn credits for school or college, while reinvesting in their community. Communities also have the option of using prison inmates to refurbish computers so that they leave prison with some valuable job skills.

There are also established residential recycling programs that your community can take advantage of. For example, [Dell's Reconnect program](#) is a residential computer recycling program that offers a convenient way to recycle your used computer equipment. You can drop off any brand of used equipment at participating Goodwill donation centers in your area. It's

free, and participants receive a receipt for tax purposes. To view a full list of acceptable products and locations, visit the [Dell Reconnect](#) website.

Computer recycling is also good for the environment. Explore these additional resources for computer recycling and refurbishment.

- [Earth 911](#)
Earth 911 is a comprehensive communication medium for the environment. Earth 911 has taken environmental hotlines, websites, and other information sources nationwide, and consolidated them into one network. Once you contact the Earth 911 network, you will find community-specific information on eCycling and much more.
- [Electronic Industries Alliance's Consumer Education Initiative](#)
The Electronic Industries Alliance's eCycling Central website helps you find reuse, recycling, and donation programs for electronics products in your state.

7. Establish a "Community Technology Academy"

Develop a partnership between libraries, community centers, churches (places with computer labs for public use) and schools, community colleges and universities (places with subject matter experts) to develop a "Community Technology Academy." Providers, local businesses, and community volunteers may be included to provide financial and/or in-kind support for the program. Academy curriculum should include basic training in areas such as "Introduction to Computers," "Internet Basics," social networking, using communication technologies, and the use of applications such as Microsoft Office, OpenOffice, or Google Docs.

Benefits:

- Creates a more digitally literate and competent populace.
- Develops community's human capital.

8. Create a Technology Mentorship Program

Initiate a program designed to recruit local high school or college students who excel in school and exhibit advanced leadership and technology skills to assist in technology training, technical support, and outreach efforts in their communities. Recognizing students as a powerful resource for local outreach efforts, the program will challenge students to extend their technology experiences beyond the classroom. The program essentially taps into a technology knowledge base that exists through these exceptional students. Students will be required to develop programs such as training seniors to use computers, initiating a computer refurbishing program, offering basic computer training for local communities, building websites, etc.

Benefits:

- The program helps students develop self-confidence and technical competencies as they work with their families, leaders, peers, neighbors, seniors, and other members of their communities. In addition to empowering these students with real-world experience, it helps enhance their skills as they mature into productive and highly competent citizens.
- It helps to build character by awarding students opportunities to give back to their communities and embrace responsibilities associated with community service.
- The program will engage students who are creative, knowledgeable, and interested in technology as a great resource for planning, implementation, support, and using technology at a local level. With guidance and support, they will help to provide a missing, and important, link between the members of a community who have experience with broadband technology and those who are currently not using it.
- The program will expose students to potential career paths and provide a basis to determine if they want to further their educations in a technology field. It could also potentially provide a beginning client base from the relationships he or she has built within the community as a student.

USE: RECOMMENDED ACTIONS

Economic Opportunity

No recommended actions.

Education

9. Improve Education through Digital Learning

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

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



CFY also provides onsite training to show teachers how to integrate PowerMyLearning into their classrooms.

Benefits:

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

Government

No recommended actions.

Healthcare

No recommended actions.



APPENDIX 1: 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. To better facilitate the expanded role, key state partnership was transferred to the Iowa Economic Development Authority in 2011. 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. Ground-breaking economic growth strategies focusing on cultivating start-up companies and helping existing companies become more innovative complement the activities 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 (SBI) implements the joint purposes of the Recovery Act and the Broadband Data Improvement Act, which envisioned a comprehensive program, led by state entities or non-profit organizations working at their direction, to facilitate the integration of broadband and information technology into state and local economies. Economic development, energy efficiency, and advances in education and healthcare rely not only on broadband infrastructure, but also on the knowledge and tools to leverage that infrastructure.

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 2: WHAT IS CONNECTED?

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

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

Connected Certification Process



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

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

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

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

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

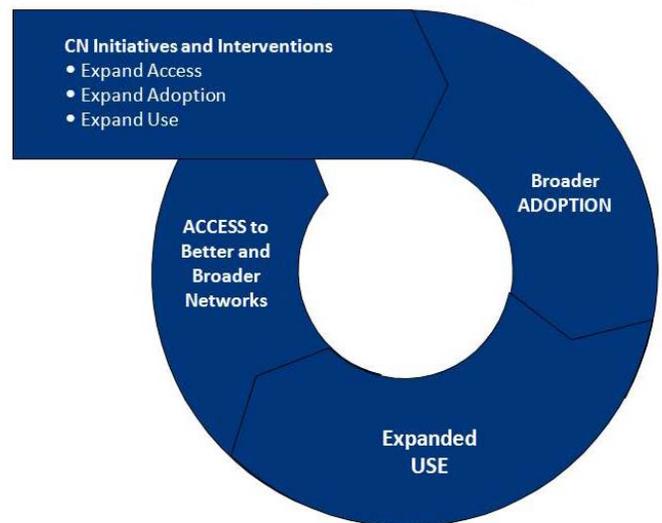
Step 3: Action Planning & Implementation.

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

Step 4: Project Success and Expanded Local Empowerment.

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

Broadband Catalysts for Change





APPENDIX 3: LINKS TO MAPS AND REPORTS

Creating accurate broadband maps is one of the first steps to promoting access, adoption, and use of broadband across the state. The Connect Iowa mapping initiative is working closely with multiple broadband providers from across the state to develop a variety of broadband inventory maps. Currently, broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream.

These maps, which contain data in beta version, highlight where broadband is and is not available in the state, a key component in promoting access, adoption, and use of broadband.

Map Title: *Broadband Service Inventory for the State of Iowa, Advertised Speeds of at Least 768 Kbps Downstream and 200 Kbps Upstream*

This map depicts a geographic representation of provider-based broadband data represented by cable, DSL, fiber-to-the-home, fixed wireless, and mobile wireless services. This map also incorporates data such as political boundaries and major transportation networks in the state.
http://www.connectiowa.org/connectednationftp/iowa/Statewide_Maps/IA_Statewide_Broadband.pdf

Map Title: *Broadband Service Inventory for the State of Iowa, Advertised Speeds of at Least 3 Mbps Downstream and 768 Kbps Upstream*

This map depicts a geographic representation of provider-based broadband data represented by cable, DSL, fiber-to-the-home, fixed wireless, and mobile wireless services with advertised speeds of at least 3 Mbps downstream and 768 Kbps upstream. The advertised speed threshold is the closest match to the threshold presented in the National Broadband Plan.
http://www.connectiowa.org/connectednationftp/iowa/Statewide_Maps/IA_Statewide_Broadband3M.pdf

Map Title: *Density of Households Unserved by a Broadband Provider, by Census Block*

This presentation of data uses the smallest geographic region that the U.S. Census acknowledges, the Census Block, and the broadband data to create a representation of how many households per square mile do not have service available in any give Census Block.
http://www.connectiowa.org/connectednationftp/iowa/Statewide_Maps/IA_Statewide_Density.pdf

Map Title: *Maximum Residential Broadband Download Speed*

This map depicts providers' maximum advertised download speed by speed tier across the state. The inclusion of maximum advertised speed data is a refinement made possible to the state by its participation in the SBI program.

http://www.connectiowa.org/connectednationftp/iowa/Statewide_Maps/IA_Statewide_MaxDownloadSpeed.pdf

County Maps

The following maps are available at

http://www.connectiowa.org/community_profile/find_your_county/iowa/warren for all Iowa counties. Select the county name from the drop-down list.

- *Broadband Service Inventory*
- *Broadband Service Inventory (Advertised Speeds of at Least 3 Mbps Downstream and 768 Kbps Upstream)*
- *Density of Households Unserved by a Broadband Provider*
- *Maximum Advertised Download Speed*
- *Density of Providers*
- *Multiple/Single Platform*

For additional maps and other related information, visit:

<http://www.connectiowa.org/broadband-landscape>.

Interactive Map

Connect Iowa provides My ConnectView™, an interactive mapping application developed and maintained by Connected Nation, intended to allow users to create completely customized views and maps of broadband infrastructure across the state. The self-service nature of this application empowers 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>

Studies and Reports prepared by Connect Iowa

Iowa Broadband: Current Market Analysis & Initial Recommendations for Acceleration of Iowa's Broadband Market, September 2010:

<http://www.connectiowa.org/sites/default/files/connected-nation/iowa/connectiowabroadbandanalysis082010final.pdf>

Broadband and Business. Leveraging Technology in Iowa to Stimulate Economic Growth, May 2011: http://www.connectiowa.org/documents/IA_BizWhitePaper_FINAL.pdf



Technology Adoption among Iowa Businesses, May 2012:

http://www.connectiowa.org/sites/default/files/learn-sidebar-docs/ia_biz_2012.pdf

Iowa's Silent Generation: Resilient, More Experienced, but Disconnected, February 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/iowa_elderly_technology_adoption.pdf

Broadband: Empowering Iowa's Workforce, July 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_online_jobs.pdf

Broadband Expanding Access to Healthcare in Iowa, August 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_ehealth_final.pdf

Broadband: Boosting Education in Iowa, September 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_elearning.pdf

Small Businesses – Using Broadband to Spur Iowa's Economy, October 2012:

http://www.connectiowa.org/sites/default/files/connected-nation/iowa/files/ia_small_biz.pdf

To view 2011 Business Technology Survey results, featuring data from 800 businesses across the state, visit: <http://www.connectednation.org/survey-results/business>

To view 2011 Residential Technology Survey results, featuring data from 3,600 residents across the state, visit: <http://www.connectednation.org/survey-results/residential>

APPENDIX 4: GLOSSARY OF TERMS

#

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

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

A

ARRA - American Recovery and Reinvestment Act.

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

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

B

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

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

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

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

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

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

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

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

C

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

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

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

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

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

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

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

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

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

D

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

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

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

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

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

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

E

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

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

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

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

F

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

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

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

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.

J

K

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

L

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

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

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

Low Income - Low income is defined by using the poverty level as defined by the U.S. Census Bureau. A community’s low-income percentage can be found at www.census.gov.

M

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

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

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

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

N

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

NIST - National Institute of Standards and Technology.

O

Overbuilders - Building excess capacity. In this context, it involves investment in additional infrastructure project 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.

Q

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.