CITY OF WEBSTER CITY

TECHNOLOGY ACTION PLAN

PREPARED BY CONNECT IOWA

AND THE

CITY OF WEBSTER CITY

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TABLE OF CONTENTS

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 2012, 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 2012, Connected Nation also surveyed 7,004 businesses in 9 states. Based on this data, Connected Nation estimates that at least 1.8 million businesses - 24% - in the United States do not utilize broadband technology today.[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 *Consumer Broadband Adoption Trends*, Connected Nation, Inc., March 2013, http://www.connectednation.org/survey-results/residential
3 Connected Nation, *Broadband and Business: Leveraging Technology to Stimulate Economic Growth,* http://www.connectednation.org/survey-results/business
4 Connected Nation, parent company for Connect 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

Methodology

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

1. Empower a community team leader (local champion) to collaborate with 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. Matches gaps in the local broadband ecosystem to solutions and best practices being utilized by communities across the nation.
5. Pursue Connected Certification, a nationally recognized platform for spotlighting communities that excel in the access, adoption, and use of broadband.

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

CONNECTED ASSESSMENT

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

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

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

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

Analysis of Connected Assessment

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

- City of Webster City achieved a score of 113 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 city scored 40 out of a possible 40 points in broadband adoption primarily because of the numerous programs available to individuals in the city who may find it more difficult to access and use broadband, coupled with robust broadband awareness initiatives provided

through a variety of sources. Additionally, there are a large number of public computers available to the general population, and offerings of adult education classes on computer literacy.

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

Community Technology Scorecard

Community Champion: Ed Sadler
Community Advisor: Amy Kuhlers, Nichole Warren

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 10 Mbps	3	5
	Broadband Competition	95.0% 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	99.0% to 100.0% of households with access to mobile broadband	10	10
	ACCESS SCORE		**34**	**40**
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1000 residents over the past year	10	10
	Public Computer Centers	500 computer hours per 1000 low income residents per week	10	10
	Broadband Awareness	Campaigns reach 100% of the community	10	10
	Vulnerable Population Focus	At least 5 groups	10	10
	ADOPTION SCORE		**40**	**40**
USE	Economic Opportunity	3 advanced, 4 basic uses	10	10
	Education	5 advanced, 2 basic uses	10	10
	Government	3 advanced, 5 basic uses	10	10
	Healthcare	2 advanced, 5 basic uses	9	10
	USE SCORE		**39**	**40**
	COMMUNITY ASSESSMENT SCORE		**113**	**120**

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.

Itemized Key Findings

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

ACCESS

- 7 last-mile broadband providers currently provide service in City of Webster City:
    - 98-100% of households have access to 3 Mbps.
    - 75% of City of Webster City homes have access to 10 Mbps service.
    - At least 95% of City of Webster City households have access to more than 1 provider.
- Middle mile fiber infrastructure is available from 1 multiple provider in City of Webster City.
- 99% of City of Webster City households have access to mobile broadband.

ADOPTION

- 1 Digital Literacy Program exists in the community resulting in 115 graduates over the past year.
- 3 Public Computer Centers (PCC) with a total of 82 computers are open to the public.
- 11 Broadband Awareness Campaigns are reaching 100% of City of Webster City.
- 5 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 7 uses of broadband were identified in the area of education including 5 advanced uses and 2 basic uses.
- At least 8 uses of broadband were identified in the area of government including 3 advanced use and 5 basic uses.
- At least 7 uses of broadband were identified in the area of healthcare including 2 advanced use and 5 basic uses.

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

Technology Providers
- 7 broadband providers were identified in City of Webster City
- 1 web developer
- 4 other technology providers

Technology Facilities
- 3 public computing centers
- 7 wireless hotspots

Community Websites
- 1 Business-related website (excluding private businesses)
- 2 Education-related websites
- 4 Government-related websites
- 1 Healthcare-related website
- 1 Library-related website
- 1 Tourism-related website

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.

Promote Technology Adoption by Local Businesses

Promote Accessibility to Broadband

Fiber & Broadband Redundancy

Complete List of Recommended Actions

Below is a complete list of 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
1. Identify, Map, and Validate Broadband Demand

Broadband Competition – No recommended actions.

Middle Mile Access
2. Develop & Issue an RFP for Build-out

3. Study and Possibly Reassess Major Telecom Purchase Contracts

Mobile Broadband Availability – No recommended actions.

ADOPTION

Digital Literacy – No recommended actions.

Public Computer Centers – No recommended actions.

Broadband Awareness
4. Facilitate a Technology Summit

Vulnerable Population Focus – No recommended actions.

USE

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

Education
7. Improve Education through Digital Learning

Government
8. Pursue Next Generation 911 Upgrades

Healthcare
9. Promote Telemedicine in Remote Areas

DETAILED FINDINGS

Current Community Technology Developments

During the assessment process, the community identified projects that are currently in development or implementation. These projects are helping to enhance technology in City of Webster City. Webster City believes that it has a unique set of circumstances that give the community technology advantage over many rural communities of similar size. The City believes this can help expand its local economy, tourism, entrepreneurism, and overall quality of life. The City of Webster City has already identified and made a priority the following projects that are currently in development/early-stage implementation:

- Creation of a new city website that will improve the availability of online services and information to the community.
- Evaluation of online payment options that will provide affordable and secure alternatives for our community to make utility and other payments.

Additionally, the entire school district is putting iPads in the hands of students and staff. Also, they have been providing training to staff, including an in-service day for staff with 25 speakers to help with training, as well as how to incorporate this technology into lesson planning.

City of Webster City Assessment Findings

Today, residents in the City of Webster City (or sections of the community) are served by7 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 Webster City community:

Broadband Providers	Technology Type	Website Reference
AT&T Mobility LLC	Mobile Wireless	http://www.wireless.att.com
CenturyLink	DSL	www.centurylink.com
JAB Broadband	Fixed Wireless	www.jabbroadband.com
Mediacom	Cable	www.mediacomcable.com
US Cellular	Mobile Wireless	www.uscellular.com
Verizon Wireless	Mobile Wireless	http://www.verizonwireless.com/b2c/index.html
Woolstock Mutual Telephone	Fixed Wireless	www.wmtel.net

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

Organization Name	Website	Website Category
Webster City Chamber of Commerce	www.visitwebstercityiowa.com	Business
All Cultures Equal	www.allculturesequal.org	Education
Webster City Community Schools	http://www.webster-city.k12.ia.us/	Education
City of Webster City	www.webstercity.com	Government
Hamilton County Public Health	www.hamiltoncountypublichealth.com	Government
Hamilton County Public Health	www.hamiltoncounty.org	Government
Webster City Economic Development	www.buildwebstercity.com	Government
Van Diest Medical Center	www.hamiltonhospital.com	Healthcare
Kendall Young Library	www.kendall-young.lib.ia.us	Libraries
Webster City Chamber of Commerce	www.visitwebstercityiowa.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
Bigchappy Computers	www.bigchappy.com	Other Technology
Freebird Computers	www.freebirdcomputers.com	Other Technology
Nielsen Computer Service	www.nielsencomputer.com	Other Technology
Ron's Computer Services	No website	Other Technology
OHP Marketing	www.onholdpro.com	Web Developer

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
Iowa Central Community College	Public Computer Facility
Iowa Workforce Development	Public Computer Facility
Kendall Young Library	Public Computer Facility
Carpy's Ale House	Wireless Hotspot
City of Webster City	Wireless Hotspot
HyVee	Wireless Hotspot
McDonalds	Wireless Hotspot

Second Street Emporium	Wireless Hotspot
Super 8	Wireless Hotspot
Whoop-ti-doos & La-ti-Daas	Wireless Hotspot

Connected Assessment

Community Technology Scorecard				
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	USE SCORE		**39**	**40**
	COMMUNITY ASSESSMENT SCORE		**113**	**120**

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 April 2013 data collected by Connect Iowa, 100% of City of Webster City residents had access to broadband speeds of 3 Mbps or greater.**

Broadband Speeds (3 out of 5 Points Possible) – is measured by analyzing the speed tiers available within a community. Connected Nation will analyze broadband data submitted through its broadband mapping program. Specifically, Connected Nation will break down the coverage by the highest speed tier with at least 75% of households covered. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to the April 2013 data collected by Connect Iowa, 75% of City of Webster City residents had access to broadband speeds of 10 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 April 2013 data collected by Connect Iowa, 95-100% of City of Webster City residents 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.

- **City of Webster City is served by 1 or more middle mile fiber providers.**

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

- **According to the April 2013 data collected by Connect Iowa, 99% of City of Webster City residents had access to mobile broadband service.**

ADOPTION Score Breakdown

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

Organization Name	Program Description	Number of Grads
Iowa Central Community College	Learn to Earn Classes & Intro to Technology Classes	115

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 City of Webster City is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Iowa Central CC	55	62	3,410
Iowa Workforce/Iowa Central	39.5	10	395
Kendall Young Library	55	10	550

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 City of Webster City is below.

Organization Name	Campaign Description	Community Reach
Webster City Chamber of Commerce	Multiple, including Webster City "You'll Love It," Business "ADVentures," visitwebstercityiowa.com, promoted by radio & TV spots, Chamber is also doing How To Wow (lunch and learn type seminars), including topics like: "Making Sense of Twitter"	80%
All 3 local banks	Use paperless statements, online banking, online transactions, online account management, PopMoney programs (all are being advertised at times)	100%
Daily Freeman Journal	Online newspaper, job postings, online ads/classifieds	80%
Webster City	City website features online permit applications, emergency notices, online council agendas, online council meetings; city is going to launch new website that is more interactive in 2013	60%
Webster City Econ Dev	Online economic development website, information on available jobs, available properties, upcoming prof. dev. classes & more	60%
Get Online Iowa	Class held in Webster City, promoted via economic development websites, chamber site, radio and more	40%
Civic Organization Websites	For community events like RAGBRAI & Boone Bash, and for civic groups & activities. Advertised online, radio, TV, & in literature	80%
Hamilton County	Online property tax, licensing and other payments, advertised in renewal notices and on website	100%
Iowa Central	Courses listed and advertised online with online registration, promoted via radio, newspaper and more	60%
Healthcare	Hamilton County Public Health, Local Clinics	60%

	and Van Diest Med Center all online with info and resources	
ISU Ext/WebsterCity/SBDC/Etc	New business seminar with topics like digital marketing, computer financial programs, etc.	5%

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

Organization Name	Program Description	Vulnerable Group
Iowa Central Community College	Online GED Courses	Low Income, Minority, Deaf, Disabled, Senior
All Cultures Equal	Online GED Courses	Low Income, Minority
All Cultures Equal	Online ESL Courses	Low Income, Minority
Webster City Community Schools	Grades 5-12 have online access to student assignments, school files (remotely), and online courses	Children, Low Income, Minority
Iowa Workforce Development	Online Web Access to Job Portal, Job Assistance	Low Income, Minority, Unemployed
Webster City Community Schools	iPads for students and staff	Children, 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
Public Wifi	More than 1 Wi-Fi per 5,000 residents	Basic
Online Banking	Free online banking through all community banks	Basic
Virtual Employment Assistance	IWD virtual access point and designated computers at ICCC	Advanced
Funding Resources	Online information on grants, loans, forgivable loans and more at the Chamber and Econ. Dev. websites	Advanced
Small Business Technology & Innovation	Micro Enterprise Loan Program, which provides small and medium size businesses with access to low interest loans for tech, equip	Advanced
Online Tourism	www.visitwebstercityiowa.com	Basic
Agricultural Databases	Online ag databases through ISU extension with access also via local extension	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
Online Catalog for Community Library	Kendall Young Library has online catalog, plus even check out online books (downloads to e-readers, etc.)	Advanced
Library Automation	Kendall Young Library uses a library automation system	Basic
Classroom Access	All Webster City School classrooms connected to Internet	Basic
WCTV	Broadcasting (Online TV) by students - STEM focus	Advanced
Project Lead the Way	Online Pre-Engineering Coursework - STEM Focus	Advanced
Parental Access	All Webster City School Parents have online access to grades, assignments, lunch money accounts	Advanced
iPads for Students	Webster City Schools in process of giving all students and staff iPads	Advanced

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

Application Provider	Description	Basic/ Advanced
Webster City Municipal Website	Information on city, council agendas and council packets (documents, etc.), council meeting replays, permitting, etc.	Basic
Essential Government Services	Online permitting, online payment of taxes, online license renewals, property information, emergency announcements and more	Advanced
Mobile Economic Development Website/Mobile Econ Dev Applications	City Economic Development has an android application, plus a mobile friendly website	Advanced
Tip Soft	Webster City and Hamilton County Sherriff use an anonymous tip line that allows for mobile submission	Advanced
Corn Belt Power Cooperative	Municipal's Power Cooperative has a website available for businesses (Commercial & Industrial) to monitor energy demand	Basic
Boone Bash Website	Community Celebration Website for Major Annual Community Event - Registration Info, Event Info, Etc.	Basic
Blog	City of Webster City Blog (Info, News, Programs, Services and More)	Basic
Hamilton County Public Health	Website Available	Basic

Healthcare (9 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
Telemedicine at Van Diest Med Center	Send and receive radiological images and other medical records and information	Advanced
Access	Nursing homes and assisted living homes have computer access and wireless (Wi-Fi) available to all residents	Basic
Online Database	Hospital and local medical clinics maintain online databases listing out available healthcare professionals	Basic
Web Nursery	Van Diest Medical Center provides an online "web nursery" to follow new births	Basic
Training	Hospital staff receives some training via online classes/webinars	Advanced

Public Health	Hamilton County Public Health has website with online resources	Basic
Social Services (Managed Care)	Online website with staff directory and application for assistance	Basic

ACTION PLAN

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.

Promote Technology Adoption by Local Businesses

Description
Work with existing businesses to advance technology adoption and implementation.

Benefits
1. Expand access to new markets and customers.
2. Create opportunities for future job openings that require a higher tech workforce.

Action Items
1. Work with partner organizations and entities (ex. SBDC, CIRAS, etc.) to educate businesses on the adoption and deployment of new technologies to aid them in accessing new markets and customers.
2. Identify and make available existing and new programs that can assist new entrepreneurs and businesses in the creation of free websites, access to the cloud, and more.
3. Support local programs and workshops that educate retail businesses on the use of technology to expand their business' reach and promote Webster City as a destination for shoppers and tourist.
4. Workshops and other educational opportunities for businesses to see the importance of supporting the customer experience through use of technology.

Implementation Team
To be determined.

Promote Accessibility to Broadband

Description
Promote the addition of Wi-Fi hotspots in strategic places and businesses throughout Webster City.

Benefits
1. Increased access to broadband for both served and underserved populations.
2. An added customer service offering that can be a business advantage.
3. Creation of more opportunities for new entrepreneurs to network and innovate in creative spaces, such as coffee shops, restaurants, co-workspace, etc.

Action Items
1. Work with existing businesses and organizations to provide education value of free and fee broadband access to the community at-large.
2. Work with Wi-Fi hotspot providers to identify options and alternatives that will allow for more access throughout Webster City.

Implementation Team
To be determined.

Fiber & Broadband Redundancy

Description
Develop a redundant network of fiber optic and broadband services that support businesses with high capacity data needs.

Benefits
1. Provides local opportunities to host servers and data that support local businesses, especially those that have or will have a large online retail presence.
2. Adds to the marketability of Webster City as a location that can support businesses with above average technology needs, including data centers.

Action Items
1. Hold meetings with area broadband providers and businesses to determine existing business needs and service opportunities.
2. Identify opportunities to create redundancy, including using the City's existing fiber optic loop to create connections.
3. Identify grants and other funding sources that can assist in the expansion of the City's fiber networks to support rural development.

Implementation Team
To be determined.

Recommended Actions

ACCESS: Recommended Actions

Broadband Availability

No recommended actions.

Broadband Speeds

1. **Identify, Map, and Validate Broadband Demand**

Goal: To understand existing and potential markets for broadband subscribers (both residential and business)

Project Description: Develop a team to conduct research surveys and market analyses to validate a business case. A market analysis includes research on the existing and potential service offerings and the respective rates to determine the levels of interest in the services and rate plans offered by the client. The team should provide accurate, timely, and thorough solutions, accompanied by personalized service to meet the needs of communities or broadband providers.

Benefits:

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

Action Items:

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

Broadband Competition

No recommended actions.

Middle Mile Access

2. **Develop & Issue an RFP for Build-out**

Goal: To identify the most credible and reliable broadband provider to serve your region's households and businesses.

Project Description: An RFP (request for proposals) is a widely used technique for establishing a selection of qualified responses for which to choose when contracting for services. The RFP should provide a guidance and due diligence framework for interested broadband providers and vendors. Furthermore, the RFP should request that interested parties provide plans for cost-effective community broadband networks, including equipment lists, locations, and itemized engineering cost estimates. In addition, the completed design should include what technology will be needed at customer premises, the performance that can be expected, and recurring costs associated with operating and maintaining the system once it is in place.

Benefits:

- After completing an RFP, your community will have a good handle on the potential project risks, as well as benefits, associated with build-out.
- An RFP lets providers know that the situation will be competitive. The competitive bidding scenario is often the best method available for obtaining the best pricing and, if done correctly, the best value.

Action Items:

- Content: The RFP should include a project overview, background information, scope of work, and selection criteria. Additionally, the RFP should require that vendors provide a cover letter, a statement of project understanding, a business plan, a proposed project schedule, qualifications, references, and cost.
- Distribution: The RFP could be posted to the community's website. Alternatively, one method of efficiently distributing an RFP is to send out to a wide audience a one-page document announcing the availability of the full RFP. Vendors and consultants who are interested in your project can then contact you to obtain the full RFP.

3. Study and Possibly Reassess Major Telecom Purchase Contracts

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

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

Benefits:

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

Action Items:

- Develop partnerships between local high-capacity demand institutions, including local civic leaders, government entities, public safety agencies, libraries, hospital or clinics, and schools, in a coordinated effort to aggregate local demand needs for increased broadband capacity and service.

Mobile Broadband Availability

No recommended actions.

ADOPTION: RECOMMENDED ACTIONS

Digital Literacy

No recommended actions.

Public Computer Access

No recommended actions.

Broadband Awareness

4. Facilitate a Technology Summit

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.

Project Description: 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.

Action Items:

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

Vulnerable Population Focus

No recommended actions.

USE: RECOMMENDED ACTIONS

Economic Opportunity

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

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.

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

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

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

Benefits:

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

Action Items:

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

6. Establish a "Digital Factory"

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

Project Description: A digital factory is a hybrid between an employment agency and a co-working facility that connects residents with online training courses and connections with companies that lack a physical presence in the community. Digital factories provide office space, computer and broadband access, and conference space, as well training ranging from computer and digital literacy skills to computer programming.

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

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

For more information, visit: http://www.visionperry.com/.

Benefits:

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

Action Items:

- The digital factory concept requires a site suitable for establishing office infrastructure, educational partners to develop the workforce, and business relationships with enterprises willing to hire workers through the digital factory.
- Identify the physical, financial, and technological resources needed to establish a digital factory.
- Space to house workspace and training and support offices will be needed, as well as the equipment, such as computers and monitors for video conferencing and training.
- Develop partnerships with companies who would provide contractual employment to program graduates.
- This employment-focused program can be coupled with a digital literacy program, such as Connected Nation's Every Community Online program, in order to provide basic computer and Internet skills. Connected Nation provides a discounted, turnkey training lab solution, including refurbished or new computers, presentation equipment, training curriculum, and broadband service.

Education

7. Improve Education through Digital Learning

Goal: Increase student attention and engagement, and encourage students to take ownership of their learning and make it easier for teachers to differentiate instruction without embarrassing students.

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

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

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

8. Pursue Next Generation 911 Upgrades

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

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

For example, in January 2013, the Federal Communications Commission proposed to amend its rules by requiring all wireless carriers and providers of "interconnected" text messaging applications to support the ability of consumers to send text messages to 911 in all areas throughout the nation where 911 Public Safety Answering Points (PSAPs) are also prepared to receive the texts (which requires an IP-based system). Text-to-911 will provide consumers with enhanced access to emergency communications in situations where a voice call could endanger the caller, or a person with disabilities is unable to make a voice call. In the near term, text-to-911 is generally supported as the first step in the transition to a Next Generation 911.

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

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

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

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

Healthcare

9. Promote Telemedicine in Remote Areas

Goal: Deliver improved healthcare services to rural residents.

Project Description: Promote the delivery of healthcare services from a distance using video-based technologies. Telemedicine can help to address challenges associated with living in sparsely populated areas and having to travel long distances to seek medical care - particularly for patients with chronic illnesses. It also addresses the issue of the lack of medical specialists in remote areas by awarding access to specialists in major hospitals situated in other cities, states, or countries. While telemedicine can be delivered to patient homes, it can also be implemented in partnership with local clinics, libraries, churches, schools or businesses that have the appropriate equipment and staff to manage it. The most critical steps in promoting telemedicine are ensuring that patients and medical professionals have access to broadband service, understand the main features of telemedicine, are aware of the technologies required for telemedicine, and understand how to develop, deliver, use, and evaluate telemedicine services.

One relevant funding opportunity includes Distance Learning and Telemedicine Loans and Grants Program. USDA provides loans and grants to rural community facilities (e.g. schools, libraries, hospitals, and tribal organizations) for advanced telecommunications systems that can provide healthcare and educational benefits to rural areas. Three kinds of financial assistance are available: a full grant, grant-loan combination, and a full loan.

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 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 April 2013. 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/hamilton.

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	22	1,200	98.23%
At Least 1.5 Mbps/200 Kbps	30	1,191	97.50%
At Least 3 Mbps/768 Kbps	63	1,158	94.81%
At Least 6 Mbps/1.5 Mbps	234	988	80.87%
At Least 10 Mbps/1.5 Mbps	262	959	78.54%
At Least 25 Mbps/1.5 Mbps	858	363	29.72%
At Least 50 Mbps/1.5 mbps	992	229	18.77%
At Least 100 Mbps/1.5 Mbps	1,174	48	3.93%
At Least 1 Gbps/1.5 Mbps	1,222	0	0%

Source: *Connect Iowa, May 2013*

Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband service inventory (excluding mobile and satellite service) across the state of 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 98.23% 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 21,571 households in the spring of 2013. Further, approximately 1,158,167 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 80.87%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.99% of Iowa households have broadband available from at least one terrestrial provider at speeds of 768 Kbps download/200 Kbps upload or higher. This leaves 91 households in the state completely unserved by any form of terrestrial broadband (including mobile, but excluding satellite services).

As differences in broadband availability estimates between the fall of 2010 and the spring of 2013 show, additional participating broadband providers can have a large impact upon 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 ConnectView™, 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 collected. The most recent residential technology assessment conducted in 2012 revealed the following key findings:

- Broadband adoption in Iowa increased by 8 percentage points between 2011 and 2012.
- Approximately 680,000 Iowans still do not subscribe to home broadband service. In fact, more than a quarter of a million Iowan adults do not use the Internet at all.
- More than three out of ten (31%) or 110,000 rural Iowans cite relevance as their main barrier to broadband adoption, while nearly one-fifth (19%) or 66,000 cite cost as their biggest barrier.
- Nearly 210,000 Iowans rely on places other than their homes to access the Internet. Adults without a college education are much more likely to rely on their local library to access the Internet than college-educated adults.
- Approximately 220,000 Iowans work at home instead of commuting, commonly referred to as teleworking.
- The main reason cited by over 260,000 Iowa adults who subscribe to mobile broadband on their cell phones is for the freedom of being able to access the Internet while they are away from home. In addition, 15% of Iowans who subscribe to broadband service at home and on their cell phones say that they use their home broadband service less often as a result of subscribing to mobile broadband.
- Minority residents in Iowa that use the Internet access social networking (74%), conduct e-Learning (47%), and search or apply for jobs (45%) more frequently than Caucasians.
- Approximately 936,000 Iowans go online to search for medical information, or communicate with healthcare professionals like doctors or insurance offices.
- Approximately 281,000 Iowa adults use the Internet at a library or at school
- Nearly six out of ten Iowa households with children (58%) say their children use home Internet service for their schoolwork.

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

Minority Iowans: Adopting and Using Broadband
http://www.connectiowa.org/sites/default/files/connected-nation/Iowa/files/ia_minority_report.pdf

Iowa Businesses Benefiting from Broadband
http://www.iasourcelink.com/blog/iowa-business-blog/2013/05/14/iowa-businesses-benefitting-from-broadband

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. 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 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 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 Webster City 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.

Broadband Catalysts for Change

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.
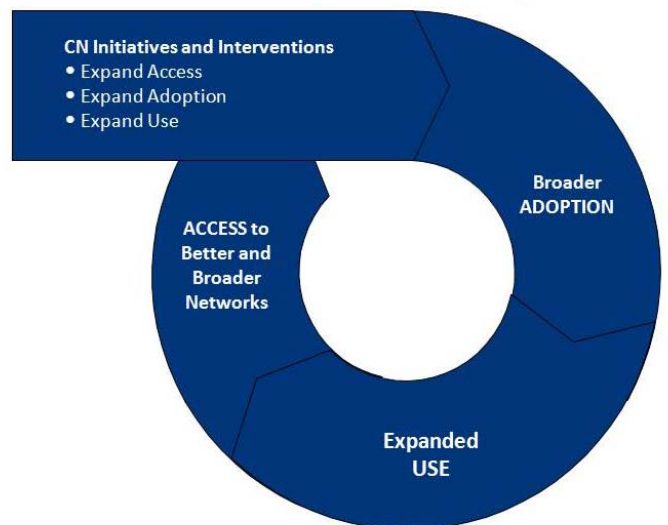
APPENDIX 5: GLOSSARY OF TERMS

#

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. Mutiplexing, 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.