



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

# EUREKA COUNTY

---

## TECHNOLOGY ACTION PLAN

PREPARED BY CONNECT NEVADA  
AND THE  
EUREKA COUNTY BROADBAND COMMITTEE



AUGUST 7, 2013



ACCESS



ADOPTION



USE



## TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>3</b>
BACKGROUND .....	3
METHODOLOGY.....	6
<b>CONNECTED ASSESSMENT</b> .....	<b>7</b>
ANALYSIS OF CONNECTED ASSESSMENT.....	7
ITEMIZED KEY FINDINGS .....	9
PRIORITY PROJECTS .....	10
COMPLETE LIST OF RECOMMENDED ACTIONS.....	10
<b>DETAILED FINDINGS</b> .....	<b>13</b>
EUREKA COUNTY ASSESSMENT FINDINGS .....	13
CONNECTED ASSESSMENT .....	15
<b>ACTION PLAN</b> .....	<b>21</b>
PRIORITY PROJECTS .....	21
RECOMMENDED ACTIONS.....	25
<b>APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND</b> .....	<b>52</b>
STATEWIDE INFRASTRUCTURE.....	52
<b>APPENDIX 2: PARTNER AND SPONSORS</b> .....	<b>55</b>
<b>APPENDIX 3: THE NATIONAL BROADBAND PLAN</b> .....	<b>57</b>
<b>APPENDIX 4: WHAT IS CONNECTED?</b> .....	<b>58</b>
<b>APPENDIX 5: GLOSSARY OF TERMS</b> .....	<b>60</b>

---

## 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.”<sup>1</sup>

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

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

---

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 Nevada, 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

### **Geographic/Demographic Information**

Eureka County was founded in 1873 from land derived from Elko, Lander, and White Pine counties. There are three established communities in the County: Eureka (designated as the County Seat), Crescent Valley, and Beowawe. The town of Eureka was first settled in 1865 after the discovery of a rich ore deposit in the area. The Town of Crescent Valley became a residential community after attempts to farm alfalfa and operate a dude ranch failed. It has become a haven for those seeking a friendly, comfortable lifestyle in northern Eureka County. Beowawe, a small community located on the Humboldt River near Crescent Valley, was originally established as a supply point, or gateway, for the mining districts in the area. Today, the Union Pacific Railroad still passes through the center of Beowawe.

Eureka County is one of the few Nevada counties traversed by Interstate 80, U.S. highway 50, and the mainline Union Pacific rail lines. The county has a total area of 4,176 square miles. Based on the 2010 U.S. Census, the county's population density is about 0.5 persons per square mile. A majority of the residents live in the unincorporated town of Eureka located in the southeastern corner of the county. The rest are in Crescent Valley and Beowawe, located in the northern part of the county. About 88% of the county's population is 25 years or older and are high school graduates, and 23% have at least a bachelor's degree. Worker's travel time to the workplace averages 17.2 minutes.

The County's per capita income in the past 12 months was \$29,996, while median household income was at \$61,908. Based on the 2011 Census estimates, about 15.3% of the population is said to be living below the poverty level - 24% of those are under the age of 18, and 13.4% are persons 65 years of age and over.

Further, Census estimates show that there are 1,069 housing units in the county, of which 74% are owned with a median home value of approximately \$103,400. The average number of households in the county is estimated at 719, with an average of 2.42 persons per household. Two-thirds of the housing stock in Eureka County is composed of mobile homes, and it will likely remain this way because of its affordability, the lack of available mortgage financing in the county, and the apparent demand for short term housing options associated with the mining industry.

---

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

U.S. Census QuickFacts	Eureka County	Nevada
<b>People</b>		
2012 Population Estimates	2,001	2,758,931
Persons under 5 years, percent 2011	6.6%	6.8%
Persons under 18 years, percent 2011	24.0%	24.4%
Persons 65 years and over, percent 2011	13.4%	12.5%
High School Graduate: 25+years old, percent (2007-2011)	88.2%	84.2%
Bachelor's Degree or higher, percent (2007-2011)	22.6%	22.2%
Mean Travel time to work, workers 16+ yrs minutes (2007-2011)	17.2	23.6
Housing Units 2011	1,069	1,183,873
Homeownership Rate (2006-2010)	73.7%	59.1%
Housing Units in multi-unit structures, percent (2007-2011)	4.8%	29.6%
Median value of owner-occupied housing units (2007-2011)	\$103,400	\$225,400
Living in same house 1 year & over percent (2007-2010)	94.0%	78.2%
Households (2007-2011)	719	986,741
Persons per household (2007-2011)	2.42	2.67
Per capita money income in past 12 months, dollars (2011)	\$29,996	\$27,625
Median household income, dollars (2007-2011)	\$61,908	\$55,553
Persons below poverty level, percent (2007-2011)	15.3%	12.9%
<b>Business</b>		
Private nonfarm establishments 2011	41	58,777
Private nonfarm employment 2014	0	1,006,810
Private nonfarm employment percent change (2010-2011)	N/A	-0.2%
Non employer establishments 2010	110	177,181
Building Permits, 2011	0	9,071
<b>Geography</b>		
Land area in square miles 2010	4175.68	109,781.18
Persons per square mile 2010	0.5	24.6

Source: U.S. Census Bureau State & County QuickFacts

### Employment and Economic Activity

The mining industry essentially built Eureka in the 1800s, and it is still the major economic activity in the county. Over 80% of the jobs are in mining. However, a study conducted by the University of Nevada, Reno Center for Economic Development showed a downward trend in mining production, and a saturation point may be reached in 2018 unless new reserves are discovered.

Meanwhile, agriculture, which only accounts for 4% of economic activity, and government (5% share) have been steady bases of employment for the county.

## Methodology

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

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

---

## CONNECTED ASSESSMENT

---

The Connected Assessment framework is broken into 3 areas: **ACCESS**, **ADOPTION**, and **USE**. Each area has a maximum of 40 points. To achieve Connected certification, the community must have 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.



<b>Community Technology Scorecard</b> Community Champions: Mike Rebaleati Community Advisor: Ariel Martinez				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	<70% of homes have access to 3 Mbps	0	10
	Broadband Speeds	75% of households with access to less than 3 Mbps	0	5
	Broadband Competition	<60% of households with access to more than 1 broadband provider	0	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99.0% to 100.0% of households with access to mobile broadband	10	10
	<b>ACCESS SCORE</b>			<b>20</b>
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1,000 residents over the past year	10	10
	Public Computer Centers	500 computer hours per 1,000 low income residents per week	10	10
	Broadband Awareness	Campaigns reach 40% of the community	4	10
	Vulnerable Population Focus	1 group	2	10
	<b>ADOPTION SCORE</b>			<b>26</b>
USE	Economic Opportunity	2 advanced uses, 1 basic use	5	10
	Education	3 advanced uses, 1 basic use	7	10
	Government	2 advanced, 0 basic uses	4	10
	Healthcare	5 advanced, 2 basic uses	10	10
	<b>USE SCORE</b>			<b>26</b>
<b>COMMUNITY ASSESSMENT SCORE</b>			<b>72</b>	<b>120</b>

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

### ACCESS

- 9 last-mile broadband providers currently provide service in Eureka County:
  - <70% (31.0%) of households have access to 3 Mbps.
  - <60% (24.6%) of Eureka County households have access to more than 1 provider.
- More than 1 middle mile fiber infrastructures are available in Eureka County.
- 99.2% of Eureka County households have access to mobile broadband.

### ADOPTION

- 1 Digital Literacy Program exists in the community resulting in 60 graduates over the past year.
- 5 Public Computer Centers (PCC) with a total of 20 computers are open to the public.
- 2 Broadband Awareness Campaigns are reaching 40% of Eureka County.
- 1 organization is working with vulnerable populations.

### USE

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

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

#### **Technology Providers**

- 9 broadband providers were identified in Eureka County

#### **Technology Facilities**

- 4 public computing centers
- 1 video conference facility

### **Community Websites**

- 6 Business-related websites (excluding private businesses)
- 1 Education-related website
- 3 Government-related websites
- 1 Healthcare-related website
- 3 Library-related websites

### **Priority Projects**

This exercise has culminated in the outlining of projects to allow the community to continue its recognized excellence in technology and broadband planning across the community. Below are 5 priority projects. This is followed by a complete list of all recommended actions.

*Computer Literacy and Social Networking Classes in the Senior Centers*

*Connect all School Classrooms to the Internet*

*Countrywide Bandwidth Upgrade – Fiber Build-up*

*Dynamic Map Service*

*Improve Online Business Services Offered by the Government*

### **Complete List of Recommended Actions**

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

#### **ACCESS**

##### **Broadband Availability**

1. Deploy Educational WiMAX.
2. Apply to USDA for Funding to Support Broadband Build-out in Community.
3. Perform an Analysis of Local Policies and Ordinances.

##### **Broadband Speeds**

4. Identify, Map, and Validate Broadband Demand.

##### **Broadband Competition**

5. Study and Possibly Reassess Major Telecom Purchase Contracts.

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

**Mobile Broadband Availability**

6. Complete a Vertical Assets Inventory.

**ADOPTION**

**Digital Literacy** – No recommended actions.

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

**Broadband Awareness**

7. Implement a Community-Based Technology Awareness Program.
8. Facilitate a Technology Summit.

**Vulnerable Population Focus**

9. Initiate a Community Computer Refurbishment Program.
10. Develop a Technology Mentorship Program.

**USE**

**Economic Opportunity**

11. Create a Main Street Portal (Community Portal).
12. Online Identification of Broadband Services at Key Economic Sites.
13. Develop a Farmers' Network.
14. Develop a Tourism Portal.
15. Host Website and Social Media Classes for Local Businesses.
16. Create a Teleworker Support and Attraction Program.
17. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses

**Education**

18. Create a Program focused on Improving STEM Education.
19. Improve Educational Technology Hardware.
20. Connect all School Classrooms to the Internet.

**Government**

21. Perform a Municipal Information Technology Assessment.
22. Improve Public Safety Communications.
23. Improve the Online Presence of Government.
24. Improve Online Business Services Offered by the Government.
25. Pursue Next Generation 911 Upgrades.



**Healthcare**

26. Promote Telemedicine in Remote Areas.



## DETAILED FINDINGS

### Eureka County Assessment Findings

Today, residents in Eureka County (or sections of the community) are served by 9 providers. Currently, broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream. According to Connect Nevada's latest broadband mapping update, the following providers have a service footprint in the Eureka County Community:

Broadband Providers	Technology Type	Website Reference
ViaSat, Inc.	Satellite	<a href="http://www.wildblue.com/">http://www.wildblue.com/</a>
Starband Communications	Satellite	<a href="http://starband.com/">http://starband.com/</a>
Verizon Wireless	Mobile Wireless	<a href="http://www.verizonwireless.com/">http://www.verizonwireless.com/</a>
Hughes Network Systems	Satellite	<a href="http://www.hughesnet.com/">http://www.hughesnet.com/</a>
Express Internet	DSL/Fixed Wireless	<a href="http://www.expint.net/">http://www.expint.net/</a>
AT&T Mobility LLC	Mobile Wireless	<a href="http://www.wireless.att.com/">http://www.wireless.att.com/</a>
AT&T Nevada	DSL	<a href="http://www.att.com">http://www.att.com</a>
Choice Communications	Mobile Wireless	<a href="http://us.choice-wireless.com/">http://us.choice-wireless.com/</a>
Frontier Communications Corporation	DSL	<a href="http://www.frontier.com/">http://www.frontier.com/</a>

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

Organization Name	Website	Website Category
Nevada State Bank	<a href="http://www.nsbank.com">www.nsbank.com</a>	Business
Raines Market	<a href="http://www.rainesmarket.com">www.rainesmarket.com</a>	Business
Express Internet	<a href="http://www.expint.net">www.expint.net</a>	Business
Eureka Economic Development	<a href="http://www.eurekacounty.com">www.eurekacounty.com</a>	Business
American Pet Diner	<a href="http://www.americanpetdiner.com">www.americanpetdiner.com</a>	Business
Eureka Bed and Breakfast	<a href="http://www.eurekabedandbreakfast.com">www.eurekabedandbreakfast.com</a>	Business
Eureka County School District	<a href="http://www.eureka.k12.nv.us">www.eureka.k12.nv.us</a>	Education
Eureka County Government	<a href="http://www.co.eureka.nv.us">www.co.eureka.nv.us</a>	Government



Eureka County Yucca Mountain Information Office online	<a href="http://www.yuccamountain.org">www.yuccamountain.org</a>	Government
Eureka Medical Center	<a href="http://www.nevadahealthcenters.org/locations/ural-nevada/eureka-medical-clinic/">www.nevadahealthcenters.org/locations/ural-nevada/eureka-medical-clinic/</a>	Healthcare
Eureka Library	<a href="http://www.co.eureka.nv.us/county/library.htm">www.co.eureka.nv.us/county/library.htm</a>	Libraries
Crescent Valley Library	<a href="http://www.elkocountylibrary.org/crescentbranch.htm">www.elkocountylibrary.org/crescentbranch.htm</a>	Libraries
Beowawe Branch Library	<a href="http://www.elkocountylibrary.org/beowawebranch.htm">www.elkocountylibrary.org/beowawebranch.htm</a>	Libraries

## Connected Assessment

Community Technology Scorecard				
Community Champions: Mike Rebaleati				
Community Advisor: Ariel Martinez				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	<70% of homes have access to 3 Mbps	0	10
	Broadband Speeds	75% of households with access to less than 3 Mbps	0	5
	Broadband Competition	<60% of households with access to more than 1 broadband provider	0	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99.0% to 100.0% of households with access to mobile broadband	10	10
	<b>ACCESS SCORE</b>			<b>20</b>
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1,000 residents over the past year	10	10
	Public Computer Centers	500 computer hours per 1,000 low income residents per week	10	10
	Broadband Awareness	Campaigns reach 40% of the community	4	10
	Vulnerable Population Focus	1 group	2	10
	<b>ADOPTION SCORE</b>			<b>26</b>
USE	Economic Opportunity	2 advanced, 1 basic use	5	10
	Education	3 advanced, 1 basic use	7	10
	Government	2 advanced, 0 basic uses	4	10
	Healthcare	5 advanced, 2 basic uses	10	10
	<b>USE SCORE</b>			<b>26</b>
<b>COMMUNITY ASSESSMENT SCORE</b>			<b>72</b>	<b>120</b>



## ACCESS Score Breakdown

**Broadband Availability** (0 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 data collected by Connect Nevada, less than 70% of Eureka County residents have access to broadband service of 3 Mbps or greater.**

**Broadband Speeds** (0 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 data collected by Connect Nevada, 75% of Eureka County residents have access to broadband speeds of less than 3 Mbps. However, the Eureka County Broadband Committee believes that in Eureka, Crescent Valley, and Diamond Valley (which accounts for 67% of the county population) at least 75% of the households would have access to broadband speeds of at least 3 Mbps.**

**Broadband Competition** (0 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 data collected by Connect Nevada, 24.61% of Eureka County residents have access to more than one broadband provider.**

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

community in coordination with Connected Nation.

- **Eureka County is served by more than one 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 data collected by Connect Nevada, 99.2% of Eureka County residents have 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
Eureka Senior Center	Basic Internet and Computer Skills	60
<b>Total Graduates 2012</b>		60

**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 Eureka County is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Eureka Senior Center	30 hours	6	180
Crescent Valley Senior Center	30 hours	5	150
Eureka Library	24 hours	4	96
Crescent Valley Library	9 hours	3	27
Beowawe Library	9 hours	2	18

**Broadband Awareness (4 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 Eureka County is below.

Organization Name	Campaign Description	Community Reach
Economic Development Program	Free Wi-Fi advertised	30%
Eureka Library	Signage promoting public Internet access	55%

**Vulnerable Population Focus (2 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 Eureka County is listed below.

Organization Name	Program Description	Vulnerable Group
Eureka/Crescent Valley Senior Center	Basic Internet and Computer Skills	Senior Citizens



### USE Score Breakdown

**Economic Opportunity (5 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
Economic Development Website	Informational Website	Basic
American Pet Diner	Informational and Online Ordering	Advanced
Eureka Opera House - Multifunction Facility	Video Conferencing Facility	Advanced

**Education (7 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
Powerschool	Student Information System	Advanced
Eureka School District Website	School Website	Basic
Online Assignment	Teachers provide online assignments	Advanced
Virtual High School	Distance Learning	Advanced

**Government (4 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
Documentum	Database search for public records	Advanced

Eureka County Website	Informational/Online Payments/Doc search	Advanced
-----------------------	--	----------

**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
Nevada Health Center Website	Listing of Healthcare Centers in the County	Basic
Eureka County Website	Listing of Healthcare Professionals in the County	Basic
RDP – Eureka Medical Center	Remote Desktop Protocol	Advanced
VOIP – Eureka Medical Center	Voice over IP Telephone System	Advanced
EMF – Eureka Medical Center	Online Medical Records	Advanced
EchoCardiogram – Eureka Medical Center	Echo Test Video – Telemedicine	Advanced
Video Conferencing – Eureka Medical Center	Video Conferencing Facility	Advanced

---

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

#### *Computer Literacy and Social Networking Classes in the Senior Centers*

**Project Description:**

Create Computer Training Programs and Classes for seniors at the Centers.

**Goal:**

1. Provide classes and training to improve computer literacy and teach social networking to senior clients at designated centers. Chosen senior centers include Eureka Senior Center in Eureka and Fannie Komp Senior Center in Crescent Valley.

**Action Items:**

1. Create goals/objectives for the training program.
2. Identify current state-wide/local training opportunities for a possible partnership.
3. Solicit funding for the program through grants.
4. Set up computers and facilities for training.
5. Find qualified trainers.
6. Create training calendar.
7. Market training to target audience.

**Implementation Team:**

Millie Oram (Eureka Senior Center Director)

#### *Connect all School Classrooms to the Internet*

**Project Description:**

A K-12 broadband network should provide adequate performance and reach, including abundant wireless coverage in and out of school buildings. “Adequate” means enough bandwidth to support simultaneous use by all students and educators anywhere in the building and the surrounding campus to routinely use the Web, multimedia, and collaboration software. To reach the goal of sufficient broadband access for enhanced K-12 teaching and learning and

improved school operations, the State Educational Technology Directors Association (SETDA) recommends that broadband speeds in schools should equate to a minimum of 100 Kbps per student/staff. However, given that bandwidth availability determines which online content, applications, and functionality students and educators will be able to use effectively in the classroom, additional bandwidth will be required in many, if not most, K-12 districts in the coming years.

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

**Goal:**

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

**Action Items:**

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

**Implementation Team:**

To be determined.

***Countywide Bandwidth Upgrade – Fiber Build-up***

**Project Description:**

A countywide initiative to improve not only availability, but the quality of broadband in the entire Eureka County through fiber build-up funded by the County (Forecasted completion date: end of July 2013).

**Goals:**

Upgrade the Bandwidth for the County LAN by 5-fold in order to achieve the following:

1. Make online resources more useable and accessible.
2. Online training should be utilized more frequently and reduce travel.
3. Host web meetings in place of physical meeting

**Action Items:**

1. Conduct research on project design, development and delivery; include an assessment that will determine the feasibility of deploying various Internet systems (wired and wireless Internet system) in a defined area.
2. Assess the County's existing infrastructure and needs.
3. Perform a broadband build-out analysis particularly in unserved areas.
4. Conduct a wireless assessment to include:
  - Determining the functionality of all potential transmit locations
  - Surveying the availability of adequate power sources at each location
  - Identifying any issues regarding ingress and egress at each location
  - Designing a wireless broadband system using these potential transmit locations
  - Creating a methodology for the expansion of wireless broadband coverage into the unserved areas of the community

**Implementation Team:**

1. Kyle Moore (Eureka County / Network Analyst)
2. Michael Rebaleati (Eureka County / Recorder-Auditor)
3. Michael Mears (Eureka County / Assessor)

*Dynamic Map Service*

**Project Description:**

Implement the use of a web application developed by the County that incorporates existing GIS data to provide information regarding land parcels. The County is currently working with a GIS contractor to develop the application. This application will allow online public access of GIS parcels and road data through the County website.

**Goals:**

1. Create public web access to search GIS parcel and road data and allow users to create their own maps online through the County website.

**Action Items:**

1. Hire a 3rd party GIS contractor.
2. Establish the design and features needed for the application based on requirements.
3. Initiate the work, test results, and implement.

**Implementation Team:**

Michael Mears (County Assessor & a 3<sup>rd</sup> Party GIS Contractor)

*Improve Online Business Services Offered by the Government*

**Project Description:**

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

**Goals:**

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

**Action Items:**

1. The first step in the process of providing e-government services to constituents is developing a functional web portal that allows businesses to have access to resources easily. Such a portal can enable outside businesses looking for new opportunities to make informed decisions about working in a certain community.
2. In addition, often overlooked in e-Government deployment are the issues of audiences and needs. Local governments must determine who will visit the website and what sort of information and services they will typically seek. A first step toward meeting general needs of constituents is to provide online access to as broad a swath of governmental information and data as is possible. The sort of information that should be included is:
  - a. Hours of operation and location of facilities.
  - b. Contact information of key staff and departments.
  - c. An intuitive search engine.
  - d. Access to documents (ideally a centralized repository of online documents and forms).
  - e. Local ordinances, codes, policies, and regulations.
  - f. Minutes of official meetings and hearings.
  - g. News and events.

**Implementation Team:**

To be determined.

## Recommended Actions

### ACCESS: Recommended Actions

#### Broadband Availability

##### 1. Deploy Educational WiMAX

Deploy WiMAX to the community and provide students with WiMAX-enabled laptops to ensure equal access for all students regardless of socioeconomic status. WiMAX is primarily a wireless and highly cost effective means of extending the school district's intranet-based content and applications to the student body beyond the school campus and outside of school hours equating to anytime, anywhere instruction.

WiMAX is an IP-based, wireless broadband access technology that provides performance similar to Wi-Fi networks, but with the coverage and quality of service of cellular networks. WiMAX can provide broadband wireless access (BWA) up to 30 miles (50 km) for fixed stations, and 3 - 10 miles (5 - 15 km) for mobile stations. Developing a WiMAX network should be done in partnership with providers, technology organizations, and local government.

Community-wide WiMAX networks require significant infrastructure, including: towers (number and placement determined by a site survey conducted by the installation company); antennas; WiMAX transmitters and receivers; management server; Internet backhaul; and power. A one-to-one laptop and WiMAX program would include network and hardware maintenance costs. WiMAX infrastructure is a capital expense that can be amortized over many years. The typical infrastructure costs [\\$5-20 per student per month, over a five-year period](#), depending on factors such as population density, terrain, and the size of the area to be covered.

**Goal:**

- Extend school district's intranet-based content and ensure equal access to home Internet.

**Benefits:**

- Affordability. WiMAX is cheaper than DSL, Cable, Fiber to the Home, and 3G wireless. This low cost per home brings it into the realm of possibilities for a school district to build its own private access network independent of commercial operators.

- Empowers all students to access online educational material after school hours so that digital content is not restricted to school or library computer labs for low-income students who cannot afford laptops or internet access at home.
- Provides equal hardware and Internet access to all students.
- Supports curriculum updates and increased push for STEM education.

**Action Items:**

- Develop partnership with area providers, technology and education organizations, local government, and school district.
- Assess infrastructure needs.
- Contact local or national WiMAX service and equipment providers.

**2. Apply to USDA for Funding to Support Broadband Build-out in the Community**

The USDA, through its Rural Development mission area, administers and manages housing, business, and community infrastructure and facility programs through a national network of state and local offices. The Rural Development has an active portfolio of more than \$165 billion in loans and loan guarantees. These programs are designed to improve the economic stability of rural communities, businesses, residents, farmers, and ranchers and improve the quality of life in rural areas.

**Farm Bill Loan Program - USDA**

This program is designed to provide loans for funding, on a technology neutral basis, for the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural communities.

**Additional Information:**

- Direct loans are in the form of a cost-of-money loan, a 4-percent loan, or a combination of the two.

**Eligibility:**

- Must be a rural area. Rural area means any area, as confirmed by the latest decennial census by the U.S. Census Bureau, which is not located within: (a) A city, town, or incorporated area that has a population of more than 20,000 people; or (b) An urbanized area contiguous and adjacent to a city or town with a population of more than 50,000 people. An urbanized area means a densely populated territory as defined in the latest decennial census.
- To be eligible for a broadband loan, an applicant may be either a nonprofit or for-profit organization, and must take one of the following forms: (1) Corporation; (2) Limited Liability Company (LLC); (3) Cooperative or mutual organization; (4) Federally recognized Indian tribe or tribal organization; or (5) State or local government, including any agency, subdivision, or one of their units.

- A service area may be eligible for a broadband loan if all of the following are true: (1) The service area is completely contained within a rural area; (2) At least 25 percent of the households in the service area are underserved households; (3) No part of the service area has three or more incumbent service providers; (4) No part of the funded service area overlaps with the service area of current RUS borrowers and grantees; (5) No part of the funded service area is included in a pending application before RUS seeking funding to provide broadband service.

*Contact Information:*

Point of Contact: Ken Kuchno

Telephone: (202) 690-4673

E-mail: [kenneth.kuchno@wdc.usda.gov](mailto:kenneth.kuchno@wdc.usda.gov)

Website: [http://www.rurdev.usda.gov/utp\\_farmbill.html](http://www.rurdev.usda.gov/utp_farmbill.html)

**Community Connect Program – USDA**

Provides community access to broadband services in unserved areas through a one-time grant to such organizations as tribes, cooperatives, private companies, and universities, and uses the infrastructure built by the grant to create opportunities for continued improvement.

*Additional Information:*

- The funding will support construction, acquisition, or lease of facilities, including spectrum, to deploy broadband transmission services to all critical community facilities and to offer such services to all residential and business customers located within the proposed service area.
- The funding can be put towards the improvement, expansion, construction, acquisition, or leasing of a community center that furnishes free access to broadband Internet service, providing that the community center is open and accessible to area residents before, during, and after normal working hours and on Saturday or Sunday.
- All equipment purchases with grant and/or matching funds must be new or non-depreciated.

*Eligibility:*

- Must be single community with a population of less than 20,000 that does not have Broadband Transmission Service.
- Applicants must be organized as an incorporated organization, an Indian tribe or tribal organization, a state or local unit of government, or other legal entity, including cooperatives or private corporations or limited liability companies organized on a for-profit or not-for-profit basis.
- The project must deploy Basic Broadband Transmission Service, free of all charges for at least 2 years, to all Critical Community Facilities located within the proposed Service

Area. Additionally, it should offer Basic Broadband Transmission Service to residential and business customers within the proposed Service Area.

*Contact Information:*

Point of Contact: Thera Swersky or Steven Levine

Telephone: (202) 690-4673

E-mail: [community.connect@wdc.usda.gov](mailto:community.connect@wdc.usda.gov)

Website: [http://www.rurdev.usda.gov/utp\\_commconnect.html](http://www.rurdev.usda.gov/utp_commconnect.html)

**Distance Learning and Telemedicine Loans and Grants Program – USDA**

Provide 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.

*Additional Information:*

- The Distance Learning and Telemedicine Loans and Grant Program (DLT Program) provides three kinds of financial assistance: a full grant, grant-loan combination, and a full loan.

*Eligibility:*

To be eligible for a grant, your organization must:

- Currently deliver or propose to deliver distance learning or telemedicine services for the term of the grant. To receive a grant, the purposes must meet the grant definition of distance learning and telemedicine. The DLT program is focused on sustainability. Planning studies, research projects, and short-term demonstration projects of less than two years will not be considered.
- Be legally organized as an incorporated organization or partnership; an Indian tribe or tribal organization; a state or local unit of government; a consortium; or other legal entity, including a private corporation organized on a for-profit or not-for-profit basis with the legal capacity to contract with the United States Government.
- Operate a rural community facility or deliver distance learning or telemedicine services to entities that operate a rural community facility or to residents of rural areas at rates calculated to ensure that the benefit of the financial assistance passes through to such entities or to residents of rural areas.

*Contact Information:*

Point of Contact: Sam Morgan

Telephone: (202) 720-0665

E-mail: [dltinfo@wdc.usda.gov](mailto:dltinfo@wdc.usda.gov)

Website: [http://www.rurdev.usda.gov/UTP\\_DLT.html](http://www.rurdev.usda.gov/UTP_DLT.html)

### **Universal Service Rural Health Care Program – Universal Service Administration Company**

The Rural Health Care program supports healthcare providers serving rural communities by funding telecommunications services necessary for the provision of healthcare. The program is intended to ensure that rural healthcare providers pay no more for telecommunications in the provision of healthcare services than their urban counterparts.

#### *Additional Information:*

- Public and non-profit healthcare providers in rural areas can receive discounts on installation and monthly charges for telecommunications and Internet access service used for the provision of healthcare by using one of two methods: a mileage-based calculation, or a calculation of the “urban rate” to receive support equal to the difference between what they pay and what they would pay if they were receiving the service in any city in their state with a population of 50,000 or more.
- The rural healthcare provider must submit a form requesting services to the Universal Service Administrative Company (USAC). Once the form is approved, it is posted on USAC’s website seeking bids from telecommunications companies interested in providing the requested services. After the rural healthcare provider selects a provider from qualified bidders and USAC has approved the funding request, the services may begin. Support from the USF is then used to help pay for eligible services provided to the rural healthcare provider.

#### *Eligibility:*

Eligible organizations include:

- Post-secondary educational institutions offering healthcare instruction, including teaching hospitals and medical schools
- Community health centers or health centers providing healthcare to migrants
- Local health departments or agencies
- Community mental health centers
- Not-for-profit hospitals
- Dedicated emergency departments in rural for-profit hospitals
- Rural healthcare clinics
- Part-time eligible entities located in facilities that are ineligible
- Groups of healthcare providers consisting of one or more entities described above

#### *Contact Information:*

Telephone: (800) 229-5476

E-mail: [rhc-admin@usac.org](mailto:rhc-admin@usac.org)

Website: <http://www.universalservice.org/rhc/default.aspx>

### 3. Perform an Analysis of Local Policies and Ordinances

High capital investment costs, including permit processing, pole attachment costs, and lack of effective planning and coordination with public authorities, negatively impact the case for deployment. For example, the FCC's National Broadband Plan concludes that, "the rates, terms, and conditions for access to rights of way [including pole attachments] significantly impact broadband deployment." The costs associated with obtaining permits and leasing pole attachments and rights-of-way are one of the most expensive cost functions in a service provider's plans to expand or upgrade service, especially in rural markets where the ration of poles to households goes off the charts. Furthermore, the process is time consuming. "Make ready" work, which involves moving wires and other equipment attached to a pole to ensure proper spacing between equipment, and compliance with electric and safety codes can take months to complete.

Community and provider collaboration to problem solve around local pole attachment and other right of way issues is one of the most effective opportunities to encourage faster, new deployment of infrastructure.

**Goal:**

- Ensure that local policies are conducive to broadband build-out.

**Benefits:**

- Lowers cost barriers to improve the business case for broadband deployment.
- Encourages good public policy and provider relations.

**Action Items:**

- Review local policies, ordinances, and other barriers to broadband deployment and consult with community leaders, providers, utilities and other members of the community to ensure that they are supporting policies (local ordinances, pole attachments, right-of-way) that are conducive to broadband build-out.
- Develop an awareness campaign targeted towards community leaders to inform them of the benefits of broadband to the entire community derived from access to global resources that outweigh the need for some policies.

### **Broadband Speeds**

#### 4. Identify, Map, and Validate Broadband Demand

Develop a team to conduct research surveys and market analyses to validate a business case. A market analysis includes research on the existing and potential service offerings and

the respective rates to determine the levels of interest in the services and rate plans offered by the client. The team should provide accurate, timely, and thorough solutions, accompanied by personalized service to meet the needs of communities or broadband providers.

**Goal:**

- To understand existing and potential markets for broadband subscribers (both residential and business).

**Benefits:**

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

**Action Items:**

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

**Broadband Competition**

**5. Study and Possibly Reassess Major Telecom Purchase Contracts**

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

**Goal:**

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

**Benefits:**

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

**Action Items:**

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

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

## **Mobile Broadband Availability**

### **6. Complete a Vertical Assets Inventory**

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

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

#### ***Goal:***

- Develop a single repository of vertical assets, such as communications towers, water tanks, and other structures potentially useful for the support of deploying affordable, reliable wireless broadband in less populated rural areas or topographically challenged areas.

#### ***Benefits:***

- The vertical assets inventory provides data for private and public investment decisions, lowering the initial cost of efforts needed to identify potential mounting locations for infrastructure.
- The inventory can encourage the expansion of affordable, reliable wireless broadband services to underserved areas by shortening project development time.

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

- Identify or develop a vertical assets inventory toolkit to provide guidelines to identify structures or land that could serve as a site for installation of wireless communications equipment.
- Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.

- Identify and map elevated structures utilizing your community’s GIS resources. The resulting database should be open ended; localities should be encouraged to continuously map assets as they are made available.

### **ADOPTION: RECOMMENDED ACTIONS**

**Digital Literacy** – No recommended actions.

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

### **Broadband Awareness**

#### **7. Implement a Community-Based Technology Awareness Program**

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

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

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

#### **Goal:**

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

#### **Benefits:**

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

**Action Items:**

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

**8. Facilitate a Technology Summit**

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

**Goal:**

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

**Benefits:**

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

**Action Items:**

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

**Vulnerable Population Focus**

**9. 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 communities. 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 e-Cycling and much more.
- [Electronic Industries Alliance's Consumer Education Initiative](#) – The Electronic Industries Alliance's e-Cycling Central website helps you find reuse, recycling, and donation programs for electronics products in your state.

**Goal:**

Initiate a computer refurbishment program designed to help recycle computers donated by local businesses, government, schools and other organizations, and then distribute them to low-income households and other households who face affordability barriers to computer ownership.

**10. Develop 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 them 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.

**Goal:**

- Utilize student technology knowledge to implement community programs.

**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 community that 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**

**11. Create a Main Street Portal (Community Portal)**

A community portal can be hosted by a local government, a non-profit, school, or an individual, depending on the preference of the community and availability of resources. Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools. A feature-rich community portal with multiple ways to inform community members about what is happening the community (e.g. community calendar, discussion forums, voting polls, blog community, real time chat, videos and image gallery, RSS feeds, blogs, automated reminders, accompanying Apps for smartphones, etc.) has the potential to increase civic participation.

The portal has a dual purpose. One purpose is to inform residents and businesses within the community about community events and initiatives, groups, and economic development initiatives. Additionally, the community portal can act as a training and education resource for

residents; short courses and webinars can be offered on topics of interest in the community (e.g. education on community-wide economic development or infrastructure initiatives, pollution mitigation, community gardening, local zoning laws, etc.)

Secondly, a community portal empowers others from outside of the community to learn more about the community itself. A community portal helps project an image of a dynamic and "connected" community that has a savvy, tech-ready workforce and an informed citizenry. Businesses want to move to communities that are comfortable with technology and that are clearly making modest investments to stay current. As a marketing tool, the community portal becomes an important part of tourism efforts, a way to get travelers and visitors to stop and spend money on lodging and meals, to market local businesses to customers outside the community, and to project a modern and vibrant image to the world. For a community to be seen as vibrant, attractive, and great place to live and to work, the portal must be of the highest quality to project that image.

**Goal:**

- Collaborate with local businesses, government, schools, non-profits, and community volunteers to create a web portal that will serve as a one-stop shop for all online government services, community resources, tourism and economic development, census information, news, and events.

**Benefits:**

- Drives web traffic to other community links.
- Available and open data increases informed decision making and participation.
- Increases the community's visibility on the web.
- Acts as a recruitment tool for knowledge workers and high-tech businesses.
- Assists community members and visitors in making informed decisions.
- Can become a key tourism tool.

**Action Items:**

- Identify a host for the portal. The host can be a local government, non-profit, school, or an individual, depending on the preference of the community and availability of resources.
- Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.
- The community portal should be continually updated to reflect the community's needs and technological expertise.

## **12. Online Identification of Broadband Services at Key Economic Sites**

Develop an inventory of the broadband and telecommunication services available at community industrial parks, business parks, and other key business locations. Gathered

information could include the highest speeds, technology platform, and number of fiber providers available. If not available, the closest provider and distance should be identified. All information should be shared with regional and state economic development planners, as well as listed on the area economic development websites (e.g. Chamber of Commerce or area development districts).

**Goal:**

- Develop an inventory of the broadband and telecommunication services available at community industrial parks, business parks, and other key business locations to share with regional and state economic development planners.

**Benefits:**

- This data can be utilized to make site selection decisions, as well as to attract potential investment. According to a [2011 survey](#) of building owners and property managers, broadband access is one of the most important decision factors for commercial real estate siting — after price, parking, and location. Similarly, a [national survey](#) found that 77 percent of economic development professionals believe that to attract a new business, a community must have broadband of at least 100 Mbps.

**Action items:**

- Collaborate with commercial building owners, providers, and other stakeholders to develop an inventory of broadband and telecommunications services available at key economic sites.

### **13. Develop a Farmers' Network**

Create a local agricultural portal to connect farmers with buyers and technical experts (United States Department of Agriculture (USDA), researchers, university and extension offices, state department of agriculture, the State or National Farm Bureau, etc.) in agriculture. This portal will enable local farmers to share the latest techniques in farming such as using technological tools and data to make decisions. Tools can include GPS, yield monitors, variable rate technology, and remote sensing. Farmers can also share how to be successful in maximizing production and reducing costs.

Beyond information sharing, a local agricultural portal could also be utilized to provide online “booth space” for growers, producers, and artisans selling direct to the consumer. Set up much like an open-air farmers' market where vendors offer food, crafts, gifts, supplies, garden tools and more, the purpose would be to provide a space where local and regional consumers can meet, correspond, and purchase products directly from the farm. This online farmers market could be a feature in the local agricultural portal or a Main Street Portal. Either way, an online farmers market should be feature-rich, enabling virtual farm tours, discussion forums, video and image galleries, and real time ordering and payment.

**Goal:**

- Create a portal to keep the agricultural community connected and to facilitate advanced information sharing, news, and marketing of products.

**Benefits:**

- Connects agricultural community.
- Connects agricultural producers and consumers.
- Facilitates knowledge-share.
- Could be used for e-Commerce.

**Action Items:**

- Identify an appropriate host for the agricultural portal.
- Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.
- The community portal should be continually updated to reflect the agricultural community's needs and technological expertise.

#### **14. Develop a Tourism Portal**

Creating a tourism portal is a way to market local attractions to travelers from around the world and deliver sophisticated, interactive multimedia tools that detail lodging, recreation, and amenities in the community. Visitors to the portal must also be able to register for events, make reservations, and have access to activities, businesses, and other items that tourists generally look for, such as locations of ATM machines, restaurants, antique bazaars, museums, hotspots, and tourist agencies. The tourism portal can be a component of a comprehensive community portal that has a dual purpose: first, to inform tourists about local attractions and give them opportunities to make inquiries and reservations; second, to inform local residents and businesses within the community about current activities, groups, and commerce. In addition to serving residents, the portal will help to inform residents and businesses within the community about current activities, groups, and commerce.

**Goal:**

- Create a tourism portal that informs tourists about local attractions and provides information to locals regarding current activities, groups, and commerce.

**Benefits:**

- Informs tourists and advertises to potential tourists.
- Drives web traffic to local businesses and tourist attractions.
- Increases the community's visibility on the web.

**Action Items:**

- Identify an appropriate host for the tourism portal.

- Some of the major requirements of the portal include a good content management system, simple yet flexible interface, and interactive tools.

### **15. Host Website and Social Media Classes for Local Businesses**

For small businesses, an online presence and the use of social media are vital to stay competitive in the twenty-first century. A website and social media use are not just for companies that have the experience, staff, or budget; any small business can tap into these resources. Training should be provided to small businesses regarding the use of websites and social media within that small business. Website topics should range from starting a basic website to more advanced topics such as e-Commerce. Social media topics should include a variety of social media outlets including Facebook, Twitter, YouTube, Pinterest, and LinkedIn.

#### **Goal:**

- To encourage small local businesses to develop websites and to use social media and e-Commerce.

#### **Action Items:**

- Work with the local chamber and/or the libraries to expand on existing programs that promote e-Commerce, such as free websites and social media development within the small businesses of the community including those involved in agriculture.
- Partner with providers to sponsor workshops. (Providers may be willing to sponsor events since small business workshops will likely lead to increased broadband adoption and use).
- Identify regional and community partners with resources and expertise to assist the community in producing “free” website and social media workshops.
- Schedule workshops and advertise classes via local media.

### **16. Create a Teleworker Support and Attraction Program**

Teleworking offers significant benefits to employers, employees, self-employed individuals, and entrepreneurs. These benefits include businesses infrastructure savings, emissions reduction, and congestion management. Further, teleworking can help businesses and government agencies reduce real estate, energy, and other overhead costs, using the savings to avoid job cuts or to hire new staff. Research has shown that teleworking programs can increase an employer’s productivity, and enable them to continue operating without skipping a beat in the face of a natural disaster or other emergency situation that might otherwise bring business to a halt. Teleworking also allows employees to lower their commuting costs while juggling both work and family, even accommodating people with disabilities, the elderly, mothers, and rural residents who may not be in a position to work outside the home.

#### **Goal:**

- Promote or develop flexible, efficient, and effective work arrangements.

**Benefits:**

- Teleworking can benefit the environment, boost economic growth, and provide a better work-life balance for employees.
- Taps into community's workforce potential (employable individuals with transportation limitations).
- Makes community more attractive to knowledge workers and business expansion.

**Action Items:**

- Promote the establishment of a teleworking pilot program.
- Establish a cross-functional project team, including, for example, information technology labor representatives and other stakeholders.
- Establish an agency-wide telework policy.
- Establish eligibility criteria to ensure that teleworkers are selected on an equitable basis using criteria such as suitability of tasks and employee performance.
- Develop a telework agreement for use between teleworkers and their managers.
- Conduct assessment of teleworker and organization technology needs.

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

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

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

Additional training might include:

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

**Goal:**

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

**Benefits:**

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

**Action Items:**

- Identify federally or state sponsored business support programs (e.g. Chamber of Commerce, SBA, EDA, Agriculture, or Manufacturing extension) that include assistance with broadband or IT content.
- Identify or develop a business awareness and training program.
- Identify or develop online training modules for businesses. For example, the Southern Rural Development Center, in partnership with National Institute of Food and Agriculture, USDA, administers the National e-Commerce Extension Initiative. As the sole outlet nationally for e-Commerce educational offerings geared at Extension programming, the National e-Commerce Extension Initiative features interactive online learning modules. In addition, the program's website offers a library of additional resources and a tutorials section for greater explanation on website design and function. Modules and presentations include: A Beginner's Guide to e-Commerce, Doing Business in the Cloud, Electronic Retailing: Selling on the Internet, Helping Artisans Reach Global Markets, and Mobile e-Commerce. To see some examples, click here: [http://srdc.msstate.edu/ebeat/small\\_business.html#](http://srdc.msstate.edu/ebeat/small_business.html#).

**Education**

**18. Create a Program Focused on Improving STEM Education**

Seek funding from the federal government, private companies, foundations, non-profits, and science and engineering societies to fund science, technology, engineering, and mathematics (STEM) via the "Educate to Innovate" Program. The Educate to Innovate campaign was launched to improve the participation and performance of America's students in STEM.

As part of the Educate to Innovate effort, five major public-private partnerships are harnessing the power of media, interactive games, hands-on learning, and community volunteers to reach millions of students over the next four years, inspiring them to be the next generation of inventors and innovators: Time Warner Cable’s “Connect a Million Minds” (CMM), which pledges to connect children to after-school STEM programs and activities in their areas; Discovery Communications’ “Be the Future” will broadcast dedicated science programming to more than 99 million homes and offer interactive science education to approximately 60,000 schools; Sesame Street’s “Early STEM Literacy” commits to a two-year focus on STEM subjects; National Lab Day will promote hands-on learning with 100,000 teachers and 10 million students over the next four years, and foster communities of collaboration between volunteers, students, and educators in STEM education. These initiatives will then culminate in a nationally recognized day centered on science activities; and The National STEM Video Game Challenge promotes the design and creation of STEM-related video games.

**Goal:**

- Increase STEM education so that students become critical thinkers and gain deeper understanding and interest in science, technology, engineering, and mathematics.

**Benefits:**

- Educational programs in science, technology, engineering, and mathematics (STEM) which foster an interest in, knowledge of, and study in science, technology, engineering, and mathematics ensure an educated and well-prepared workforce.

**Action Items:**

- Assess current K-12 STEM needs.
- Develop an afterschool STEM focused program.
- Seek federal funding for STEM programs.
- Elevate STEM education as a community priority.

### **19. Improve Educational Technology Hardware**

Deploy new technologies across your school districts focusing on technologies for the classroom and infrastructure needed to support the classroom. Technologies to consider include, but are not limited to, computers and mobile devices for students and teachers, interactive whiteboards, LCD projectors for the classrooms, and on-demand educational content. These devices transform classrooms from a place where students sit and observe to a model of engagement in which each student becomes a resource in the class. Further, smartphones can be utilized to easily automate district initiatives to cut truancy, report problems, and distribute emergency plans.

**Goal:**

- Utilize educational technology to better engage students.

**Benefits:**

- Laptops, netbooks, and tablets enable greater instruction flexibility and formative assessment, key components of individual learning plans.
- Used to support both teaching and learning, these technologies infuse classrooms with digital learning tools, expand course offerings and learning materials, increase student engagement and motivation, and accelerate learning by empowering educators to customize the curriculum to student needs.
- Adding technology to the classroom can create a learning environment that's collaborative and meaningful to students; rather than just learning by rote, students can use technology to discover and synthesize information, putting it in a context that has meaning and validity.

**Action Items:**

- Encourage your community's education leaders to keep careful data and do their own research on what technologies are most appropriate for their student and instructor needs.
- Assess which technology will give your school districts the best return for their investment and what kind of infrastructure is needed to support the technology.
- Investigate funding sources for technology purchases. Providers, such as [AT&T](#), assist schools in deploying technologies through the use of a variety of professional services, beginning with web security and filtering options for CIPA compliance, to deployment services like laptop imaging, asset tagging, direct drop shipment, reporting, comprehensive support options for either the student or the IT shop and a variety of leasing options.

**Government**

**20. Connect all School Classrooms to the Internet**

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

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

**Goal:**

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

**Benefits:**

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

**Action Items:**

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

## 21. Perform a Municipal Information Technology Assessment

Conduct a Community IT Assessment of current environment performed through an interview process (onsite, video conferencing, e-mail/web based) to determine overall IT operational efficiency. Once complete, an end deliverable provides detailed assessment results including a relative “grade” in each area as well as suggested action plans for any areas that are found to be below standards.

### **Goal:**

- Determine overall IT operational efficiency and establish an informed process for strategic IT decisions.

### **Benefits:**

- Eliminates performance gaps, redundancies, inefficiencies, and unintended information silos.
- Assists in providing a clear, repeatable, streamlined and informed process for making strategic IT decisions.

### **Action Items:**

- Identify a complete list of all IT equipment including age, condition, and capacity/specifications currently in use.
- Assess server infrastructure (hardware, operating systems, and storage) and network topology (design, cable plant, and Internet connectivity).
- Identify all currently used applications/uses and backup procedures.
- Identify and assess security measures (firewall, perimeter, physical and wireless security).
- Identify “Best Practices” for each office as appropriate.

## 22. Improve Public Safety Communications

Broadband offers a unique opportunity to achieve a comprehensive vision for enhancing the safety and security of your community’s residents. Broadband can help public safety personnel prevent emergencies and respond swiftly when they occur. Broadband can also provide your community with new ways of calling for help and receiving emergency information.

For example, first responders from different jurisdictions and agencies often cannot communicate during emergencies due to disparate communication systems and the lack of integration between these systems. However, wireless broadband supports the interoperability of communications systems that would allow first responders anywhere in the nation to communicate with each other, send and receive critical voice and data to save lives, reduce injuries, and prevent acts of crime and terror.

Furthermore, with broadband, 911 call centers (also known as public safety answering points or PSAPs) could receive text, pictures and videos from the public and relay them to first responders. Similarly, the government could use broadband networks to disseminate vital information to the public during emergencies in multiple formats and languages.

To overcome the challenges posed by disparate communication systems and dated technology, your community's public safety agencies should collaborate with state and federal agencies in order to improve communication across organizational and jurisdictional boundaries. This is one of the priorities of the First Responder Network Authority (FirstNet). Created by the Middle Tax Relief and Job Creation Act of 2012, FirstNet was established as an independent authority within the National Telecommunications and Information Administration (NTIA) in order to establish a single nationwide, interoperable public safety broadband network.

To find out more information on FirstNet and the Nationwide Public Safety Network, visit <http://www.ntia.doc.gov/category/firstnet>.

To find out more information regarding your state's efforts and point of contact for FirstNet planning, check with your Governor's office and/or statewide interoperability coordinator.

**Goal:**

- Leverage Broadband Technologies to Enhance Emergency Communications to and from the Public

**Other relevant initiatives include:**

- [Assistance to Firefighters Grants \(AFG\)](#): The primary goal of the AFG Program is to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations. AFG funds have helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.
- [Community Connect Grant Program](#): The Community Connect Grant Program provides financial assistance to furnish broadband service in unserved, often isolated, rural communities. The grants are used to establish broadband service for critical facilities such as fire or police stations, while also providing service to residents and businesses.

**23. Improve the Online Presence of Government**

The government's website must meet the needs of the citizen; should equal or exceed the standards of private company websites; design must be uncluttered, informative, and easy to navigate; and website best practices must be continuously monitored and implemented. Further, website administrators should be funded and required to follow the latest best practices in design and web search optimization. They should have a process for archiving

content that is no longer in frequent use and no longer required to be posted on the website. In addition, the local government should regularly solicit public opinion and analyze citizens' online preferences before making changes to their website or before launching a new website.

**Goal:**

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

**Benefits:**

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

**Action Items:**

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

#### **24. Improve Online Business Services Offered by the Government**

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

**Goal:**

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

**Benefits:**

- Facilitates business interaction with government, especially for urban planning, real estate development, and economic development.
- e-Government lowers the cost to a business conducting all of its interaction with government. Further, as more businesses conduct their business with government

online, their transaction costs will be lowered. The cost to a business for any interaction decreases as more technology and fewer staff resources are needed.

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

**Action Items:**

- The first step in the process of providing e-Government services to constituents is developing a functional web portal that allows businesses to have access to resources easily. Such a portal can enable outside businesses looking for new opportunities to make informed decisions about working in a certain community.
- In addition, often overlooked in e-Government deployment are the issues of audiences and needs. Local governments must determine who will visit the website and what sort of information and services they will typically seek. A first step toward meeting general needs of constituents is to provide online access to as broad a swath of governmental information and data as is possible. The sort of information that should be included is:
  - Hours of operation and location of facilities.
  - Contact information of key staff and departments.
  - An intuitive search engine.
  - Access to documents (ideally a centralized repository of online documents and forms).
  - Local ordinances, codes, policies, and regulations.
  - Minutes of official meetings and hearings.
  - News and events.

**25. Pursue Next Generation 911 Upgrades**

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

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

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

**Goal:**

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

**Benefits:**

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

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

**Action Steps:**

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

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

**Healthcare**

**26. Promote Telemedicine in Remote Areas**

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

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

**Goal:**

- Deliver improved healthcare services to rural residents.

## APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND

### Statewide Infrastructure

As part of the Nevada State Broadband Initiative (SBI), and in partnership and at the direction of the Nevada Broadband Task Force, Connect Nevada produced an inaugural map of broadband availability in spring 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 Nevada has collected and released new data every six months, with updates in October and April annually.

The most current Statewide and County Specific Broadband Inventory Maps released in the spring of 2013 depict a geographic representation of provider-based broadband data represented by cable, DSL, wireless, fiber, etc. These maps also incorporate data such as political boundaries and major transportation networks in the state. A statewide map is found at <http://www.connectnv.org/mapping/state>. The county maps are found at [http://www.connectnv.org/community\\_profile/find\\_your\\_county/nevada/eureka](http://www.connectnv.org/community_profile/find_your_county/nevada/eureka).

SBI Download/Upload Speed Tiers	Unserved Households ('000)	Served Households ('000)	Percent Households by Speed Tier
<b>At Least 768 Kbps/200 Kbps</b>	9	997	99.11
<b>At Least 1.5 Mbps/200 Kbps</b>	10	997	99.04
<b>At Least 3 Mbps/768 Kbps</b>	18	989	98.25
<b>At Least 6 Mbps/1.5 Mbps</b>	26	980	97.41
<b>At Least 10 Mbps/1.5 Mbps</b>	47	960	95.36
<b>At Least 25 Mbps/1.5 Mbps</b>	80	926	92.00
<b>At Least 50 Mbps/1.5 mbps</b>	91	916	91.00
<b>At Least 100 Mbps/1.5 Mbps</b>	782	224	22.27
<b>At Least 1 Gbps/1.5 Mbps</b>	1,006	0	0

Source: Connect Nevada April 2013

Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband service inventory (excluding mobile and satellite service) across the state of Nevada; it presents

the number and percentage of unserved and served households by speed tiers. The total number of households in Nevada in 2010 was 1,006,250, for a total population of 2,700,551 people. Table 1 indicates that 99.11% of households are able to connect to broadband at download speeds of at least 768 Kbps and upload speeds of at least 200 Kbps. This implies that the number of households originally estimated by Connect Nevada to be unserved has dropped from 9,950 households in the fall of 2010 to 8,956 households in the spring of 2013. Further, approximately 989,000 households across Nevada have broadband available of at least 3 Mbps download and 768 Kbps upload speeds. The percentage of Nevada households having fixed broadband access available of at least 6 Mbps download and 1.5 Mbps upload speeds is estimated at 97.41%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.72% of Nevada households have broadband available from at least one provider at download speeds of 768 Kbps or higher and upload speeds of 200 Kbps or higher. This leaves 2,806 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 Nevada 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 Nevada 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 Nevada has been sent on a semi-annual basis to the NTIA to be used in the National Broadband Map, and comprises the source of Nevada's broadband availability estimates reported by the NTIA and the FCC in the National Broadband Map. The National Broadband Map can be found here: <http://www.broadbandmap.gov> and the Map's specific page for Nevada can be found here: <http://www.broadbandmap.gov/summarize/state/nevada>.

### **Interactive Map**

Connect Nevada provides My ConnectView<sup>TM</sup>, an online tool developed and maintained by Connected Nation, intended to allow users to create completely customized views and maps of broadband infrastructure across the state. The self-service nature of this application empowers Nevada'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. See the interactive map here: <http://www.connectnv.org/interactive->

[map](#). For additional maps and other related information, visit:  
<http://www.connectnv.org/broadband-landscape>.

## Business and Residential Technology Assessments

To complement the broadband inventory and mapping data, Connect Nevada 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 Nevada. Key questions the data address are: who, where, and how are households in Nevada using broadband technology? How is this technology impacting Nevada households and residents? Who is not adopting broadband service and why? What are the barriers that prevent citizens from embracing this empowering technology?

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

- Three out of four Nevada adults (75%, or approximately 1.5 million adults in Nevada) subscribe to home broadband service. This is an increase of eight percentage points since 2011.
- Over half a million adults in Nevada still do not subscribe to home broadband service, including 210,000 who do not have Internet access at any location.
- Nearly three out of four Nevadans with Internet access (73%) bank online, 57% access e-Health information, and 44% search or apply for jobs online.

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

- Across Nevada, 77% of businesses subscribe to broadband service, a slight increase from 2010 when 75% of businesses subscribed.
- Nevada business establishments that use broadband report median annual revenues that are approximately \$300,000 higher than businesses that do not use broadband. Approximately 21,000 Nevada businesses use the Internet to advertise job openings or accept job applications, including 2,000 businesses that only accept applications via the Internet.

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

---

## APPENDIX 2: PARTNER AND SPONSORS

---

**Connect Nevada**, in partnership with the Nevada Broadband Task Force, supports Nevada's reinvention and technological transformation through innovation, job creation, and entrepreneurship via the expansion of broadband technology and increased usage by Nevada residents. In 2009, Connect Nevada partnered with the Nevada Broadband Task Force to engage in a comprehensive broadband planning and technology initiative as part of the national effort to map and expand broadband. The program began by gathering provider data to form a statewide broadband map, and has progressed to the planning and development stage. At this point the program is expanding to include community engagement in local technology planning, identification of opportunities with existing programs, and implementation of technology projects designed to address digital literacy, improve education, give residents access to global Internet resources, and stimulate economic development.

[www.connectnv.org](http://www.connectnv.org)

**Connect Nevada** is a subsidiary of Connected Nation and operates as a non-profit in the state of Nevada. The public-private initiative has been established to work with each of the state's broadband providers to create detailed maps of broadband coverage, conduct surveys to assess the current state of broadband adoption across Nevada, and to help communities plan for technology expansion. Connect Nevada's efforts are funded by the United States Department of Commerce's State Broadband Initiative (SBI) grant program through the National Telecommunications and Information Administration. More information is available at

<http://www.broadband.gov>

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

<http://www.connectednation.org>

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

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

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

---

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

## APPENDIX 4: WHAT IS CONNECTED?

The goal of Connect Nevada’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 Nevada 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 Nevada’s mapping and market research, the Eureka County Broadband Committee will work with community members to determine their overall broadband and technology grade on a 13-point “community certification AAU” model:

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

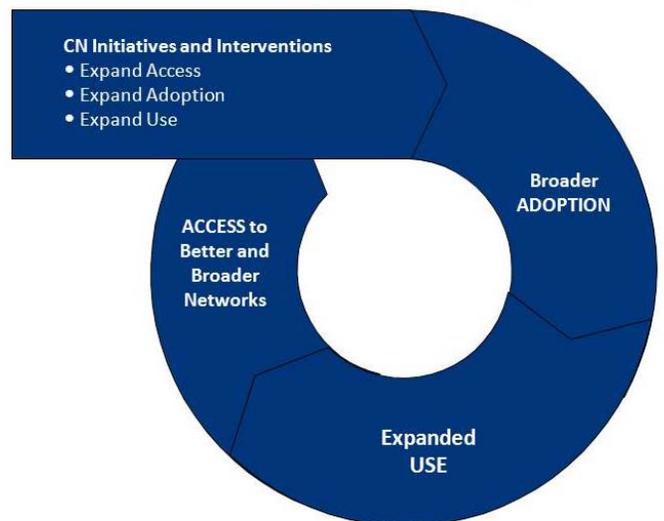
**Step 3: Action Planning & Implementation.**

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

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

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

**Broadband Catalysts for Change**



---

## 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 implementations include LTE, WiMax, and others. Maximum speeds may reach 100 Mbps, with typical speeds over 10 Mbps.

### A

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

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

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

### B

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

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

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

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

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

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

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

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

## C

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

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

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

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

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

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

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

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

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

## D

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

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

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

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

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

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

## E

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

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

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

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

## F

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

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

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

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

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

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

## G

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

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

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

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

## H

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

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

## I

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

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

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

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

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

## K

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

## L

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

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

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

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

## M

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

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

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

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

## N

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

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

## O

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

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

## P

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

## R

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

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

**RUS - Rural Utility Service** - A division of the United States Department of Agriculture that promotes universal service in unserved and underserved areas of the country through grants, loans, and financing.

## S

**Satellite** - Satellite brings broadband Internet connections to areas that would not otherwise have access, even the most rural of areas. Historically, higher costs and lower reliability have prevented the widespread implementation of satellite service, but providers have begun to overcome these obstacles, and satellite broadband deployment is increasing. A satellite works by receiving radio signals sent from the Earth (at an uplink location also called an Earth Station) and resending the radio signals back down to the Earth (the downlink). In a simple system, a signal is reflected, or "bounced," off the satellite. A communications satellite also typically converts the radio transmissions from one frequency to another so that the signal getting sent down is not confused with the signal being sent up. The area that can be served by a satellite is determined by the "footprint" of the antennas on the satellite. The "footprint" of a satellite is the area of the Earth that is covered by a satellite's signal. Some satellites are able to shape their footprints so that only certain areas are served. One way to do this is by the use of small beams called "spot beams." Spot beams allow satellites to target service to a specific area, or to provide different service to different areas.

**SBI** - State Broadband Initiatives, formerly known as the State Broadband Data & Development (SBDD) Program.

**SONET - Synchronous Optical Network** - A family of fiber-optic transmission rates.

**Streaming** - A Netscape innovation that downloads low-bit text data first, then the higher bit graphics. This allows users to read the text of an Internet document first, rather than waiting for the entire file to load.

**Subscribership** - Subscribership is the number of customers that have subscribed for a particular telecommunications service.

**Switched Network** - A domestic telecommunications network usually accessed by telephones, key telephone systems, private branch exchange trunks, and data arrangements.

## T

**T-1 - Trunk Level 1** - A digital transmission link with a total signaling speed of 1.544 Mbps. It is a standard for digital transmission in North America.

**T-3 - Trunk Level 3** - 28 T1 lines or 44.736 Mbps.

## U

**UNE - Unbundled Network Elements** - Leased portions of a carrier's (typically an ILEC's) network used by another carrier to provide service to customers.

**Universal Service** - The idea of providing every home in the United States with basic telephone service.

**Upstream** - Data flowing from your computer to the Internet (sending e-mail, uploading a file).

## V

**VDSL (or VHDSL) - Very High Data Rate Digital Subscriber Line** - A developing technology that employs an asymmetric form of ADSL with projected speeds of up to 155 Mbps.

**Video On Demand** - A service that allows users to remotely choose a movie from a digital library and be able to pause, fast-forward, or even rewind their selection.

**VLAN - Virtual Local Area Network** - A network of computers that behave as if they were connected to the same wire even though they may be physically located on different segments of a LAN.

**VoIP - Voice over Internet Protocol** - A new technology that employs a data network (such as a broadband connection) to transmit voice conversations.

**VPN - Virtual Private Network** - A network that is constructed by using public wires to connect nodes. For example, there are a number of systems that enable one to create networks using the Internet as the medium for transporting data. These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.

**Vulnerable Groups** -Vulnerable groups will vary by community, but typically include low-income, minority, senior, children, etc.

## W

**WAN - Wide Area Network** - A communications system that utilizes cable systems, telephone lines, wireless, and other means to connect multiple locations together for the exchange of data, voice, and video.

**Wi-Fi - Wireless Fidelity** - A term for certain types of wireless local networks (WLANs) that uses specifications in the IEEE 802.11 family.

**WiMax** - A wireless technology that provides high-throughput broadband connections over long distances. WiMax can be used for a number of applications, including last mile broadband connections, hotspots, and cellular backhaul and high-speed enterprise connectivity for businesses.

**Wireless Hotspot** - A public location where Wi-Fi Internet access is available for free or for a small fee. These could include airports, restaurants, hotels, coffee shops, parks, and more.

**Wireless Internet** - 1) Internet applications and access using mobile devices such as cell phones and palm devices. 2) Broadband Internet service provided via wireless connection, such as satellite or tower transmitters.

**Wireline** - Service based on infrastructure on or near the ground, such as copper telephone wires or coaxial cable underground, or on telephone poles.