



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

# LANDER COUNTY

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## TECHNOLOGY ACTION PLAN

PREPARED BY CONNECT NEVADA  
AND THE  
LANDER COUNTY TECHNOLOGY TEAM



SEPTEMBER 4, 2013



ACCESS



ADOPTION



USE

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## INTRODUCTION

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The purpose of this report is to summarize the community's assessment of local broadband access, adoption, and use, and to provide an action plan for broadband acceleration.

### Background

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. The success of a community has become dependent on how broadly and deeply the community adopts technology resources – this includes access to reliable high-speed networks, digital literacy of residents, and the use of online resources locally for business, government, and leisure. Due in large part to private investment and market-driven innovation, broadband in America has improved considerably in the last decade. More Americans are online at faster speeds than ever before.

Despite the progress, there are still critical problems that slow the progress of the access, adoption, and use of broadband. Connected Nation estimates that approximately 70 million, or 30% of, Americans do not subscribe to home broadband service, and adoption varies significantly across socioeconomic lines.<sup>1</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. Connected Nation also estimates that at least 1.8 million businesses - 24% - in the United States do not utilize broadband technology today.<sup>2</sup>

In early 2009, Congress directed the Federal Communications Commission (FCC) to develop a National Broadband Plan (NBP) to ensure every American has “access to broadband capability.”<sup>3</sup> Congress also required that the plan include a detailed strategy for achieving affordability and maximizing use of broadband to advance “consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence, and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.”<sup>4</sup>

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<sup>1</sup> *Consumer Broadband Adoption Trends*, Connected Nation, Inc., March 2013, <http://www.connectednation.org/survey-results/residential>

<sup>2</sup> Connected Nation, *Broadband and Business: Leveraging Technology to Stimulate Economic Growth*, <http://www.connectednation.org/survey-results/business>

<sup>3</sup> *Connecting America: The National Broadband Plan*, Federal Communications Commission, April 2010, <http://www.broadband.gov/download-plan/>

<sup>4</sup> Ibid.

To fulfill Congress's mandate, the National Broadband Plan, released in 2010, makes recommendations to the FCC, the Executive Branch, Congress, and state and local governments that influence the broadband ecosystem – networks, devices, content, and applications – in four ways:

1. Design policies to ensure robust competition and, as a result, maximize consumer welfare, innovation, and investment.
2. Ensure efficient allocation and management of assets and government controls or influences, such as spectrum, poles, and rights-of-way, to encourage network upgrades and competitive entry.
3. Reform current universal service mechanisms to support deployment of broadband and voice in high-cost areas; and ensure that low-income Americans can afford broadband; and in addition, support efforts to boost adoption and utilization.
4. Reform laws, policies, standards, and incentives to maximize the benefits of broadband in sectors that government influences significantly, such as public education, healthcare and government operations.<sup>5</sup>

In addition to these recommendations, the plan recommended that the country set the following six goals for 2020 to serve as a compass over the 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.<sup>6</sup>

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<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

Meeting these six goals will help achieve the Congressional mandate of using broadband to achieve national purposes, while improving the economics of deployment and adoption. While the National Broadband Plan recommends significant action by the FCC, the Executive Branch, and Congress, it requires a strong partnership among all broadband stakeholders. Federal action is necessary, but state, local, and Tribal governments, corporations, and community-based organizations must all do their part to build a high-performance America.

To assist communities in localizing the goals and recommendations made by the National Broadband Plan, Connected Nation developed the Connected Community Engagement Program.<sup>7</sup> The program is designed to help communities identify local technology assets, complete an assessment of local broadband access, adoption, and use, and develop an action plan for accelerating broadband's integration into the community's priorities.

## Methodology

By actively participating in the Connected Community Engagement Program, the Lander County Broadband Committee is boosting the community's capabilities in education, healthcare, and public safety, and stimulating economic growth and spurring job creation. The Lander 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.

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<sup>7</sup> 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 expansion programs with core competencies centered around the mission to improve digital inclusion for people and places previously underserved or overlooked.

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## CONNECTED ASSESSMENT

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The Connected Assessment framework is comprised of three elements: access, adoption, and use. Each sub-assessment has a maximum of 40 points. To achieve Connected certification, the community must have 32 points in each sub-assessment and 100 points out of 120 points overall.

- The access assessment reviews whether an adequate broadband foundation exists for the community. The criteria within the access sub-assessment endeavors to identify gaps that could affect a local community broadband ecosystem including: last mile 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.”<sup>8</sup>
- Broadband adoption is important for consumers, institutions, and communities alike to take the next step in fully utilizing broadband appropriately. The adoption sub-assessment seeks to ensure the ability of all individuals to access and achieve meaningful use of broadband service by measuring the community’s capability and commitment to eliminating the major barriers that keep non-adopters from getting broadband.
- Broadband use is the most important component of the framework 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 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.

### Connected Assessment Criteria

The criteria for the Connected Assessment stems from the Federal Communication Commission’s National Broadband Plan, as well as the broadband speed tiers used under the National Telecommunications and Information Administration’s State Broadband Initiative Grant Program. The Connected Assessment’s thirteen questions are as follows:

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<sup>8</sup> *Connecting America: The National Broadband Plan*, Federal Communications Commission, April 2010, <http://www.broadband.gov/download-plan/>

### ACCESS

- **Broadband Availability:** What percentage of homes in the community has access to fixed broadband speeds of 3 Mbps or higher?<sup>9</sup>
- **Broadband Speeds:** What is the highest speed level available to at least 75% of the households in your community?
- **Broadband Competition:** What percentage of homes in the community has access to more than one broadband provider?
- **Middle Mile Access:** What is the availability of middle mile access to the community?
- **Mobile Broadband Availability:** What is the mobile broadband availability in your community?

### ADOPTION

- **Digital Literacy:** What is the number of digital literacy program graduates over the past year in the community?
- **Public Computer Centers:** What is the number of public computer hours available per low-income resident per week?
- **Broadband Awareness:** What percentage of the community is reached by broadband awareness campaigns?
- **Vulnerable Population Focus:** How many vulnerable population groups are being targeted within the community?

### USE

- **Economic Opportunity:** What economic opportunity applications are currently in place utilizing broadband technology?
- **Education:** What broadband-enabled applications are currently being utilized by the education sector?
- **Government:** What broadband-enabled applications are currently being utilized by the government sector?
- **Healthcare:** What broadband-enabled applications are currently being utilized by the Healthcare sector?

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<sup>9</sup> The Broadband Availability criterion is based on the speed tiers required by the National Telecommunications and Information Administration's State Broadband Initiative Grant Program. The closest combination of speeds for which NTIA collects data that would allow a consumer, according to the Federal Communications Commission's National Broadband Plan, to "access a basic set of applications that include sending and receiving e-mail, downloading web pages, photos and video, and using simple video conferencing" is 3 Mbps downstream and 768 kbps upstream. Downstream speed measures the rate at which a user can download data from the Internet, including viewing Web pages, receiving e-mails, or downloading music. Upstream speed measures the rate at which a user can upload data to the Internet, including sending e-mail messages and files. For more information, go to: [http://www.ntia.doc.gov/files/ntia/publications/usbb\\_avail\\_report\\_05102013.pdf](http://www.ntia.doc.gov/files/ntia/publications/usbb_avail_report_05102013.pdf).

## Community Technology Scorecard

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

## Community Technology Scorecard Brief

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

- The community scored 27 out of a possible 40 points in broadband access primarily due to lack of broadband availability, speeds, and competition in the county, particularly in Austin.
- The community scored 24 out of a possible 40 points in broadband adoption. This score indicates an opportunity for Lander County to increase efforts to overcome the local barriers to home broadband adoption, by increasing broadband awareness campaigns, providing additional public computing centers, and through educational classes offered in the communities.
- The community scored 39 out of a possible 40 points in broadband use. This score indicates that Lander County has made great strides in these areas. They could also realize increased economic growth by pursuing broadband and broadband-enabled applications.
- Lander County achieved a score of 90 points out of 120 for overall broadband and technology readiness, which indicates that the community is exhibiting success in technology access, adoption, and use. However, a score of 90 is not enough to reach the score of 100 required for Connected certification.

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



<b>Community Technology Scorecard</b> Community Champions: Gina Little Community Advisor: Debbie Erdody				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	70% to 79.9% of homes have access to 3 Mbps	2	10
	Broadband Speeds	75% of households with access to at least 10 Mbps	3	5
	Broadband Competition	70% to 79.9% of households with access to more than 1 Broadband Provider	2	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99% to 100% of households with access to mobile broadband	10	10
	<b>ACCESS SCORE</b>			<b>27</b>
ADOPTION	Digital Literacy	Program grads are greater than 4 per 1,000 residents over the past year	6	10
	Public Computer Centers	250 computer hours per 1,000 low-income residents per week	4	10
	Broadband Awareness	Campaigns reach 60% of the community	6	10
	Vulnerable Population Focus	4 groups	8	10
	<b>ADOPTION SCORE</b>			<b>24</b>
USE	Economic Opportunity	1 advanced, 9 basic uses	10	10
	Education	4 advanced, 5 basic uses	10	10
	Government	0 advanced, 9 basic uses	9	10
	Healthcare	3 advanced, 4 basic uses	10	10
	<b>USE SCORE</b>			<b>39</b>
<b>COMMUNITY ASSESSMENT SCORE</b>			<b>90</b>	<b>120</b>

## Itemized Key Findings

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

### ACCESS

- 2 last mile broadband providers currently provide service in Lander County:
  - 79.79% of households have access to 3 Mbps.
  - More than 75% of Lander County homes have access to 10 Mbps service.
  - 78.23% of Lander County households have access to more than 1 provider.
- Middle mile fiber infrastructure is available from multiple providers in Lander County.
- 99.76% of Lander County households have access to mobile broadband.

### ADOPTION

- 2 Digital Literacy Programs exist in the community.
- 4 Public Computer Centers (PCC) with a total of 13 computers are open to the public.
- 1 Broadband Awareness Campaign is reaching 70% of Lander County.
- 3 organizations are working with vulnerable populations.

### USE

- At least 10 uses of broadband were identified in the area of economic opportunity including 1 advanced use and 9 basic uses.
- At least 9 uses of broadband were identified in the area of education including 4 advanced uses and 5 basic uses.
- At least 9 basic uses of broadband were identified in the area of government.
- At least 7 uses of broadband were identified in the area of healthcare including 3 advanced uses and 4 basic uses.

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

#### **Technology Providers**

- 7 broadband providers were identified in Lander County

#### **Technology Facilities**

- 3 public computing centers
- 2 wireless hotspots
- 3 video conference facilities

#### **Community Websites**

- 16 Business-related websites (excluding private businesses)
- 3 Education-related websites



- 7 Government-related websites
- 1 Healthcare-related website
- 1 Library-related website
- 2 Tourism-related websites

## Community Priority Projects

The Connected Assessment has culminated in the outlining of projects designed to empower the community to accelerate broadband access, adoption, and use. Below are seven priority projects. Detailed descriptions of each project can be found in the *Action Plan* section later in this report.

### *Broadband Speed Testing*

### *Create a County Consortium (Humboldt/Lander/Pershing)*

### *Collect and Display Business and Zoning Information*

### *Support Current Broadband Projects*

### *Support Digital Learning Initiatives*

### *Support Healthcare Initiatives*

### *Support Public Safety Network Initiatives*

## All Proposed Projects

Below is a complete list of all 24 proposed projects. Detailed descriptions of each project can be found in the *Action Plan* section later in this report.

### ACCESS

#### **Broadband Availability**

1. Apply to USDA for Funding to Support Broadband Build-out in Community.
2. Develop & Issue an RPF for Build-out.
3. Perform a Broadband Build-out Analysis in Unserved Areas.
4. Creation of a County Consortium (Humboldt/Lander/Pershing).

#### **Broadband Speeds**

5. Identify, Map, and Validate Broadband Demand.
6. Broadband Speed Testing

### **Broadband Competition**

7. Support Current Broadband Projects

**Middle Mile Access** – No proposed projects

### **Mobile Broadband Availability**

8. Complete a Vertical Assets Inventory.

## **ADOPTION**

### **Digital Literacy**

9. Facilitate Internet Safety Classes.
10. Secure Low-Cost Computers Via Partnerships.

### **Public Computer Centers**

11. Procure a Multipurpose Mobile Technology Center.
12. Establish a “Community Technology Academy.”

### **Broadband Awareness**

13. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses
14. Implement a Community-Based Technology Awareness Program

### **Vulnerable Population Focus**

15. Initiate a Community Computer Refurbishment Program.
16. Develop a Technology Mentorship Program.

## **USE**

### **Economic Opportunity**

17. Establish a “Digital Factory.”
18. Collect and Display Business and Zoning Information.

### **Education**

19. Connect all School Classrooms to the Internet.
20. Support Digital Learning Initiatives.

### **Government**

21. Improve Online Business Services Offered by the Government.
22. Support Public Safety Initiatives.

### **Healthcare**

23. Support Healthcare Initiatives.

24. Promote Telemedicine in Remote Areas.

## Community Geographic/Demographic/Historical Information

### Geographical Information

**Lander County** is located in north central Nevada. The County has a total area of 5,519 square miles (14,294.1 km<sup>2</sup>), of which 5,494 square miles (14,229.4 km<sup>2</sup>) is land and 26 square miles (67.3 km<sup>2</sup>) (0.47%) is water. The bordering counties are: Elko to the north, Eureka to the east, Nye to the south, Churchill and Pershing to the west, and Humboldt to the northwest. The elevation ranges from about 11,473 feet at Bunker Hill to about 4,510 feet in Battle Mountain.

### Demographical Information

As of the [2010 census estimate](#), the population was 5,775. As of the [census](#) in 2000, there were 5,794 people, 2,093 households, and 1,523 families residing in the county. The [population density](#) was 1 person per square mile (0/km<sup>2</sup>). There were 2,780 housing units at an average density of 0 per square mile (0/km<sup>2</sup>). The racial makeup of the county was 84.41% [White](#), 0.21% [Black or African American](#), 3.99% [Native American](#), 0.35% [Asian](#), 0.03% [Pacific Islander](#), 8.66% from [other races](#), and 2.35% from two or more races. 18.52% of the population was [Hispanic or Latino](#) of any race.

The median income for a household in the county was \$46,067, and the median income for a family was \$51,538. Males had a median income of \$45,375, versus \$22,197 for females. The [per capita income](#) for the county was \$16,998. About 8.60% of families and 12.50% of the population were below the [poverty line](#), including 13.50% of those under age 18 and 12.90% of those ages 65 or over.

Lander County's economy is supported largely by mining and ranching. With the current mining boom, Lander County's economy is among the best in Nevada, with low unemployment and the potential for unprecedented growth. Agriculture also plays a significant role in Lander County, where local ranchers produce high quality alfalfa and alfalfa seed.

Over 85 percent of Lander County is public land managed by federal agencies, making hunting and fishing, hiking, and mountain biking abundant. South of Battle Mountain, the new Shoshone off-highway vehicle trail system takes four-wheelers through stunning desert and mountain landscapes. With a population of just under 6,000 and a population density of 1 person per square mile, there's plenty of room to spread out in Lander County.

U.S. Census QuickFacts	Lander	Nevada
<b>People</b>		
2012 Population Estimates	5,41	2,75,931
Persons under 5 years, percent 2011	8.2%	6.8%
Persons under 18 years, percent 2011	26.9%	24.4%
Persons 65 years and over, percent 2011	12.09%	12.5%
High School Graduate: 25+years old, percent (2007-2011)	77.6%	84.2%
Bachelor's Degree or higher, percent (2007-2011)	13%	22.2%
Mean Travel time to work, workers 16+ yrs minutes (2007-2011)	25.7%	23.6
Housing Units 2011	2,540	1,183,873
Housing Ownership Rate (2007-2011)	70.8%	59.1%
Housing Units in multi-unit structures, percent (2007-2010)	4.9%	29.6%
Median value of owner-occupied housing units (2007-2011)	\$108,900	\$225,400
Living in same house 1 year & over percent (2007-2011)	81.7%	78.2%
Households (2007-2011)	2,006	986,741
Persons per household (2007-2011)	2.77	2.67
Per capita money income in past 12 months, dollars (2010)	\$28,459	\$27,625
Median household income, dollars (2007-2011)	\$69,814	\$55,553
Persons below poverty level, percent (2007-2011)	12.3%	12.9%
<b>Business</b>		
Private nonfarm establishments 2010	88	59,207
Private nonfarm employment 2010	1,270	1,002,956
Private nonfarm employment percent change (2000-2010)	2.9	11.1
Nonemployer establishments 2010	254	177,181
Building Permits, 2011	19	6,163
<b>Geography</b>		
Land area in square miles 2010	5,490.11	109,781.18
Persons per square mile 2010	1.1	24.6

## Geographical Information

**Lander County** is located in north central Nevada. The County has a total area of 5,519 square miles (14,294.1 km<sup>2</sup>), of which 5,494 square miles (14,229.4 km<sup>2</sup>) is land and 26 square miles (67.3 km<sup>2</sup>) (0.47%) is water. The bordering counties are: Elko to the north, Eureka to the east, Nye to the south, Churchill and Pershing to the west and Humboldt to the northwest. The elevation ranges from about 11,473 feet at Bunker Hill to about 4,510 feet in Battle Mountain.

## Historical Information

The county seat is Battle Mountain. The county, one of the original nine counties in Nevada, was created in 1861. It is named for [Frederick W. Lander](#), chief engineer of a federal wagon route through the area in 1857. Lander County sprang forth as the result of a mining boom on the [Reese River](#), along the old [pony express](#) line, taking a considerable portion of [Churchill](#) and [Humboldt](#) counties with it. Eventually, Lander County would be known as the "mother of counties" since three other counties in Nevada were formed from it: Elko, White Pine, and Eureka.

## Economic Development Information

Lander County is a member of three regional economic development authorities including the Western Nevada Development District ([www.wndd.org](http://www.wndd.org)), the Northern Nevada Development Authority ([www.nnda.org](http://www.nnda.org)) and EDAWN ([www.edawn.org](http://www.edawn.org)).

## Broadband Information

Lander County has two main population areas: Battle Mountain and Austin. The distance of about 90 miles between these two communities creates a challenge for providers and residents alike. As a result, broadband campaigns and awareness must be set up to serve both communities - each with a unique identity, population base, and terrain.

Through the assessment process, the Austin community has cited areas of concern related to broadband, specifically in the access area, in regards to adequate speeds for residential and consumer use, as well as access to affordable service. Currently, a solution for the Austin area, as well higher speeds in Battle Mountain, is in process. Arizona Nevada Tower Corporation (ANTC) is doing a build-out and has encountered roadblocks with an environmental assessment, which is being worked through with the BLM.

## DETAILED FINDINGS

### Lander County Assessment Findings

Residents in Lander County (or sections of the community) are served by seven providers. Currently, broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream.<sup>10</sup> According to Connect Nevada’s latest broadband mapping update, the following providers have a service footprint in the Lander County Community:

Broadband Providers	Technology Type	Website Reference
StarBand Communications	Satellite Provider	<a href="http://starband.com/">http://starband.com/</a>
PC Internet	Fixed Wireless	<a href="http://www.winnemuca.net/">http://www.winnemuca.net/</a>
Hughes Network Systems	Satellite Provider	<a href="http://www.hughesnet.com/">http://www.hughesnet.com/</a>
Express Internet	Fixed Wireless	<a href="http://www.expint.net/">http://www.expint.net/</a>
AT&T Nevada	DSL	<a href="http://www.att.com/">http://www.att.com/</a>
ViaSat, Inc	Satellite Provider	<a href="http://www.wildblue.com/">http://www.wildblue.com/</a>
Wireless Beehive	Fixed Wireless	<a href="http://www.beehivebroadband.com/">http://www.beehivebroadband.com/</a>

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

Organization Name	Website	Website Category
Union Street Lodging	<a href="http://unionstreetlodging.com/">http://unionstreetlodging.com/</a>	Business
Port of Subs	<a href="http://www.portofsubs.com/">http://www.portofsubs.com/</a>	Business
Century 21 Sonoma Realty	<a href="http://offices.10010402.eco.century21.com/">http://offices.10010402.eco.century21.com/</a>	Business
Broadway Flying J Travel Plaza	<a href="http://www.broadwaygroup.com/">http://www.broadwaygroup.com/</a>	Business
Battle Mountain Inn	<a href="http://www.battlemtinn.com/">http://www.battlemtinn.com/</a>	Business
Super 8 Hotel	<a href="http://www.super8.com/">http://www.super8.com/</a>	Business
Newmont Mining	<a href="http://www.newmont.com/">http://www.newmont.com/</a>	Business

<sup>10</sup> Organizations define broadband in different ways. For information to be included on the National Telecommunications and Information Administration’s National Broadband Map, the technology must provide a two-way data transmission (to and from the Internet) with advertised speeds of at least 768 kilobits per second (Kbps) downstream and at least 200 Kbps upstream to end users. The Connected Community Engagement Program defines basic broadband as 768 Kbps downstream and 200 Kbps upstream.

Maverick	<a href="http://maverik.com/">http://maverik.com/</a>	Business
Garden Gate Floral	<a href="http://www.gardengatefloral.net/">http://www.gardengatefloral.net/</a>	Business
Small Mine Development	<a href="http://www.undergroundmining.com/">http://www.undergroundmining.com/</a>	Business
John Davis Trucking Company	<a href="http://www.jdt3d.net/">http://www.jdt3d.net/</a>	Business
Midway Market	<a href="http://www.midwaymarket.com/">http://www.midwaymarket.com/</a>	Business
Battle Mountain Tire Factory	<a href="http://www.tirefactory.com/home.aspx">http://www.tirefactory.com/home.aspx</a>	Business
Atlas Towing Service, Inc.	<a href="http://www.atlastowingservice.com/">http://www.atlastowingservice.com/</a>	Business
East 50 Realty	<a href="http://goaustinnevada.com">http://goaustinnevada.com</a>	Business
Miles End Bed and Breakfast	<a href="http://www.milesendbnb.com/index.html">http://www.milesendbnb.com/index.html</a>	Business
Lander County Schools - Austin	<a href="http://www.lander.k12.nv.us/austin_home_1.htm">http://www.lander.k12.nv.us/austin_home_1.htm</a>	Education
Great Basin College	<a href="http://www.gbcnv.edu/">http://www.gbcnv.edu/</a>	Education
Lander County School District	<a href="http://www.lander.k12.nv.us/">http://www.lander.k12.nv.us/</a>	Education
Lander County Sustainable	<a href="http://www.sustainablelander.org">http://www.sustainablelander.org</a>	Government
Battle Mountain Tourism	<a href="http://www.battlemountaintourism.com/">http://www.battlemountaintourism.com/</a>	Government
Austin Chamber of Commerce	<a href="http://www.austinnevada.com/">http://www.austinnevada.com/</a>	Government
Battle Mountain Chamber of Commerce	<a href="http://www.battlemountainchamber.com/">http://www.battlemountainchamber.com/</a>	Government
Lander County Courthouse - 6th Judicial Court	<a href="http://sixthjudicialdistrict.com/judges/venues/lander-co-court-house">http://sixthjudicialdistrict.com/judges/venues/lander-co-court-house</a>	Government
Lander County Economic Development Authority	<a href="http://www.landeropportunity.org/">http://www.landeropportunity.org/</a>	Government
Lander County Government	<a href="http://landercountynv.org/">http://landercountynv.org/</a>	Government
Battle Mountain General Hospital	<a href="http://www.bmgh.org/">http://www.bmgh.org/</a>	Healthcare
Elko-Lander-Eureka County Library System	<a href="http://www.elkocountylibrary.org/">http://www.elkocountylibrary.org/</a>	Libraries
Austin Museum	<a href="http://austinnevadamuseum.com/1frameset.htm">http://austinnevadamuseum.com/1frameset.htm</a>	Tourism
Battle Mountain Cookhouse Museum	<a href="http://www.battlemountainmuseum.com/battlemountainmuseum.com/Home.html">http://www.battlemountainmuseum.com/battlemountainmuseum.com/Home.html</a>	Tourism

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

Organization Name	Website	Resource Type
Austin Library	<a href="http://www.elkocountylibrary.org/austinbranch.htm">http://www.elkocountylibrary.org/austinbranch.htm</a>	Public Computer Facility
Battle Mountain Library	<a href="http://www.elkocountylibrary.org/battlemountain.htm">http://www.elkocountylibrary.org/battlemountain.htm</a>	Public Computer Facility
Family Resource Center	<a href="http://bmfrc.org/">http://bmfrc.org/</a>	Public Computer Facility
Battle Mountain General Hospital	<a href="http://www.bmgh.org/">http://www.bmgh.org/</a>	Video Conference Facility
Cooperative Extension	<a href="http://www.unce.unr.edu/count">http://www.unce.unr.edu/count</a>	Video Conference Facility

	<a href="#">ies/lander/</a>	
Great Basin College	<a href="http://www.gbcnv.edu/campus/battlemountain.html">http://www.gbcnv.edu/campus/battlemountain.html</a>	Video Conference Facility
McDonald's	<a href="http://www.forlocations.com/mcdonalds-Battle-Mountain/NV/930-broyles-rd">http://www.forlocations.com/mcdonalds-Battle-Mountain/NV/930-broyles-rd</a>	Wireless Hotspot
Bakkers Brew	N/A	Wireless Hotspot

## Connected Assessment Analysis



### ACCESS SCORE EXPLANATION

**Broadband Availability (2 out of 10 Points Possible)** – is measured by analyzing the percentage of households in the community with access to fixed broadband speeds of 3 Mbps or higher. Data are collected by Connected Nation’s broadband mapping program.<sup>11</sup> If broadband data is missing, the community team was able to improve the quality of data to ensure all providers are included.

- **According to the April 2013 data collected by Connect Nevada, 79.79% of Lander County residents had access to broadband speeds of 3 Mbps or greater.**

**Broadband Speeds (3 out of 5 Points Possible)** – is measured by analyzing the speed tiers available within a community. Data are collected by Connected Nation’s broadband mapping program. The Connected Assessment analyzes broadband coverage by the highest speed tier with at least 75% of households covered. If broadband data is missing, the community team was able to improve the quality of data to ensure all providers are included.

- **According to the April 2013 data collected by Connect Nevada, 79.76% of Lander County residents had access to broadband speeds of 10 Mbps.**

<sup>11</sup> Connected Nation is working across states and with the federal government to implement the State Broadband Initiative (SBI) program created by the Broadband Data Improvement Act of 2008 and managed by the National Telecommunications and Information Administration (NTIA) within the Department of Commerce. One of the main components of the SBI program is the creation of a detailed, nationwide map of broadband coverage in order to accurately pinpoint remaining gaps in broadband availability across the nation. Connected Nation is the largest mapping agent across the nation supporting the SBI program, and has worked in thirteen jurisdictions to collect, process, integrate, and validate provider data, and map the broadband inventory across these jurisdictions. Connected Nation has received, processed, and submitted records to the NTIA from over 1,400 service providers.

**Broadband Competition** (2 out of 5 Points Possible) – is measured by analyzing the number of broadband providers available in the community and the percentage of that community’s residents with more than one broadband provider available. Connected Nation performed this analysis by reviewing the data collected through its broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

- **According to the April 2013 data collected by Connect Nevada, 78.23% of Lander County residents had 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. The community, in collaboration with Connected Nation, collected and analyzed middle mile access data.

- **Lander County is served by 2 or more middle mile fiber providers.**

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

- **According to the April 2013 data collected by Connect Nevada, 99.76% of Lander County residents had access to mobile broadband service.**



**ADOPTION SCORE EXPLANATION**

**Digital Literacy** (6 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
Family Resource Center	Remedial English (reading/writing/spelling)/ Math.,	Not Tracked

	various computer classes, career counseling, Adult reading classes	
Lander County Library	Various computer program assistance	Not Tracked

**Public Computer Centers (4 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 are calculated by taking the overall number of computers multiplied by the number of hours open to a community during the course of the week. A listing of public computer centers available in Lander County is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Family Resource Center	32	2	64
Battle Mountain Library	26	8	208
Austin Library	12	1	12
Battle Mountain Senior Center	30	2	60

**Broadband Awareness (6 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 Lander County is below.

Organization Name	Campaign Description	Community Reach
Lander County Schools	After school program help with homework K-12	70%

**Vulnerable Population Focus (8 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 Lander County is listed below.

Organization Name	Program Description	Vulnerable Group
Adult Education	GED program	Low-income, minority, senior
Family Resource Center	After school programs K-12	Children, low-income, minority
Lander County School District	GED program	Children, low-income, minority



### USE SCORE EXPLANATION

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

Application Provider	Description	Basic / Advanced
Highway 50 passport	Pony Express - Austin	Basic
Austin Chamber of Commerce	Tourism/historical information	Basic
Battle Mountain Chamber of Commerce	Tourism/recreational/historical information	Basic
Austin Historical Museum	Austin history	Basic
Various online banking	Online banking available	Basic
Go Austin Nevada	Local attractions listed	Basic
Lander County Economic Development Authority	Economic Development	Basic
Battle Mountain Convention & Tourism	Convention center and tourism	Basic
Battle Mountain Chamber of Commerce	Program to assist small businesses	Advanced
Battle Mountain Museum	Historical museum	Basic

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

Application Provider	Description	Basic/ Advanced
Lander County School District	PowerSchool - grades and homework listed for students and parents	Advanced
Lander County School District	Online class offered from Great Basin College	Advanced
Lander County School District	Additional assistance curriculum assistance for students	Basic
Austin Library - Lander County School District	Connected to the Internet	Basic

Austin - Lander County School District	Ed-helper	Basic
Lander County School District	A+ - credit recovery for students (alternative education)	Basic
Great Basin College	Online college classes offered in both Battle Mountain and Austin	Advanced
Battle Mountain Library	Online catalog for the library	Advanced
Battle Mountain Library - Lander County School District	Connected to the Internet	Basic

**Government (9 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
Lander County Government	50% of County services online	Basic
Lander County Sewer & Water District #1	Use of SCADA technology	Basic
Lander County Sewer & Water District 2	Use of SCADA technology	Basic
Lander County Sewer & Water District	Use of SCADA technology	Basic
Lander County Economic Development	Economic Development	Basic
Battle Mountain Convention Center	Convention center and tourism	Basic
Battle Mountain Chamber of Commerce	Program to assist small businesses	Basic
Lander County Sheriff	Public Safety	Basic
Nevada Energy	Energy/environment	Basic

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

Application Name	Description	Basic/ Advanced
Austin Medical Clinic	Telemedicine available through Eureka (part of Rural NV Health)	Advanced
Battle Mountain General Hospital	Healthcare provider information available online	Basic
Battle Mountain General Hospital	Telemedicine available	Advanced
Battle Mountain General Hospital	Computer access in the long term care online service	Basic
John Marvel Senior Housing	Computer access in the assisted living center	Basic



Battle Mountain General Hospital	EHR (electronic health records) 100%	Advanced
Lander County Community Health	Shots, family planning, disease	Basic

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## ACTION PLAN

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### Community Priority Projects

The Connected Assessment has culminated in the outlining of projects designed to empower the community to accelerate broadband access, adoption, and use. Below are seven priority projects. This is followed by a list of proposed solutions.

#### *Broadband Speed Testing*

**Project Description:**

Encourage residents to participate in data contribution through county-level speed testing. In order to validate available speeds of local providers, host a contest for gathering speed data from residents. This will enable a more detailed speed map for the technology team's use in the future.

**Goals:**

1. *Create a more detailed map* – Create a more detailed map for the community regarding available speeds, enabling the technology team and community stakeholders to better understand the broadband landscape and to address residential concerns anecdotally gathered at local technology team meetings.
2. *Create a collaborative environment* – Create a collaborative environment between local community members and providers that serve the area.

**Action Items:**

1. Host a contest encouraging local residents to complete an online speed test.
2. Overlay speed data with provider data via the Connect Nevada maps.
3. Analyze the data for accuracy across mapping platforms, working with providers and local residents to develop a plan for increased speeds.

**Implementation Team:**

To be determined.

#### *Create a County Consortium (Humboldt/Lander/Pershing)*

**Project Description:**

The consortium should be led by the county governments, which would commit to a contract guarantee for a service provider to serve three counties (Humboldt, Lander, and Pershing). The guarantee of the consortium would allow for these communities (counties) to break into the heretofore inaccessible fiber running through the I-80 corridor. Currently, this can be done at a

very high cost to facilitate FTTP, or can be done in collaboration with WISPs (including fixed wireless providers). By creating the consortium backed guarantee, the incentive is in place for a true broadband investment to be made. Thus, the local anchors are better capable of serving their citizenry. Local retail providers are given access to an alternative provider. In short order, fiber fed broadband can serve not only the anchors, but also local WISPs and, therefore, small business and residential customers with broadband on par with places like Reno and Las Vegas.

**Goals:**

1. *Identify the most credible and reliable broadband provider* – Identify the most credible and reliable broadband provider to serve the region’s households and businesses through an RFP (request for proposals) process.
2. *Work with the RFP* – The RFP should request that interested parties provide plans for cost-effective community broadband networks, including equipment lists, locations, and itemized engineering cost estimates. In addition, the completed design should include what technology will be needed at customer premises, the performance that can be expected, and recurring costs associated with operating and maintaining the system once it is in place.
3. *Support providers and projects* – Support providers and projects to encourage timely progress, maximize local resources, and create relationships of collaboration, in anticipation that this might lead to a reduction in cost for both infrastructure deployment and service cost to residents and businesses.
4. *Establish a clear communication channel* – Establish a clear communication channel between residents and providers.

**Action Items:**

1. Establish a consortium within the counties to work with local county officials to facilitate fiber-fed broadband to CAIs, local providers, and residents.
2. Consider opportunities for leveraging community assets to promote broadband deployment.
3. Develop a system of communication through single points of contact to providers regarding city/county planning initiatives.
4. Identify all providers in the area, including contact names, service territory, and available speeds.
5. Invite providers and local customers to ongoing technology meetings, identifying resources and challenges for both the community providers.

**Benefits:**

1. This project would create a creditable and reliable broadband consortium within these three counties to serve the residents and businesses by increasing speeds and access. It would also provide the much needed redundancy in these communities.

**Implementation Team:**

To be determined.

## *Collect and Display Business and Zoning Information*

### **Project Description:**

Collect business and zoning information to contribute as a layer on the availability map to analyze business access, specifically across areas considered for possible economic development.

### **Goals:**

1. *Empower the technology team and local economic development professionals* – Empower the technology team and local economic development professionals to better understand the broadband landscape to support current businesses and to recruit new business.

### **Action Items:**

1. Identify additional resources for zoning layers (i.e. GIS maps).
2. Create an overlay to the last mile service maps provided by Connect Nevada.
3. Discuss service needs with current and potential businesses.
4. Analyze maps for gaps in service for businesses.
5. Use broadband in awareness campaigns as a driver for new business recruitment.

### **Benefits:**

1. To better understand and support the current businesses needs and as a very useful tool for potential businesses.

### **Implementation Team:**

To be determined.

## *Support Current Broadband Projects*

### **Project Description:**

Support current projects acting as a liaison between providers, residents, and community leaders to ensure ongoing project success and consumer satisfaction. As projects progress, ensure appropriate communication channels are utilized and the needs of community members and providers are met. This will be achieved by establishing ongoing technology team meetings and developing communication strategies for team members.

### **Goals:**

1. *Support providers and projects* – Support providers and projects which will encourage timely progress, maximize local resources, and create relationships of collaboration carrying into the future. In some cases this may lead to a reduction in cost for both infrastructure deployment and service cost to residents.

2. *Establish a clear communication channel* – Establish a clear communication channel between residents and providers.

**Action Items:**

1. Identify all providers in the area, including contact names, service territory, and available speeds.
2. Establish a clear communication channel between residents and providers.

**Benefits:**

1. Supporting providers and broadband projects encourages a better working relationship for the county, residents, and businesses.

**Implementation Team:**

To be determined.

### *Support Digital Learning Initiatives*

**Project Description:**

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

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

In the future, there may be an opportunity to leverage the newly adopted, June 12, 2012, 1to1 program that the Nevada Commission on Educational Technology approved. Its goal was to create a path to transforming education in Nevada by promoting student success, supporting economic growth, and creating a twenty-first century workforce. This plan takes into consideration the results of a 2011 study commissioned by the Governor’s Office of Economic Development (GOED) that firmly states that the Nevada educational system is underperforming and sets the goal of raising standards in science, technology, engineering, and mathematics

(STEM) education and implements a robust strategy for giving students 1:1 access to computers in the classroom.

**Goals:**

1. *Increase student attention and engagement* – Increase student attention and engagement, encourage students to take ownership of their learning, and make it easier for teachers to differentiate instruction to serve the needs of students.

**Action Items:**

1. Determine needs of local schools related to technology.
2. Determine capacity of schools (funding limitations, access to broadband and technology resources).
3. Identify partners and implement strategies to better serve students through technology.

**Benefits:**

1. To increase student engagement and attention, as well as to encourage students to take ownership of their learning.

**Implementation Team:**

To be determined.

### *Support Healthcare Initiatives*

**Project Description:**

Support healthcare network initiatives with a focus on being compliant with the federal health information act.

**Goals:**

1. *Facilitate and support* – Facilitate and support the implementation and use of the federal health information act with local healthcare providers, hospitals, etc.
2. *Facilitate/support the health technology initiatives* – Facilitate/support the health technology initiatives for local healthcare providers that support the management of a robust, state-wide healthcare network to support residents and improve quality of care between entities.

**Action Items:**

1. Establish a communication vehicle (liaison) between the technology team, the local community, and the healthcare network.
2. Support the efforts as needed.

**Benefits:**

1. To support the federal healthcare network initiatives.

**Implementation Team:**

To be determined.

***Support Public Safety Network Initiatives***

**Project Description:**

Support ongoing public safety network initiatives with a focus on interoperability at the state and federal level and value sharing of resources among the region and with additional public and private stakeholders.

**Goals:**

1. *Facilitate/support the creation of a public safety network* – Facilitate/support the creation of a public safety network that supports interoperability and management of a robust, state-wide public safety network to support residents.
2. *Facilitate/support the implementation of health technology initiatives* – Facilitate/support the implementation of health technology initiatives for local healthcare providers that supports interoperability and management of a robust, state-wide healthcare network to support residents and improve quality of care between entities.

**Action Items:**

1. Establish a communication vehicle (liaison) between the technology team, the local community, and the healthcare network.
2. Support the efforts as needed.

**Benefits:**

1. To support the ongoing public safety initiatives with the focus interoperability at the local, state, and federal level.

**Implementation Team:**

To be determined.

## Proposed Projects

### ACCESS

#### **Broadband Availability**

##### **1. Apply to USDA for Funding to Support Broadband Build-out in 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. 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.

#### **Programs:**

##### **1. 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 city, town, or incorporated area that has a population of more than 20,000 people
  - 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:
  - Corporation
  - Limited liability company (LLC)
  - Cooperative or mutual organization
  - Federally recognized Indian tribe or tribal organization
  - 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:



- The service area is completely contained within a rural area
- At least 25 percent of the households in the service area are underserved households
- No part of the service area has three or more incumbent service providers
- No part of the funded service area overlaps with the service area of current RUS borrowers and grantees
- No part of the funded service area is included in a pending application before RUS seeking funding to provide broadband service.

*Contact Information:*

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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)

2. *Community Connect Program – USDA*

This program 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  
Email: [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)

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

This program 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.

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

4. *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>

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

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

**Goal:**

Identify the most credible and reliable broadband provider to serve your region's households and businesses.

**Benefits:**

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

**Action Items:**

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

### 3. Perform a Broadband Build-out Analysis in Un-served Areas.

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

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

#### **Goal:**

Determine which areas lack the necessary technological structure and determine the feasibility of deploying various Internet systems in the defined area.

#### **Benefits:**

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

#### **Action Items:**

Conduct a wireless assessment to include:

1. Determining the functionality of all potential transmit locations
2. Surveying the availability of adequate power sources at each location
3. Identifying any issues regarding ingress and egress at each location
4. Designing a wireless broadband system using these potential transmit locations
5. Creating a methodology for the expansion of wireless broadband coverage into the un-served areas of the community

### 4. Creation of a County Consortium (Humboldt/Lander/Pershing)

The consortium should be led by the county governments, which would commit to a contract guarantee for a service provider to serve three counties (Humboldt, Lander, and Pershing). The guarantee of the consortium would allow for these communities (counties) to break into the heretofore inaccessible fiber running through the I-80 corridor. Currently, this can be done at a very high cost to facilitate FTTP, or can be done in collaboration with WISPs (including fixed wireless providers). By creating the consortium backed guarantee, the incentive is in place for a true broadband investment to be made. Thus, the local anchors are better capable of serving their citizenry. Local retail providers are given access to an alternative provider. In short order,

fiber fed broadband can serve not only the anchors, but also local WISPs and, therefore, small business and residential customers with broadband on par with places like Reno and Las Vegas.

**Goals:**

1. *Identify the most credible and reliable broadband provider* – Identify the most credible and reliable broadband provider to serve the region’s households and businesses through an RFP (request for proposals) process.
2. *Work with the RFP* – The RFP should request that interested parties provide plans for cost-effective community broadband networks, including equipment lists, locations, and itemized engineering cost estimates. In addition, the completed design should include what technology will be needed at customer premises, the performance that can be expected, and recurring costs associated with operating and maintaining the system once it is in place.
3. *Support providers and projects* – Support providers and projects to encourage timely progress, maximize local resources, and create relationships of collaboration, in anticipation that this might lead to a reduction in cost for both infrastructure deployment and service cost to residents and businesses.
4. *Establish a clear communication channel* – Establish a clear communication channel between residents and providers.

**Action Items:**

1. Establish a consortium within the counties to work with local county officials to facilitate fiber-fed broadband to CAIs, local providers, and residents.
2. Consider opportunities for leveraging community assets to promote broadband deployment.
3. Develop a system of communication through single points of contact to providers regarding city/county planning initiatives.
4. Identify all providers in the area, including contact names, service territory, and available speeds.
5. Invite providers and local customers to ongoing technology meetings, identifying resources and challenges for both the community providers.

**Benefits:**

1. This project would create a creditable and reliable broadband consortium within these three counties to serve the residents and businesses by increasing speeds and access. It would also provide the much needed redundancy in these communities.

**Broadband Speeds**

**5. 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:**

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

**Action Items:**

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

## 6. Broadband Speed Testing

Encourage residents to participate in data contribution through county-level speed testing. In order to validate available speeds of local providers, host a contest for gathering speed data from residents. This will enable a more detailed speed map for the technology team's use in the future.

**Goals:**

1. *Create a more detailed map* – Create a more detailed map for the community regarding available speeds, enabling the technology team and community stakeholders to better understand the broadband landscape and to address residential concerns anecdotally gathered at local technology team meetings.
2. *Create a collaborative environment* – Create a collaborative environment between local community members and providers that serve the area.

**Action Items:**

1. Host a contest encouraging local residents to complete an online speed test.
2. Overlay speed data with provider data via the Connect Nevada maps.
3. Analyze the data for accuracy across mapping platforms, working with providers and local residents to develop a plan for increased speeds.

## Broadband Competition

### 7. Support Current Broadband Projects

Support current projects acting as a liaison between providers, residents, and community leaders to ensure ongoing project success and consumer satisfaction. As projects progress, ensure appropriate communication channels are utilized and the needs of community members

and providers are met. This will be achieved by establishing ongoing technology team meetings and developing communication strategies for team members.

**Goals:**

1. *Support providers and projects* – Support providers and projects which will encourage timely progress, maximize local resources, and create relationships of collaboration carrying into the future. In some cases this may lead to a reduction in cost for both infrastructure deployment and service cost to residents.
2. *Establish a clear communication channel* – Establish a clear communication channel between residents and providers.

**Action Items:**

1. Identify all providers in the area, including contact names, service territory, and available speeds.
2. Establish a clear communication channel between residents and providers.

**Benefits:**

1. Supporting providers and broadband projects encourages a better working relationship for the county, residents, and businesses.

**Middle Mile Access** – No proposed projects

**Mobile Broadband Availability**

**8. 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:**

1. 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.
2. The inventory can encourage the expansion of affordable, reliable wireless broadband services to underserved areas by shortening project development time.

**Action Items:**

1. 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.
2. Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.
3. 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**

**Digital Literacy**

**9. Facilitate Internet Safety Classes.**

Some of the best ways to make sure community members are aware of how to navigate the Internet safely include instituting security-awareness training initiatives that include, but are not limited to, classroom style training sessions, security awareness website(s), helpful hints via e-mail, or even posters. These methods can help ensure that community members have a solid understanding of cyber threats. There are many risks, some more serious than others.

Among these dangers are viruses erasing entire systems, a hacker breaking into a system and altering files, someone using someone else's computer to attack others, someone stealing credit card information, sexual predators making advances at children, and criminals making unauthorized purchases. Unfortunately, there's no 100% guarantee that even with the best precautions some of these things won't happen, but there are steps that can be taken to minimize the chances. Awareness training can also be used to alleviate anxiety for community members who are not using the Internet because of fear of cyber threats.

**Goal:**

Create a program designed to help community members who are using the Internet to identify and avoid situations that could threaten their safety, threaten business or government networks, compromise confidential information, compromise the safety of children, compromise their identities and financial information, or destroy their reputations.

**10. Secure Low-Cost Computers Via Partnerships.**

Computer Corps, a non-profit organization, provides computers and skills training to six main groups in northern Nevada including low-income, at-risk youth and their families, physically and other challenged individuals, displaced workers, seniors, and military personnel. Connect Nevada provides access to a variety of free online computer skills training courses through the Every Community Online program. These self-paced courses will show users the many ways that technology can connect them with their communities, including how to use a computer, how to use e-mail to communicate, and general Internet knowledge. Once training is completed, trainees qualify for a low-cost computer program. These computers are also available to registered students and local community non-profits.

**Goal:**

Ensure that low-income community members have the opportunities to purchase reduced price computers and Internet access through local resources like Computer Corps and Connect Nevada.

**Benefits:**

Assist local communities residents with computer training and to have the opportunity to purchase a computer at a reduced price.

**Action Items:**

1. Determine the need of local residents for low-cost computers.
2. Develop a strategic plan for communicating available resources to target segment.
3. Communicate and implement strategies to connect target segment with national, state, and local resources.

**Public Computer Access**

**11. Procure a Multipurpose Mobile Technology Center.**

Partner with the public library or school system to acquire a bus (or equip a bookmobile) with laptop computers and wireless Internet service to deliver technology access and programs to unserved residents in remote areas in the community. Equipped with an instructor, the mobile technology center should provide digital literacy classes, job search assistance, e-learning programs, information during community events, and emergency assistance. Beyond training and education, the mobile technology center should be utilized to target and reach unserved or

underserved members of the community and to provide them with a medium for participating in the community's technology-planning process.

Examples of existing mobile technology centers include:

- [St. Louis Community College Mobile Tech Center](#)
- [El Paso Public Library Tech-Mobile](#)
- [State Library of Ohio Mobile Technology Training Center](#)
- [Pike County Public Library District Mobile Technology Center](#)

**Benefits:**

1. 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.
2. Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.
3. 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.

**Action Items:**

Equip the vehicle with:

1. 10-20 laptops loaded with appropriate software.
2. A wireless modem that interfaces with a wireless relay station on the vehicle. Signals can be sent from any remote site in the community to partnering organization (e.g. public library) for deployment to the Web, television, or other medium.
3. Large screen TV.
4. Smart board for instruction.
5. Wheelchair accessible workstations.
6. Networked printer.
7. Full-time instructor(s).
8. Develop schedule of mobile technology center visits.

**12. Establish a "Community Technology Academy."**

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

**Goal:**

Create a partnership to underscore a community's commitment to developing a tech-savvy workforce.

**Benefits:**

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

**Action Items:**

1. Identify all organizations performing technology education and training services.
2. Identify all the organizations that have computer labs.
3. Compile a list of classes to be offered and developing content or leveraging content that is currently available at minimum or no cost from organizations such as Microsoft.
4. Determine what classes are currently being offered in the community.
5. Develop a collaborative and cooperative approach for operating the "Community Technology Academy" between all organizations.

**Broadband Awareness**

**13. 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 on Internet tools that are available at minimum or no cost to them. A training program, or entry-level "Broadband 101" course, could be utilized to give small and medium businesses an introduction on how to capitalize on broadband connectivity, as well as more advanced applications for IT staff. In addition, training should include resources for non-IT staff, such as how to use commerce tools for sales, streamline finances with online records, or leverage knowledge management across an organization. Additional training might include:

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

**Goals:**

Implement a broadband awareness and training program.

**Benefits:**

1. Assist small and medium businesses with broadband training to assist them in identifying opportunities to increase, expand and improve their online presence.

**Action Items:**

1. Identify ways businesses interact with local government and assess existing online business applications to determine appropriate use and ease of services. Develop a plan to better serve local businesses and to promote creation of new business.
2. 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.
3. Identify or develop a business awareness and training program.
4. 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.  
[http://srdc.msstate.edu/ebeat/small\\_business.html#](http://srdc.msstate.edu/ebeat/small_business.html#)

**14. 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 computer 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.

**Goals:**

1. Organize, promote, and deliver a technology awareness program to the community.
2. Increase utilization of technology resources in the community to better serve residents, particularly low-income and vulnerable populations.
3. Increase adoption of technology across the community.

**Benefits:**

1. To raise awareness within the community regarding the benefits of broadband.

**Action Items:**

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

**Vulnerable Population Focus**

**15. Initiate a Community Computer Refurbishment or Recycling Program.**

Recruit 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. Alternatively, if the computers are beyond refurbishment, the community can develop a computer recycling program. Recycling and reusing electronic equipment reduces the amount of hazardous materials that may enter the environment. Recycling and reuse programs also reduce the quantities of electronic scrap being landfilled in the state

**Goal:**

1. 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.
2. Alternatively, develop a community recycling program to reduce the amount of hazardous materials that may enter the environment.

**Benefits:**



1. Computer refurbishing programs have shown to be an excellent work force training tool for correctional facilities, young adults, and the mentally and physically challenged. The correctional facility program trains inmates with computer skills that should help them find jobs upon their release.
2. The process by which computers and other electronic equipment are refurbished or broken down to their basic parts is called demanufacturing. This helps conserve energy and raw materials needed to manufacture new computers and electronic equipment. These parts are then reused in upgrading other computers.

**Action Items:**

3. Develop a model for computer refurbishing or recycling. A basic framework might include:
  - a. Step 1: Project Planning
    - i. Determination of minimum computer specifications
    - ii. Acquisition and storage of donated computers
    - iii. Determination and installation of appropriate computer operating system
    - iv. Calculation of costs needed to carry out the program
  - b. Step 2: Inventory Management
    - i. Examine how equipment and software will be sorted and managed. Manage your inventor by identifying computers that are ready to be refurbished from those that are non-functioning.
  - c. Step 3: Volunteer Training
4. Review established residential refurbishment and recycling programs that your community can take advantage of:
  - a. [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's Reconnect](#) website.
  - b. [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.
  - c. [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.

**16. 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:**

1. 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.
2. It helps to build character by awarding students opportunities to give back to their communities and embrace responsibilities associated with community service.
3. 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.
4. 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**

**Economic Opportunity**

**17. Establish a “Digital Factory.”**

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

“VisionPerry,” located in Perry County, Tennessee, provides an ideal example of the digital factory concept. VisionPerry provides office space, high-speed Internet service, a conference room, and training/work rooms that all act as a hub for employees, remote employers, and

online training courses. Training at VisionPerry currently follows two main courses: Customer Service Representative and Programmer Training.

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

Another example would be Connected Nation's recently unveiled [Digital Works](#) program. The Digital Works program creates jobs in areas facing high unemployment by leveraging broadband technology for call center and IT outsourcing. Extended training is available for HTML programming, and other technical positions as well. The program is providing an avenue for communities to create a job incubator, retaining workers in the area and attracting corporate jobs while providing a pathway for improving a worker's competitive advantage in the twenty-first century workforce with specified coursework and training.

At the end of training, workers are placed in available positions that match their skills and interests. All jobs pay above minimum wage and the training provides opportunities for placement at levels for upward mobility. This is work that can be done from home or at the Digital Works center, which is provided through a partnership with the community. For more information, visit: [http://www.connectednation.org/sites/default/files/connected-nation/files/cn\\_digital\\_works\\_launch\\_final.pdf](http://www.connectednation.org/sites/default/files/connected-nation/files/cn_digital_works_launch_final.pdf).

**Goal:**

Connect IT training and education with remote employment opportunities.

**Benefits:**

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

**Action Items:**

1. The digital factory concept requires a site suitable for establishing office infrastructure, educational partners to develop the workforce, and business relationships with enterprises willing to hire workers through the digital factory.

2. Identify the physical, financial, and technological resources needed to establish a digital factory.
3. Space to house workspace and training and support offices will be needed, as well as the equipment, such as computers and monitors for video conferencing and training.
4. Develop partnerships with companies who would provide contractual employment to program graduates.
5. This employment-focused program can be coupled with a digital literacy program, such as Connected Nation's Every Community Online program, in order to provide basic computer and Internet skills. Connected Nation provides a discounted, turnkey training lab solution, including refurbished or new computers, presentation equipment, training curriculum, and broadband service.

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

Collect business and zoning information to contribute as a layer on the availability map to analyze business access, specifically across areas considered for possible economic development.

#### **Goals:**

1. Empower the technology team and local economic development professionals to better understand the broadband landscape to support current businesses and to recruit new business.

#### **Benefits:**

1. To better understand and support the current businesses needs and as a very useful tool for potential businesses.

#### **Action Items:**

1. Identify additional resources for zoning layers (i.e. GIS maps).
2. Create an overlay to the last mile service maps provided by Connect Nevada.
3. Discuss service needs with current and potential business.
4. Analyze maps for gaps in service for business.
5. Use broadband in awareness campaigns as a driver for new business recruitment.

### **Education**

#### **19. 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:**

1. Students can actively utilize school computers to access rich, multimedia-enhanced educational content and the Internet.
2. 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.
3. Teachers can videoconference or download streaming media to classrooms and take their students on virtual field trips to interact with subject area experts.
4. School systems can utilize online courses.
5. Teachers can actively participate in online professional learning communities to share lessons and to participate in professional development.

**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.

## 20. Support Digital Learning Initiatives.

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

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

In the future, there may be an opportunity to leverage the newly adopted, June 12, 2012, 1to1 program that the Nevada Commission on Educational Technology approved. Its goal was to create a path to transforming education in Nevada by promoting student success, supporting economic growth, and creating a twenty-first century workforce. This plan takes into consideration the results of a 2011 study commissioned by the Governor’s Office of Economic Development (GOED) that firmly states that the Nevada educational system is underperforming and sets the goal of raising standards in science, technology, engineering, and mathematics (STEM) education and implements a robust strategy for giving students 1:1 access to computers in the classroom.

### Goals:

1. *Increase student attention and engagement* – Increase student attention and engagement, encourage students to take ownership of their learning, and make it easier for teachers to differentiate instruction to serve the needs of students.

### Action Items:

1. Determine needs of local schools related to technology.
2. Determine capacity of schools (funding limitations, access to broadband and technology resources).

3. Identify partners and implement strategies to better serve students through technology.

**Benefits:**

1. To increase student engagement and attention, as well as to encourage students to take ownership of their learning.

**Government**

**21. Improve Online Business Services Offered by the Government.**

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

**Goal:**

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

**Benefits:**

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

**Action Items:**

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

- Access to documents (ideally a centralized repository of online documents and forms).
- Local ordinances, codes, policies, and regulations.
- Minutes of official meetings and hearings.
- News and events.

## 22. Support Public Safety Network Initiatives.

Support ongoing public safety network initiatives with a focus on interoperability at the state and federal level and value sharing of resources among the region and with additional public and private stakeholders.

### Goals:

1. *Facilitate/support the creation of a public safety network* – Facilitate/support the creation of a public safety network that supports interoperability and management of a robust, state-wide public safety network to support residents.
2. *Facilitate/support the implementation of health technology initiatives* – Facilitate/support the implementation of health technology initiatives for local healthcare providers that supports interoperability and management of a robust, state-wide healthcare network to support residents and improve quality of care between entities.

### Benefits:

1. To support the ongoing public safety initiatives with the focus interoperability at the local, state, and federal level.

### Action Items:

1. Establish a communication vehicle (liaison) between the technology team, the local community, and the healthcare network.
2. Support the efforts as needed.

## Healthcare

## 23. Support Healthcare Initiatives.

Support healthcare network initiatives with a focus on being compliant with the federal health information act.

### Goals:

1. *Facilitate and support* – Facilitate and support the implementation and use of the federal health information act with local healthcare providers, hospitals, etc.

2. *Facilitate/support the health technology initiatives* – Facilitate/support the health technology initiatives for local healthcare providers that support the management of a robust, state-wide healthcare network to support residents and improve quality of care between entities.

**Benefits:**

1. To support the federal healthcare network initiatives.

**Action Items:**

1. Establish a communication vehicle (liaison) between the technology team, the local community, and the healthcare network.
2. Support the efforts as needed.

**24. 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](#). 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 un-served 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/lander](http://www.connectnv.org/community_profile/find_your_county/nevada/lander).

**Table 1: Estimate of Broadband Service Availability in the State of Nevada  
By Speed Tier Among Fixed Platforms**

SBI Download/Upload Speed Tiers	Un-served 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.

<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>.

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## APPENDIX 2: PARTNER AND SPONSORS

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**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: 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 Process



The Connected process consists of a 4-step process:

**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 Lander County Broadband Committee will work with community members to determine their overall broadband and technology grade on a thirteen-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

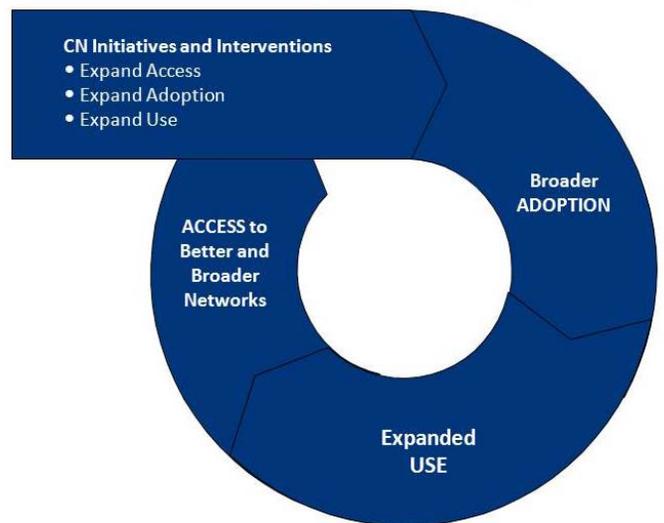
**Step 3: Action Planning & Implementation.**

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**



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## APPENDIX 4: GLOSSARY OF TERMS

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### #

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

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

### A

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

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

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

### B

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

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

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

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

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

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

**BTOP - Broadband Technology Opportunities Program** - Part of the American Recovery and Reinvestment Act (ARRA), BTOP is the program created by the U.S. Department of Commerce focused on expanding broadband access, expanding access to public computer centers, and improving broadband adoption.

## C

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

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

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

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

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

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

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

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

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

## D

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

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

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

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

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

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

## E

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

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

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

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

## F

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

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

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

**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 un-served 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.