



BASTROP COUNTY

TECHNOLOGY ACTION PLAN

PREPARED BY CONNECTED TEXAS
AND THE
BASTROP COUNTY BROADBAND COMMITTEE



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ACCESS



ADOPTION



USE

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INTRODUCTION

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

Background

Deploying broadband infrastructure, services, and applications, 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.¹ 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.²

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.”³ 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, healthcare delivery, energy independence, and efficiency, education, employee training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.”⁴

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

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

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

⁴ 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.⁵

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.⁶

⁵ Ibid.

⁶ 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.⁷ 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 Bastrop County Broadband Committee is boosting the community's capabilities in education, healthcare, and public safety, and stimulating economic growth and spurring job creation. The Bastrop 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.

⁷ Connected Nation, parent company for Connected Texas, 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.

CONNECTED ASSESSMENT

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.”⁸
- 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:

ACCESS

- **Broadband Availability:** What percentage of homes in the community has access to fixed

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

broadband speeds of 3 Mbps or higher?⁹

- **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?

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

⁹ 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: www.ntia.doc.gov/files/ntia/publications/usbb_avail_report_05102013.pdf.

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 37 out of a possible 40 points in broadband access primarily because of some gaps in broadband speed. According to data provided by Connected Nation, 75% of households in Bastrop County have access to at least 6 Mbps of broadband.
- The community scored 38 out of a possible 40 points in broadband adoption. It is important to note that this community has a vast number of public computer facilities and offerings of free or reduced digital literacy training classes available to the public.
- The community scored 40 out of a possible 40 points in broadband use.
- Bastrop County achieved a score of 115 points out of 120 for overall broadband and technology readiness, which indicates that the community is exhibiting high success in technology access, adoption, and use and has surpassed the score of 100 required for Connected certification.
- Bastrop County exceeded the 32 points in each focus area that are required for certification and has qualified for full 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.



Community Technology Scorecard Community Champions: Angela Ryan Community Advisor: LaTanya Tatum				
FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	98% to 100% of households have access to 3 Mbps	10	10
	Broadband Speeds	75% of households with access to at least 6 Mbps	2	5
	Broadband Competition	95% to 100% of households with access to more than 1 broadband provider	5	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from more than 1 provider	10	10
	Mobile Broadband Availability	99% to 100% of households with access to mobile wireless	10	10
	ACCESS SCORE			37
ADOPTION	Digital Literacy	Program grads are greater than 10 per 1,000 residents over the past year	10	10
	Public Computer Centers	500 computer hours per 1,000 low-income residents per week	10	10
	Broadband Awareness	Campaigns reach 80% of the community	8	10
	Vulnerable Population Focus	At least 5 groups	10	10
	ADOPTION SCORE			38
USE	Economic Opportunity	12 advanced, 1 basic use	10	10
	Education	15 advanced, 5 basic uses	10	10
	Government	13 advanced, 7 basic uses	10	10
	Healthcare	20 advanced, 0 basic uses	10	10
	USE SCORE			40
COMMUNITY ASSESSMENT SCORE			115	120

Itemized Key Findings

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

ACCESS

- 20 last mile broadband providers currently provide service in Bastrop County:
 - 99.48% of households have access to 3 Mbps.
 - More than 98.81% of Bastrop County homes have access to 6 Mbps service.
 - 99.62% of Bastrop County households have access to more than 1 provider.
- Middle mile fiber infrastructure is available from multiple providers in Bastrop County.
- 100% of Bastrop County households have access to mobile broadband.

ADOPTION

- 6 Digital Literacy Programs exist in the community resulting in 1,466 graduates over the past year.
- 14 Public Computer Centers (PCC) with a total of 140 computers open to the public.
- 12 Broadband Awareness Campaigns are reaching 80% of Bastrop County.
- 18 organizations are working with vulnerable populations.

USE

- At least 13 uses of broadband were identified in the area of economic opportunity including 12 advanced uses and 1 basic use.
- At least 20 uses of broadband were identified in the area of education including 15 advanced uses and 5 basic uses.
- At least 20 uses of broadband were identified in the area of government including 13 advanced uses and 7 basic uses.
- At least 20 advanced uses of broadband were identified in the area of healthcare.

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

Technology Providers

- 25 broadband providers were identified in Bastrop County
- 1 software provider
- 2 network developers
- 2 web developers

Technology Facilities

- 14 public computing centers
- 11 wireless hotspots



Community Websites

- 1 Agriculture-related website
- 2 Business-related websites (excluding private businesses)
- 11 Education-related websites
- 13 Government-related websites
- 3 Library-related websites
- 7 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.

Complete a Vertical Assets Inventory

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

Establish a "Digital Factory"

Identify, Map, and Validate Broadband Demand

Implement a Community-Based Technology Awareness Program

Improve Online Business Services Offered by the Government

Pursue Next Generation 911 Upgrades

All Proposed Projects

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

ACCESS

Broadband Availability

1. Perform an Analysis of Local Policies and Ordinances

Broadband Speeds

2. Develop Public-Private Partnerships to Deploy Broadband Service
3. Identify, Map, and Validate Broadband Demand

Broadband Competition – No proposed projects

Middle Mile Access – No proposed projects

Mobile Broadband Availability

4. Complete a Vertical Assets Inventory

ADOPTION

Digital Literacy – No proposed projects

Public Computer Centers – No proposed projects

Broadband Awareness

5. Implement a Community-Based Technology Awareness Program
6. Facilitate a Technology Summit

Vulnerable Population Focus – No proposed projects

USE

Economic Opportunity

7. Develop or Identify a Broadband Training and Awareness Program for Small and Medium Businesses
8. Establish a "Digital Factory"

Education

9. Improve Education through Digital Learning
10. Connect all School Classrooms to the Internet

Government

11. Improve Online Business Services Offered by the Government
12. Pursue Next Generation 911 Upgrades

Healthcare

13. Promote Telemedicine in Remote Areas

DETAILED FINDINGS

Current Community Technology Developments in Bastrop County

During the Connected assessment, the community team identified projects that are currently in development or being implemented. These projects are helping to enhance technology in Bastrop County:

- The Smithville Public Library (part of a Texas State Library grant to develop job skills training and VolunteerSmithville), with hosting by FranLan Multimedia, is developing the SkillSTAR Program. Contact Name: John Dees, Project Coordinator, Phone: 512-237-0423, Website: <http://www.franlan2.com/Volunteer/index.php/skill-star.html>.

The SkillSTAR program offers a set of five courses available through the web or on a local computer. The courses are available for free to all libraries, non-profit organizations, and other groups to distribute. The courses are also mobile device-enabled. The course topics include Basic Computers, Basic Internet, Basic Email, Searching and Applying for Jobs, and Creating a Resume. Future topics include Using Windows 7, Using Windows 8, Internet Security, and Spanish-language versions of Basic Internet and Basic Email.

- Bastrop County GIS Mapping Project – In 2012, the Bastrop Economic Development Corporation completed a Strategic Economic Development Plan. One of the action items that came from that process was the need for a county-wide infrastructure inventory encompassing transportation, utilities, housing, and broadband assets. The Bastrop EDC elected to partner with the Bastrop County planning and economic development office to create the inventory in a GIS based format. This will allow each economic development entity in the county to access the inventory and utilize the GIS software to better locate possible sites for prospective businesses. The county will fund the majority of the cost associated with running the program, but both the Elgin and Bastrop Economic Development Corporations will share in the initial start-up cost. In today's highly competitive economic development market, access to reliable and accurate infrastructure data is a critical aspect for landing projects. This program will put Bastrop County in a highly competitive situation, as it will allow the communities in Bastrop County to better engage site consultants and engineers evaluating their clients' business needs. In short, it will lead to future developments taking place throughout the county.

Bastrop County Assessment Findings

Residents in Bastrop County (or sections of the community) are served by 25 providers.

Currently, broadband is defined as Internet service with advertised speeds of at least 768 Kbps downstream and 200 Kbps upstream.¹⁰ According to Connected Texas’ latest broadband mapping update, the following providers have a service footprint in the Bastrop County Community:

Broadband Providers	Technology Type	Website Reference
AT&T Mobility LLC	Mobile Wireless	www.wireless.att.com/
AT&T Southwest	DSL	www.att.com
Colorado Valley Communications, Inc.	DSL	www.cvctx.com/
Cricket Communications, Inc.	Mobile Wireless	www.mycricket.com/broadband
ERF Wireless	Fixed Wireless	www.erfwireless.net
GHZ Wireless	Fixed Wireless	www.ghzwireless.com
Guadalupe Valley Telephone Cooperative	DSL	www.gvtc.com/
GVEC.net	Fixed Wireless	www.gvec.net
Hughes Network Systems, LLC	Satellite	www.hughesnet.com
LiveAir Networks	Fixed Wireless	www.liveair.net
MegaPath Corporation	DSL	www.megapath.com
Ranch Wireless	Fixed Wireless	www.ctxu.net
Reveille Broadband	Cable	www.reveillebroadband.com
Skybeam	Fixed Wireless	www.skybeam.com/
Skycasters	Satellite	www.skycasters.com
Smithville.net	Fixed Wireless	www.smithsys.net
Starband Communications	Satellite	www.starband.com
Sprint Nextel Corporation	Mobile Wireless	www.sprint.com
Suddenlink Communications, LLC	Cable	www.suddenlink.com/
Texas Broadband, Inc.	Fixed Wireless	www.texasbb.com
Texas Wireless Internet	Fixed Wireless	www.txwinet.com
Time Warner Cable	Cable	www.timewarnercable.com
T-Mobile	Mobile Wireless	www.t-mobile.com
Verizon Wireless	Mobile Wireless	www.verizonwireless.com
ViaSat	Satellite	www.viasat.com

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

¹⁰ 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.

Organization Name	Website	Website Category
Elgin Agriculture & Farming	www.elgintx.com/HISTORICDOWNTOWN.ASP	Agriculture
Lost Pines Artisans Alliance	www.lostpinesartisansalliance.org	Business
Bastrop Fine Arts Guild	www.bastropfineartsguild.com	Business
Technology for All	www.techforall.org	Education
Technology for All Facebook Page	www.facebook.com/techforall	Education
Texas Connects Coalition	www.txc2.org	Education
Texas Connects Coalition Facebook Page	www.facebook.com/TexasConnectsCoalition	Education
Volunteer Smithville	www.volunteersmithville.org	Education
Bastrop Education Foundation	www.bastropeducationfoundation.org	Education
Bastrop ISD	www.bisdtx.org	Education
Elgin ISD	www.elginisd.net	Education
Smithville ISD	www.smithvilleisd.org	Education
McDade ISD	www.mcdadeisd.info	Education
Association of Citizens for Education	www.ace4schools.org	Education
City of Smithville	www.ci.smithville.tx.us	Government
Smithville Area Chamber of Commerce & Visitors Center	www.smithvilletx.org	Government
Smithville Area Chamber of Commerce & Visitors Center Facebook Page	www.facebook.com/smithvilleareachamberofcommerce	Government
Workforce Solutions Rural Capital Area	www.workforcesolutionsrca.com	Government
Elgin Main Street Program	www.elgintx.com/HISTORICDOWNTOWN.ASP	Government
City of Elgin	www.elgintx.com	Government
City of Bastrop	www.cityofbastrop.org	Government
Bastrop Visitor Center & Museum	www.visitbastroptx.com	Government
Bastrop Main Street Program	www.bastroptxmainstreet.com	Government
Elgin Economic Development Corporation	www.elginedc.com	Government
Bastrop Economic Development Corporation	www.bastropedc.org	Government
Bastrop County	www.co.bastrop.tx.us	Government
Bastrop County Emergency Management Facebook Page	www.facebook.com/pages/Bastrop-County-Office-of-Emergency-Management/193202960708177	Government
Smithville Public Library	www.smithvillepubliclibrary.org	Libraries

Smithville Public Library Facebook Page	www.facebook.com/smithvillepubliclibrary	Libraries
Bastrop Public Library	www.bastroplibrary.org	Libraries
Online Tourism Portal	www.elgintxchamber.com	Tourism
Bastrop Chamber of Commerce	www.bastropchamber.com	Tourism
Bastrop Opera House	www.bastropoperahouse.com	Tourism
Bastrop Downtown Business Alliance	www.bastropdba.org	Tourism
Bastrop Lodging Association	www.bastroplodging.com	Tourism
Visit Lost Pines Tourism Portal	www.visitlostpines.com	Tourism
Playhouse Smithville	www.playhousesmithville.com	Tourism

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

Company Name	Website	Provider Type
LiveAir Networks	www.liveair.net	Broadband Provider
FranLan Multimedia	www.FranLan.com	Network Integrator
LiveAir Networks	www.liveair.net	Network Integrator
d3 consulting	Website unavailable	Software Provider
d3 consulting	Website unavailable	Web Developer
FranLan Multimedia	www.FranLan.com	Web Developer

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

Organization Name	Website	Resource Type
Smithville Public Library	www.smithvillepubliclibrary.org	Public Computer Facility
Technology for All	www.techforall.org	Public Computer Facility
Workforce Solutions Rural Capital Area	www.workforcesolutionsrca.com	Public Computer Facility
Smithville Community Network	www.franlan.com/SCN/	Public Computer Facility
Smithville City Hall	www.ci.smithville.tx.us/Home/City-Hall.aspx	Public Computer Facility
Smithville Chamber of Commerce	www.smithvilletx.org/	Public Computer Facility
Smithville Recreation Center	www.ci.smithville.tx.us/PARD/PARD-Maps/Smithville-Recreation-Center.aspx	Public Computer Facility
Bastrop Public Library	www.bastroplibrary.org	Public Computer Facility
Bastrop County	www.co.bastrop.tx.us	Public Computer Facility
Texas Workforce Solutions	www.workforcesolutionsrca.com/loc	Public Computer Facility

	ations/details/Workforce-Solutions-of-Bastrop-County	
Elgin Public Library	www.elginpubliclibrary.org	Public Computer Facility
Elgin First United Methodist	www.fumcelgin.com/	Public Computer Facility
Advocacy Outreach Home	www.advocacyoutreach.org/	Public Computer Facility
Smithville Community Network-Pockets Grille	www.pocketsgrille.com	Wireless Hotspot
Smithville Chamber of Commerce - Park Gazebo near Chamber office	www.smithvilletx.org	Wireless Hotspot
Smithville Public Library	www.smithvillepubliclibrary.org	Wireless Hotspot
Technology for All	www.techforall.org	Wireless Hotspot
Elgin Public Library	www.elginpubliclibrary.org	Wireless Hotspot
City of Elgin City Hall	www.elgintx.com	Wireless Hotspot
Fleming Community Center	Website unavailable	Wireless Hotspot
City Cafe	Website unavailable	Wireless Hotspot
Maxine's on Main	www.maxinesonmain.com	Wireless Hotspot
Maxine's Cafe - Elgin	www.maxinesonmain.com	Wireless Hotspot
LiveAir Networks	www.liveair.net	Wireless Hotspot

Connected Assessment Analysis



ACCESS SCORE EXPLANATION

Broadband Availability (10 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 is collected by Connected Nation’s broadband mapping program.¹¹ If broadband data is missing, the community team was able to improve the quality of data to ensure all providers are included.

¹¹ 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.

- **According to the April 2013 data collected by Connected Texas, 99.48% of Bastrop County residents had access to broadband speeds of 3 Mbps or greater.**

Broadband Speeds (2 out of 5 Points Possible) – is measured by analyzing the speed tiers available within a community. Data is 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 Connected Texas, 98.81% of Bastrop County residents had access to broadband speeds of 50 Mbps.**

Broadband Competition (5 out of 5 Points Possible) – is measured by analyzing the number of broadband providers available in 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 Connected Texas, 99.62% of Bastrop 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.

- **Bastrop 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 Connected Texas, 100% of Bastrop County residents had access to mobile broadband service.**



ADOPTION SCORE EXPLANATION

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

Organization Name	Program Description	Number of Grads
Technology For All, a 501(c)(3) not for profit organization, based in Houston with an in office in Smithville	Digital literacy training program offered at Smithville Indoor Recreation Center, Smithville TFA office, and Bastrop Public Library. Courses include Basic Computing, Basic Internet, Basic Email, Searching for a Job, Applying for a Job, e-Government (online federal, state, and local resources), Word, Excel, PowerPoint, small/medium business technology needs (web presence, social media marketing, basic accounting, etc.), social media, mobile devices. Some computer courses were taught in Spanish.	700
Lost Pines High Tech Consortium	Digital literacy training programs offered at local sites in Smithville and Bastrop, with courses determined by community need	20
Smithville Public Library	Computer/Internet Basics; Resume Writing; Tablet Technology; Digital Photography; ESL Computer Basics, Internet, Excel, Quicken	60
Bastrop Public Library	Computer classes	509
Elgin Public Library	Monthly group classes and 1 on 1 training as needed	152
Advocacy Outreach	Adult Education classes, computer skills, English as a second language	25
Total Graduates		1,466

Public Computer Centers (10 out of 10 Points Possible) – is measured based on the number of hours computers are available each week per 1,000 low-income residents. Available computer hours 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 Bastrop County is below.

Organization Name	Number of Open Hours per Week	Number of Computers	Available Computer Hours per Week
Technology For All	45	34	1,530
Smithville Community Network (partnering with TFA)	73	10	730
Smithville Public Library	45	28	1,260
Smithville Public Library Computer Center at the Smithville Elementary Parent Center	45	1	45
Smithville City Hall	50	1	50
Smithville Chamber of Commerce	25	1	25
Smithville Recreation Center	70.5	1	70.5
Bastrop Public Library	46	28	1,288
Bastrop County	45	5	225
Texas Workforce Solutions	45	14	630
Elgin Public Library	40	13	520
Elgin Public Computer Center	32	1	32
Elgin First United Methodist Church	40	2	80
Advocacy Outreach Home	32	1	32

Broadband Awareness (8 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 Bastrop County is below.

Organization Name	Campaign Description	Community Reach
Technology For All	Digital Literacy: broadband adoption and use—highlight job searching/applications, e-Government services, digital life (social media, digital photography). Part of the BTOP grant.	60%
Smithville Public Library	Digital literacy: searching for jobs, using mobile devices, digital life, ESL, GED. Signs, flyers, newspaper articles, Facebook, website. Part of the TEAL grant.	25%

Smithville Public Library	Digital literacy: Mobile device use. Ebooks, digital photography, early childhood development	25%
Smithville Public Library	Youtube videos: Promoting various aspects of library, including technology; using online videos.	20%
Bastrop Economic Development Corporation	Social media campaign (FB, Twitter, Instagram, Foursquare, etc.)	30%
Bastrop Public Library	Library brochure - 13,000 registered users	100%
City of Bastrop	Online utility payments encouraged	70%
City of Elgin	Online bill pay	70%
City of Elgin	Mayor's Facebook Page - 200 followers	10%
Elgin Independent School District	FB pages, websites, e-mail comm. w/teachers & parents, homework follow up online; grades online	20%
City of Elgin	Online newsletter	20%
Bastrop Emergency Management Services	Facebook page encouraging citizens to get online to stay current with breaking news	100%

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

Organization Name	Program Description	Vulnerable Group
Technology For All	Digital literacy awareness: ongoing campaign to promote free broadband access and free computer training. Materials include flyers, websites, social media, newspaper articles, town hall meetings, community events.	Low income, seniors, at risk students, unemployed, underemployed
Smithville Public Library	Volunteer Smithville website marketing and promotion, using flyers, brochures, and articles to promote free online volunteer service to match up volunteers with organizations. Provide background checks to organizations that work with children.	Low income, seniors, at risk students
Smithville Public Library	Free video phone access	Hearing impaired
Smithville Public Library	ESL classes beginner/advanced	Minority
Smithville Public Library	Online GED, GED for ESL students	Low income, minority

Smithville Public Library	Job search assistance	Low income
Smithville Genealogical Society	Classes on computer use for research	Senior
Smithville Public Library	Online access to 40+ homework assistance sites	Children
Smithville Public Library	Interactive computer and skills training	Low-income/minority
Bastrop Public Library	Video-based applications for the deaf community	Hearing impaired
Bastrop Public Library	exShare databases – homework assistance	Students
Bastrop Public Library	Job-finding assistance – TexShare databases	Unemployed
Community Action of Central TX	Provides GED/ESL instruction, computer literacy	Educationally and economically disadvantaged adults
Community Action of Central TX	Classes at Bastrop Workforce Solutions, Cedar Creek HS, Elgin ISD Phoenix Academy, Bastrop Co. Jail	Educationally and economically disadvantaged adults
Elgin Public Library	Computer skills and job search assistance	Low income, elderly, unemployed
Advocacy Outreach Home	Adult education and computer skills classes	Low income, ESL
St. Peter's Lutheran Church	Basic Computer skills classes; Resume writing and interviewing skills, homework assistance, free Wi-Fi	Low income, elderly, children
First Methodist Church Elgin	Free homework assistance	Low income, children



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
Teleworking Program	Bastrop County participates in the regional Ozone flex plan with the Clean Air Coalition which allows for flexible work schedules and teleworking for some staff members. It has been outfitted with laptops and Virtual	Advanced

	Private Network access to work remotely.	
Bastrop EDC social media	Helps small and medium businesses learn how to use social media for marketing	Advanced
Bastrop Entrepreneur Program	Helps local businesses find funding opportunities	Advanced
Bastrop Governors Small Business Forum	Helped small and medium businesses with increasing marketing through social media, guidance for funding, expansion, etc.	Advanced
Bastrop Entrepreneur Program	Helps businesses by connecting them to other agencies, such as SBDC and SCORE	Advanced
Visit Bastrop App	App for iPhone and Android devices about tourism, hotels, restaurants, attractions, etc.	Advanced
Agrilife Extension	Resources for agriculture businesses	Basic
SBDC	Courses and webinars to a help small and medium businesses with becoming computer savvy	Advanced
WorkIn Texas	Job search system with capability of filling out State of Texas application	Advanced
ResumePro	Online application for resumes, cover letters, references, and thank you notes	Advanced
ResCare Academy	Thousands of short online training modules, geared toward skills enhancement and skills assessment	Advanced
LiveAir Networks	Teleworking facility, SMB technology consulting	Advanced
LiveAir Networks	Fiber to the premise plans for Fall 2013 in Smithville for innovation and initiative	Advanced

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
Smithville Public Library Basic Use	Internet access through PCs and wireless	Basic
Smithville Public Library Library Automation System	Library Automation System in place	Basic
Smithville Public Library	Online catalog for community library	Advanced
Smithville Public Library	Science Rocks! focusing on STEM-oriented enrichment programming, including mobile device use for viewing videos and online information	Advanced
Smithville Independent School District	100% of classrooms connected to Internet via broadband	Basic
Smithville Independent School District	Digital literacy programs for teachers	Basic

Smithville Independent School District	100% of school libraries connected to Internet via broadband	Basic
Smithville Independent School District	80% of 12th graders with digital literacy skills	Advanced
Smithville Independent School District	70% of K-12 classes with access through SISD web site to course materials and grade portal with e-mail notifications on absences	Advanced
Smithville Independent School District	Access of online courses to high school juniors and seniors through Austin Community College articulation agreement	Advanced
Smithville Independent School District	iStation web-based reading instruction	Advanced
Smithville Independent School District	Think through Math web-based math instruction	Advanced
Smithville Independent School District	Career Cruising web-based job skills needs assessment and career planning	Advanced
Smithville Independent School District	Discovery Education instructional resources with lesson plans, videos, and activities	Advanced
Smithville Independent School District	Geographical Information System (GIS) software and training integrated into Digital Technology classes in high school	Advanced
Smithville Independent School District	Video conference facility	Advanced
Smithville Independent School District	Social media notifications and integrated telephone & e-mail notification system for emergencies and school events	Advanced
Bastrop Independent School District Skyward Student	Student data management	Advanced
Bastrop Independent School District Skyward Finance	Business Office management tool	Advanced
Bastrop Independent School District Google Apps For Education	E-mail, storage, web based document editing, websites, calendar, and a host of other services for students and teachers	Advanced

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

Application Provider	Description	Basic/ Advanced
Bastrop County Website	Local community website	Basic
Bastrop Co. Disaster Recovery Website	Disaster recovery/relief	Basic



Bastrop Co. Tax Assessor Website	Bastrop County Tax info and payments	Advanced
Bastrop Co. Clerk Website	Ability for public to register to vote, search public records, download applications, etc.	Advanced
Bastrop Co. District Clerk Website	Passport applications, pay fees and fines online, downloads available	Advanced
Bastrop Co. Sheriff's Dept Website	Search Bastrop Co. court records, jail records, downloadable applications and links	Advanced
Bastrop Co. Emergency Management Website	Website with info, links	Basic
Bastrop Co.	Participates in the regional Ozone flex plan with the Clean Air Coalition; allows for flexible work, teleworking	Advanced
Bastrop Co. Public Safety Network	Bastrop Co. participates in CAPCOG's Homeland Security Long-Term Telecommunications Interoperability Committee (LTI) and adopts the Regional Interoperable Communications Plan (RICP), designed to align the State and regional communications interoperability plan (TICP) objective and goals to the National Emergency Communication Plan. Multiple agencies in Bastrop Co utilize a ubiquitous, interoperable public safety radio network connected through the Greater Austin/Travis Co. Regional Radio System.	Advanced
Bastrop Co. Emergency Notification System (ENS)	Bastrop Co. is a Certified User of CAPCOG's regional interoperable Emergency Notification System (ENS), a system designed to provide emergency notification to citizens when there is an imminent threat to lives or property, as well as non-emergency notification to citizens and local government employees. ENS currently communicates with landlines and mobile phones; however, planned improvements will expand the capabilities to include sending alerts via text message, e-mail, TTY/TTD, SM, etc.	Advanced
Bastrop Co. Public Safety Answering Point (PSAP) with Broadband	Each Bastrop County Public Safety Answering Point (PSAP), in cooperation of CAPCOG's Strategic Plan for 9-1-1 services, is equipped with broadband. Through a combination of broadband and state-of-the-art equipment, Enhanced 9-1-1 (E9-1-1)/Mapped All (Automatic Location Information) automatically provides a 9-1-1 caller's location along with a broad range of information to the call taker. The displayed information enables the call taker to quickly respond to the request for help.	Advanced
Bastrop Co. Presence of Next Generation 9-1-1 System (NG911)	Public Safety Answering Points (PSAPs) in Bastrop County have been equipped with Next Generation 911 (NG 911) capable equipment as part CAPCOG's Emergency Communications NG 911 plan.	Advanced

Bastrop Co. Computer-Aided Dispatch System	The Bastrop County Sheriff’s Office utilizes a Computer Aided Dispatch (CAD) system. The CAD system increases personnel and patrol vehicle efficiency by providing the ability to interface with the local records management system (RMS), 9-1-1 system, National Crime Information Center (NCIC), automatic vehicle location (AVL), maps, pagers, text messaging, and Mobile CAD.	Advanced
Bastrop Co. Emergency Operations Center Web Access	Bastrop County participates in WebEOC.™ WebEOC is a web-based software product that allows for secure, real-time access to state and national weather trends, satellite images, mapping information, and details of incident operations within local and/or regional areas, all of which is geared toward efficient emergency management.	Advanced
Bastrop Co. Office of Emergency Management (OEM) Social Media	Bastrop Co. OEM is well connected to the community, with current Facebook connections with approximately 23,000 people and 1,100 Twitter followers. OEM uses Facebook to broadcast general emergency preparedness information as well as emergency messages, and Twitter primarily to broadcast information from their emergency operations center. OEM partners with the National Weather Service to broadcast emergency info to citizens through All-Hazards Weather Radio.	Basic
City of Smithville website	Basic information about city services	Basic
Smithville utility bill pay	Pay utility bills on-line	Advanced
Smithville Nixle	Text notifications of emergency callouts for fire department	Basic
LiveAir	During the Bastrop Wildfire of 2011, Smithville used VoIP technology when the landlines were down to stay connected to the Economic Development Corporation.	Advanced
City of Bastrop website	Basic info about city services, notices, FAQs	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
St. David's - Meditech-EDM	MIS Clinical Documentation System for emergency care	Advanced
St. David's - Script RX	Electronic-Interfaced prescription & discharge instruction system	Advanced
St. David's - High Alert	Electronic Warning/Communication system for high-risk E.D. patients	Advanced



St. David's - Horizon Patient Folder	Electronic Medical Record portal for physicians	Advanced
St. David's - Pharmacy One Source	Online Clinical-Pharmacology reference database	Advanced
St. David's - HealthStream	Online clinical & non-clinical training resource	Advanced
St. David's - Ronos	Online HR-Payroll System	Advanced
St. David's - Lawson	Online personnel management and purchase-to-payment system	Advanced
St. David's - McKesson PACS	Electronic-Radiological Picture Archiving & Communication System	Advanced
St. David's - Physician Credentialing	Electronic physician credentialing database	Advanced
St. David's - Facility Scheduler	Electronic staff scheduler	Advanced
St. David's - Document Direct	Electronic reporting	Advanced
St. David's - Online Patient Account Management	Online account management, bill-pay, etc.	Advanced
St. David's Emergency Center Bastrop Website	Online Reference information about the St. David's Emergency Center in Bastrop	Advanced
St. David's - HCA-AD Network	HCA's private network facilitating access to all internally networked systems & databases (policies & procedures, MSDS, references)	Advanced
Seton Healthcare - Kronos Workforce Timekeeper	Payroll time keeping system	Advanced
Seton Healthcare - Lawson	Purchasing, receiving, and payment system	Advanced
Seton Healthcare - Omnibuyer	Equipment purchasing system	Advanced
Seton Healthcare - Learning Central Gradepoint	Employee Online training system	Advanced
Seton Healthcare - PeopleSoft	Employee Payroll system	Advanced

ACTION PLAN

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 complete list of all proposed solutions.

Complete a Vertical Assets Inventory

Project Description

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.

Goals

1. 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.

Implementation Team

To be determined.

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

Project Description

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

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

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

Goals

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

Benefits

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

Action Items

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

Implementation Team

To be determined.

Establish a "Digital Factory"

Project Description

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

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

Goals

1. 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.

Implementation Team

To be determined.

Identify, Map, and Validate Broadband Demand

Project Description

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

Goals

1. 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.

Implementation Team

To be determined.

Implement a Community-Based Technology Awareness Program

Project Description

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

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

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

Goals

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

Action Items

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

Action Items

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

Implementation Team

To be determined.

Improve Online Business Services Offered by the Government

Project Description

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

Goals

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

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.

Implementation Team

To be determined.

Pursue Next Generation 911 Upgrades

Project Description

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

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

Goals

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

Benefits

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

- More flexible, secure, and robust PSAP operations
- Lower capital and operating costs

Action Items

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

Implementation Team

To be determined.

All Proposed Projects

ACCESS

Broadband Availability

1. Perform an Analysis of Local Policies and Ordinances

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

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

Goals

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

Benefits

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

Action Items

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

Broadband Speeds

2. Develop Public-Private Partnerships to Deploy Broadband Service

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

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

Goals

1. Fund broadband network deployment.

Benefits

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

Action Items

1. Decide on the technology (e.g. cable, DSL, fiber, etc.).
2. Issue an RFP.
3. Develop a finance and ownership model.

3. 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.

Goals

1. 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.

Broadband Competition – No proposed projects

Middle Mile Access – No proposed projects

Mobile Broadband Availability

4. 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.

Goals

1. 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 – No proposed projects

Public Computer Access – No proposed projects

Broadband Awareness

5. Implement a Community-Based Technology Awareness Program

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

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

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

Goals

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

Benefits

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

Action Items

1. Determine the type of public awareness campaign that is appropriate for your community. Connect Ohio's statewide Every Citizen Online public awareness campaign provides an excellent case study of a professionally developed campaign.
<http://connectohio.org/public-awareness-campaigns>
2. Create a centralized technology portal/website that promotes local technology resources for use by residents. Resources would include calendars (promoting local tech events and

showing available hours at public computing centers), online training resources, and local computer resources.

6. Facilitate a Technology Summit

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

Goals

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

Benefits

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

Action Items

1. Create community partnerships.
2. Identify funding sources and hosts.
3. Identify suitable speakers.
4. Develop relevant content.

Vulnerable Population Focus – No proposed projects

USE

Economic Opportunity

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

Methods of implementing a small and medium business broadband awareness program include, but are not limited to, facilitating awareness sessions, holding press conferences led by community leaders, inviting speakers to community business conferences or summits, and

public service announcements. It is also important to educate local businesses about Internet tools that are available at minimum or no cost to them.

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

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

Goals

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

Benefits

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

Action Items

1. Identify federally or state sponsored business support programs (e.g. Chamber of Commerce, SBA, EDA, Agriculture, or Manufacturing extension) that include assistance with broadband or IT content.
2. Identify or develop a business awareness and training program.
3. Identify or develop online training modules for businesses. For example, the Southern Rural Development Center, in partnership with National Institute of Food and Agriculture, USDA, administers the National e-Commerce Extension Initiative. As the sole outlet nationally for e-Commerce educational offerings geared at Extension programming, the National e-

Commerce Extension Initiative features interactive online learning modules. In addition, the program's website offers a library of additional resources and a tutorials section for greater explanation on website design and function. Modules and presentations include: A Beginner's Guide to e-Commerce, Doing Business in the Cloud, Electronic Retailing: Selling on the Internet, Helping Artisans Reach Global Markets, and Mobile e-Commerce. To see some examples, click here: http://srdc.msstate.edu/ebeat/small_business.html#.

8. 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

Goals

1. 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.

Education

9. Improve Education through Digital Learning

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

[PowerMyLearning.com](#) is a free online educational tool that helps students, teachers and parents locate and access over 1,000 high-quality online digital learning activities — videos,

simulations, and other educational software — to propel student achievement in subjects including math, English, science, and social studies. The platform features a kid-friendly design. There is a playpoint/badge feature to help motivate students. In addition, students can rate digital learning activities and share them with friends via e-mail, Facebook, and Twitter. CFY also provides onsite training to instruct teachers how to integrate PowerMyLearning into their classrooms.

Goals

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

Benefits

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

10. 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.

Goals

1. 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.

Government

11. 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.

Goals

1. 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.

12. Pursue Next Generation 911 Upgrades

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

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

Goals

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

Benefits

1. Transitioning to a “Next Generation” IP-based network will enable the public to make voice, text, or video emergency calls from any communications device. With Next Generation 911, responders and PSAPs will gain greater situational awareness, which will enable better-informed decisions, resulting in better outcomes and, ultimately, a safer community. By capitalizing on advances in technologies, you are enabling:
 - Quicker and more accurate information to responders
 - Better and more useful forms of information
 - More flexible, secure and robust PSAP operations
 - Lower capital and operating costs

Action Items

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

Healthcare

13. 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.

Goals

1. Deliver improved healthcare services to rural residents.

APPENDIX 1: STATEWIDE PERSPECTIVE OF BROADBAND

Statewide Infrastructure

As part of the Texas State Broadband Initiative (SBI), and in partnership and at the direction of the Texas Department of Agriculture, Connected Texas produced an inaugural map of broadband availability in spring 2010. The key goal of the map was to highlight communities and households that remain unserved or underserved by broadband service; this information was essential to estimating the broadband availability gap in the state and understanding the scope and scale of challenges in providing universal broadband service to all citizens across the state. Since the initial map’s release, Connected Texas 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.connectedtx.org/connectednationftp/texas/Connected_Texas_Mapping/Statewide_Maps/TX_Statewide_Broadband.pdf. The county maps are found at http://www.connectedtx.org/community_profile/find_your_county/texas/Bastrop.

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

SBI Download/Upload Speed Tiers	Unserved Households	Served Households	Percent of Served Households by Speed Tier
At Least 768 Kbps/200 Kbps	110,337	8,812,596	98.76
At Least 1.5 Mbps/200 Kbps	143,147	8,779,786	98.40
At Least 3 Mbps/768 Kbps	364,889	8,558,044	95.91
At Least 6 Mbps/1.5 Mbps	1,540,813	7,382,120	82.73
At Least 10 Mbps/1.5 Mbps	1,759,705	7,163,228	80.28
At Least 25 Mbps/1.5 Mbps	4,027,326	4,895,607	54.87
At Least 50 Mbps/1.5 mbps	4,106,598	4,816,335	53.98
At Least 100 Mbps/1.5 Mbps	5,874,975	3,047,958	34.16
At Least 1 Gbps/1.5 Mbps	8,922,933	0	0.00

Source: Connected Texas, May 2013.

Table 1 reports updated summary statistics of the estimated fixed, terrestrial broadband

service inventory (excluding mobile and satellite service) across the state of Texas; it presents the number and percentage of unserved and served households by speed tiers. The total number of households in Texas in 2010 was 8,922,933, for a total population of approximately 25 million people. Table 1 indicates that 98.76% 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 Connected Texas to be unserved has dropped from 257,571 households in the fall of 2010 to 110,337 households in the spring of 2013. Further, approximately 8,558,044 households across Texas have broadband available of at least 3 Mbps download and 768 Kbps upload speeds. The percentage of Texas households having fixed broadband access available of at least 6 Mbps download and 1.5 Mbps upload speeds is estimated at 82.73%.

Taking into account both fixed and mobile broadband service platforms, an estimated 99.91% of Texas 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 7,865 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 Texas 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. Connected Texas 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 Connected Texas has been sent on a semi-annual basis to the NTIA to be used in the National Broadband Map, and comprises the source of Texas' 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 Texas can be found here: <http://www.broadbandmap.gov/summarize/state/texas>.

Interactive Map

Connected Texas provides My ConnectViewTM, 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 Texas' 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.connectedtx.org/interactive-map>

For additional maps and other related information, visit:

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

Business and Residential Technology Assessments

To complement the broadband inventory and mapping data, Connected Texas periodically conducts statewide residential and business technology assessments to understand broadband demand trends and 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 Texas. Key questions the data address are: who, where, and how are households in Texas using broadband technology? How is this technology impacting Texas households and residents? Who is not adopting broadband service and why? What are the barriers that prevent citizens from embracing this empowering technology?

Through Connected Texas' research, many insights are able to be collected. The most recent residential technology revealed the following key findings:

- 31% of adults in Texas do not subscribe to home broadband service. This translates into approximately 5.7 million adults who do not adopt the service.
- A little over half of rural residents in the state (58%) have home broadband service, which is lower than the state average of 69%.
- 1.75 million, or 30%, of Texas adults say that primary reason they do not subscribe to home broadband service is that broadband is not relevant to them.

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

- There are 87,000 businesses in Texas that do not use broadband. That represents 17% of businesses in the state.
- Approximately 186,000 Texas businesses allow their employees to telework, reducing the cost of office space and the number of miles that employees would have to drive to work.
- Online sales in Texas account for approximately \$32.2 billion in annual sales revenue, including approximately \$7.6 billion for small businesses with fewer than five employees.

For more information on the statewide information described, visit the Connected Texas website at <http://www.connectedtx.org>.

APPENDIX 2: PARTNER AND SPONSORS

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

<http://www.connectedtx.org>

The Texas Legislature established the **Texas Department of Agriculture** in 1907. The agency's key objectives are to promote production agriculture, consumer protection, economic development, and healthy living. The agriculture commissioner oversees the agency and is elected every four years. The current commissioner, Todd Staples, was first elected in 2006 and re-elected to a second term in 2010.

The TDA is a diversified state agency that provides value-added services through its regulatory and marketing initiatives. The TDA is headquartered in Austin and has five regional service offices, six satellite offices, six laboratories, and six livestock export facilities.

The TDA's mission is to partner with all Texans to make Texas the nation's leader in agriculture, fortify our economy, empower rural communities, promote healthy lifestyles, and cultivate winning strategies for rural, suburban, and urban Texas through exceptional service and the common threads of agriculture in our daily lives.

<http://texasagriculture.gov>

Connected Nation (Connected Texas' 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.

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 Connected Texas 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 Connected Texas' 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, Connected Texas 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 Connected Texas’ mapping and market research, the Bastrop 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

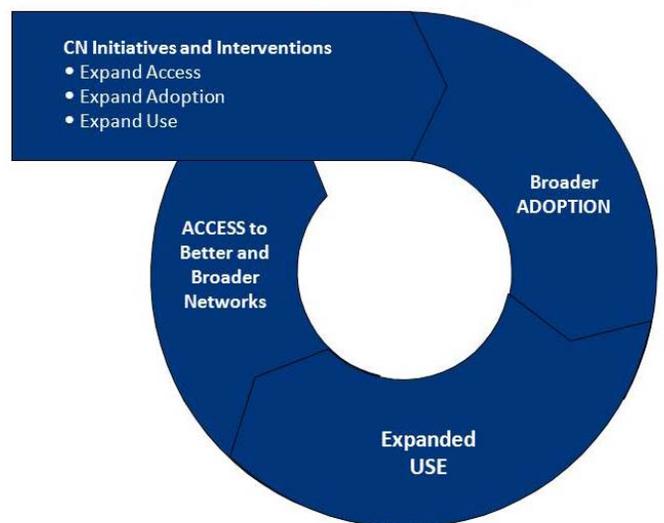
Step 3: Action Planning & Implementation.

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

Step 4: Project Success and Expanded Local Empowerment.

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

Broadband Catalysts for Change



APPENDIX 4: GLOSSARY OF TERMS

#

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

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

A

ARRA - American Recovery and Reinvestment Act.

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

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

B

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

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

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

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

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

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

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

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

C

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

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

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

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

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

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

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

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

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

D

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

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

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

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

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

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

E

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

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

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

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

F

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

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

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

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

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

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

G

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

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

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

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

H

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

Hotspot - See *Wireless Hotspot*.

I

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

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

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

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

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

K

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

L

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

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

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

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

M

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

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

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

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

N

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

NIST - National Institute of Standards and Technology.

O

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