Cass County Community Technology Scorecard

Community Champion: Gautam Mani
Community Advisor: Dan Manning

FOCUS AREA	ASSESSMENT CRITERIA	DESCRIPTION	COMMUNITY SCORE	MAXIMUM POSSIBLE SCORE
ACCESS	Broadband Availability	95% to 97.9% of households have access to 3 Mbps	8	10
	Broadband Speeds	75% of households with access to at least 50 Mbps	5	5
	Broadband Competition	80.0% to 89.9% of households with access to more than 1 broadband provider	3	5
	Middle Mile Access	Availability of middle mile fiber infrastructure from only 1 provider	6	10
	Mobile Broadband Availability	99.0% to 100.0% of households with access to mobile wireless	10	10
	Total Access Score		32	40
ADOPTION	Digital Literacy	Program grads are greater than 4 per 1000 residents over the past year	6	10
	Public Computer Centers	450 computer hours per 1000 low income residents per week	8	10
	Broadband Awareness	Campaigns reach 60% of the community	6	10
	Vulnerable Population Focus	3 groups	6	10
	Total Adoption Score		26	40
USE	Economic Opportunity	2 advanced, 4 basic uses	8	10
	Education	1 advanced, 7 basic uses	9	10
	Government	0 advanced, 5 basic uses	5	10
	Healthcare	1 advanced, 3 basic uses	5	10
	Total Use Score		27	40
Community Assessment Score			85	120

Cass County Information

Community Name:	Cass County
Community Champion:	Gautam Mani
Community Address:	185 East Main Street, Benton Harbor, Michigan 49022
Community Email:	manig@swmpc.org
Community Phone:	(269) 925-1137
Community Type:	County
Community Contact:	Dan Manning
Community Regional Partner:	Southwest Michigan Planning Commission

Notes:

Cass County is both a rich agricultural area as well as a popular tourist spot. It plays a major part in pork production in Michigan as well as other feed crops like soybeans and corn. It also contains over 250 lakes and several nature preserves, which makes for great water sports, hiking and bird-watching. Its largest community is Dowagiac to the northwest, with Cassopolis, the second largest city, as the county seat. Cass County is also home to Southwestern Michigan College, which is its largest employer.

Files:

Attendance

None found.

Survey

None found.

Forms

None found.

Community Technology Resources

Technology Providers

Company Name	Street Address	City	Zip	Phone	Website	Email	Provider Type	Company Description
ACD.net							Broadband Provider	DSL
AT&T Mobility							Broadband Provider	Mobile
Comcast							Broadband Provider	Cable
Fourway							Broadband Provider	Fixed Wireless
Frontier							Broadband Provider	DSL
HughesNet							Broadband Provider	Satellite
I-2000							Broadband Provider	DSL, Fixed Wireless
AT&T							Broadband Provider	DSL
Sister Lakes Cable							Broadband Provider	Cable
Skycasters							Broadband Provider	Satellite
Michiana Supernet							Broadband Provider	Fixed Wireless
Sprint							Broadband Provider	Mobile
Iserv							Broadband Provider	DSL
T-mobile							Broadband Provider	Mobile
ViaSat							Broadband Provider	Satellite
Verizon							Broadband Provider	Mobile

Cass County Assessment Findings

Access Score Breakdown

Broadband Availability (8 out of 10 Points Possible) - is measured by analyzing provider availability of 3 Mbps broadband service gathered by Connected Nation's broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

Question:

What percentage of households in the community have access to fixed broadband speeds of 3 Mbps? Indicate your choice below by choosing the appropriate level.

Choice:

95% to 97.9% of households have access to 3 Mbps

Description:

As of October, 2013, data collected from broadband service providers in Cass County by Connect Michigan indicate that 97.2% of all households (20,604) have access to a minimum of 3Mbps broadband service. However, it is

significant that only 80.4% of Cass County households have access to at least 6Mbps service. This indicates that there are nearly 20% of Cass County households that cannot get access to the higher speeds and bandwidth necessary to support more advanced applications and productive uses (ie. video and large downloads) used by residents and local businesses.

Support Data:

Which providers, from the prior listing, offer 3 Mbps broadband service?

Provider Name
Michiana Supernet
Skycasters (satellite)
Sister Lakes Cable
I-2000
HughesNet (satellite)
Frontier
Fourway
Comcast
AT&T mobile
AT&T
ACD.net
Sprint
Iserv
T-mobile
Verizon
ViaSat (satellite)

What does Connected Nation report for broadband availability in the community?

# of Providers on map	Reported Broadband Availability Percentage
16	97.2%

Are any providers missing from the current broadband map?

Provider Name

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

Question:

From the list below, select the highest speed level available to at least 75% of households in your community. Please include a detailed description explaining your choice.

Choice:

75% of households with access to at least 50 Mbps

Description:

As of October 2013, based on data collected from local broadband providers, Connect Michigan reports that 77.2% of Cass County households have access to broadband speeds of at least 100 Mbps. This indicates sufficient high speed service where broadband currently exists in the county.

Support Data:

For each of the provider in the prior listing, what is the highest advertised broadband speed?

Provider Name	Max Speed
Michiana Supernet	6 Mbps
Skycasters (satellite)	10 Mbps
Sister Lakes Cable	6 Mbps
I-2000	10 Mbps
HughesNet (satellite)	25 Mbps
Frontier	50 Mbps
Fourway	10 Mbps
Comcast	100 Mbps
AT&T mobile	25 Mbps
AT&T	25 Mbps
ACD.net	25 Mbps
Sprint	10 Mbps
Iserv	10 Mbps
T-mobile	10 Mbps
Verizon	25 Mbps
ViaSat (satellite)	25 Mbps

What does Connected Nation report as the highest speed tier with at least 75% availability in the community?

% of coverage	Highest Speed Tier
77.2%	100 Mbps

Are any providers missing from the current broadband map?

Provider Name	Max Speed
Cricket Communications	1.5 Mbps

Broadband Competition (3 out of 5 Points Possible) - is measured by analyzing the number of broadband providers available in a particular community and the percentage of that community's residents with more than one broadband provider available. Connected Nation will perform this analysis by reviewing the data collected through the broadband mapping program. In communities that may have broadband data missing, community teams were able to improve the quality of data to ensure all providers are included.

Question:

What percentage of homes in the community have access to more than one broadband provider? Be sure to include a description of your choice.

Choice:

80.0% to 89.9% of households with access to more than 1 broadband provider

Description:

As of October 2013, Connect Michigan reports that 86.0% of households in Cass County have access to more than one broadband service provider for their homes, indicating an average amount of competition for service across the community.

Support Data:

What does Connected Nation report for availability of more than one broadband provider in the community?

# of Providers on map	Reported percentage of community with more than one broadband provider
16	

Are any providers missing from the current broadband map?

Provider Name

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

Question:

What is the availability of middle mile access to the community? Be sure to include a description of your choice.

Choice:

Availability of middle mile fiber infrastructure from only 1 provider

Description:

Current middle mile data for Cass County indicates that only one fiber-based middle mile provider exists in the county. Middle mile providers form the backbone of internet service which enables more visible last-mile providers to connect residents and businesses to broadband service.

Support Data:

What does Connected Nation report for the number of middle mile providers with fiber in the community?

with Fiber
1

What middle providers exist in the community? List them below with the technology type.

Provider Name	Technology Used
Merit Network	Fiber

Among the middle mile providers that do not have fiber backhaul, what is the maximum speed for each.

Provider Name	Maximum Speed

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.

Question:

What is the Mobile Broadband Availability in your community?

Choice:

99.0% to 100.0% of households with access to mobile wireless

Description:

As of October 2013, Connect Michigan reports that 99.96% of Cass County households have access to mobile wireless service.

Support Data:

Which providers, from the prior listing, offer mobile broadband service?

Provider Name
AT&T mobility
Sprint
T-mobile
Verizon

What does Connected Nation report for broadband availability in the community?

# of Providers on map	Reported Broadband Availability Percentage
5	99.96%

Are any mobile broadband providers missing from the current broadband map? If so, please list the providers below.

Provider Name
Cricket Communications

Adoption Score Breakdown

Digital Literacy (6 out of 10 Points Possible) - is measured by first identifying all digital literacy programs in the community. Once the programs are determined, a calculation of program graduates will be made on a per capita basis. A digital literacy program includes any digital literacy course offered for free or at very low cost through a library, seniors center, community college, K-12 school, or other group serving the local community. A graduate is a person who has completed the curriculum offered by any organization within the community. The duration of individual courses may vary. A listing of identified digital literacy offerings is below.

Question:

What is the number of digital literacy program graduates over the past year in the community?

Choice:

Program grads are greater than 4 per 1000 residents over the past year

Description:

Few organizations in Cass County have been identified that offer digital literacy classes and programs to help local residents build skills and competence in using internet technology. More extensive and frequent offerings in libraries, community centers or other private organizations would be of great benefit to the community.

Support Data:

Which organizations are providing digital literacy training in the community? For each organization, include a description of the program and number of graduates over the last year.

Organization Name	Program Description	# of Grads
Cass County Council on Aging	SeniorNet: Computer Assistance Workshops	50
Lincoln Charter Township Library	Computer and internet classes	50

Public Computer Centers (8 out of 10 Points Possible) - is measured based on the number of hours computers are available each week per 1,000 low-income residents. Available computer hours is calculated by taking the overall number of computers multiplied by the number of hours open to a community during the course of the week. A listing of public computer centers available in Cass County is below.

Question:

What is the number of public computer hours available per low-income resident per week?

Choice:

450 computer hours per 1000 low income residents per week

Description:

According to results from the 2010 US Census, the total population of Cass County was 52,293. Those living below the poverty line (low-income population) at that time was 13.3%, or 6,955. The listed Public Computer Centers offer a total of 3420 available computer hours per week for public access. These statistics result in a ratio of about 492 computer hours per 1000 low income residents per week.

Support Data:

Which organizations are providing public computer access in the community? For each organization, include the organization name, hours of operation, and number of computers.

Organization Name	Number of open hours per week.	# of Computers
Cass County District Library - main	59	16
Edwardsburg Library	59	8
Howard Library	36	9
Mason/Union Library	36	9
Dowagiac District Library	53.5	12
Marcellus Township Library	47	6
Council on Aging - Cassopolis	58	4
Council on Aging - Dowagiac	50	4
Pokegon Band Library - Dowagiac	40	6

Broadband Awareness (6 out of 10 Points Possible) - is measured based on the percentage of the population reached. All community broadband awareness programs are first identified and then each program's community reach is compiled and combined with other campaigns. A listing of broadband awareness programs in Cass County is below.

Question:

What percentage of the community is reached by broadband awareness campaigns?

Choice:

Campaigns reach 60% of the community

Description:

This is an estimate until more details can be obtained.

Support Data:

Which organizations are promoting broadband in the community? For each organization, include the organization name, description of campaign, and approximation of community reach as a percentage.

Organization Name	Description of Campaign	Community Reach (%)
Cass County District Library	Library newsletter	60%
Cass County Council on Aging	Computer awareness/training for seniors	40%

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

Question:

How many vulnerable population groups are being targeted within the community?

Choice:

3 groups

Description:

Cass County has several local and regional organizations in place to help address the high levels of poverty and unemployment across the community through various support, skill building and opportunity creation programs.

Support Data:

Which organizations are offering programs that focus on vulnerable populations? For each organization, include the organization name, description of the program, and vulnerable population reached.

Organization Name	Description of Campaign	Vulnerable Group
Cass County Council on Aging	SeniorNet Computer Learning Center: Awareness and training on computers	Seniors
Pokagon Band Library	GED workshops, computer training	Native Americans
Cass County District Library	Learn4Life online education	Low-income, unemployed

Use Score Breakdown

Economic Opportunity (8 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.

Question:

For each use of broadband in the economic opportunity area, specify the use, whether it's a basic or advanced use, and the description of the use. Points will automatically be added based on the type of use. No more than 10 points will be available in the category.

Basic or Advanced	Specific Use	Description	Contact	Contact Email
basic	www.cityofdowagiac.com	Dowagiac Chamber of Commerce/ED website		
basic	www.edwardsburgchamber.org	Edwardsburg Chamber of Commerce website		
basic	http://casscountymi.org /EconomicDevelopment.aspx	Cass County Economic Development website		
basic	www.marcellusmichigan.org	Village of Marcellus website		
advanced	http://www.southwestmichiganfirst.com	Southwest Michigan First - regional ED info and services		
advanced	www.swmichigan.org	Southwest Michigan Tourist Council		

Education (9 out of 10 Points Possible) - A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within 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.

Question:

For each use of broadband in the education area, specify the use, whether it's a basic or advanced use, and the description of the use. Points will automatically be added based on the type of use. No more than 10 points will be available in the category.

Basic or Advanced	Specific Use	Description	Contact	Contact Email
basic	K-12 Broadband connectivity	All schools connected to the internet via broadband	Candy Cooper	ccooper@lewiscassisd.org
basic	Library broadband connectivity	All libraries connected to the internet via broadband		
advanced	MiCase (Michigan Collaborative Administrative Solutions for Education)	Online student information and administration system	Candy Cooper	ccooper@lewiscassisd.org
basic	http://www.lewiscassisd.org	Lewis Cass ISD website	Candy Cooper	ccooper@lewiscassisd.org
basic	http://cassopolis.k12.mi.us/	Cassopolis Schools website		
basic	http://www.dowagiacschools.org	Dowagiac Union Schools website		
basic	http://www.edwardsburgpublicschools.org	Edwardsburg Public Schools website		
basic	http://www.marcelluscs.org	Marcellus Community Schools website		

Government (5 out of 10 Points Possible) - A community receives one point per basic use of broadband and two points per advanced use of broadband. Categories within 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.

Question:

For each use of broadband in the government area, specify the use, whether it's a basic or advanced use, and the description of the use. Points will automatically be added based on the type of use. No more than 10 points will be available in the category.

Basic or Advanced	Specific Use	Description	Contact	Contact Email
basic	www.casscountymi.org	Cass County government website		
basic	Qualified Voter File (QVF)	Online Voter Registration		
basic	Online Property Search	Ability to search county property records online		
basic	Local municipality websites	Township and village websites exist and provide information and services		
basic	Online access to government information	Tax info, ordinances, meeting minutes, etc.		

Healthcare (5 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.

Question:

For each use of broadband in the healthcare area, specify the use, whether it's a basic or advanced use, and the description of the use. Points will automatically be added based on the type of use. No more than 10 points will be available in the category.

Basic or Advanced	Specific Use	Description	Contact	Contact Email
basic	http://www.borgess.com /default.aspx?pId=83#.Up-C7eIx6Lx	Borgess Lee Memorial Hospital website		
advanced	MyBorgessHealth	Online access to personal medical records, prescription renewals, bill payment, etc.		
basic	Online Physician Search	Find a physician by speciality, location, etc.		
basic	www.ccmcf.org	Cass County Medical Care (Cassopolis) website		

Supplemental Information

Are there any other items that should be considered for your assessment?

Are there any other programs or initiatives that are underway in your community that didn't fit into another category?

Priority Actions

Recommended Actions

Access - Recommended Actions

Broadband Availability

1) Deploy Educational WiMAX

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

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

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

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

Benefits:

- Affordability. WiMAX is cheaper than DSL, Cable, Fiber to the Home, and 3G wireless. This low cost per home brings it into the realm of possibilities for a school district to build its own private access network independent of commercial operators.
- Empowers all students to access online educational material after school hours so that digital content is not restricted to school or library computer labs for low-income students who cannot afford laptops or internet access at home.
- Provides equal hardware and Internet access to all students.
- Supports curriculum updates and increased push for STEM education.

Action Items:

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

2) Perform an Analysis of Local Policies and Ordinances

Goal: Ensure that local policies are conducive to broadband build out.

Project Description: 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.

Benefits:

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

Action Items:

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

3) Identify, Map, and Validate Broadband Demand

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

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

Benefits:

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

Action Items:

- The project team should be prepared to provide research project design, data collection services, data analysis and reporting, and presentation development and delivery.
- HARBOR Inc. is a citizen based, non-profit, Michigan Corporation founded in 2001 and located in the City of Harbor Springs. The organization's broadband committee developed and mailed a broadband demand survey in July 2012 to approximately 6,300 addresses, comprising all of the local property owners/residents in the community. A copy of the survey can be reviewed here: http://is0.gaslightmedia.com/wwwharborincorg/_ORIGINAL_/fs72-1369322556-20386.pdf

4) Perform a Broadband Build-out Analysis in Unserved Areas

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

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

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

Benefits:

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

Action Items:

Conduct a wireless assessment to include:

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

Broadband Speeds

None.

Broadband Competition

5)

Middle Mile Access

6) Develop Public-Private Partnerships to Deploy Broadband Service

Goal: Fund broadband network deployment

Project Description: 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.

Benefits:

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

Action Items:

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

7) Study and Possibly Reassess Major Telecom Purchase Contracts

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

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

Benefits:

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

Action Items:

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

8) Develop & Issue a RFP for Build-out

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

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

Benefits:

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

Action Items:

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

Mobile Broadband Availability

9) Complete a Vertical Assets Inventory

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

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.

Benefits:

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

Action Items:

- Identify or develop a vertical assets inventory toolkit to provide guidelines to identify structures or land that could serve as a site for installation of wireless communications equipment.
- Data to collect would include vertical asset type, owner type, minimum base elevation, minimum height above ground, and location.
- Identify and map elevated structures utilizing your community's GIS resources. The resulting database should be open ended; localities should be encouraged to continuously map assets as they are made available.

Adoption - Recommended Actions

Digital Literacy

10) Distribute Digital Literacy Content

Goal: Facilitate partnerships in order to provide digital literacy training.

Project Description: Leverage the abundant digital literacy content available online to distribute to local trainers. Currently, numerous non-profit organizations and for-profit corporations provide curriculum that can be adapted for classroom or self-paced study. Some organizations also provide additional resources for instructor use, including classroom setup information, teaching tips for each course, additional practice, test item files, and answers to frequently asked questions. Digital literacy content can be deployed via local websites (a community portal), print material, podcasts, blogs, and videos.

Additionally, your community could create a partnership between libraries, school systems, computer suppliers, and broadband providers to provide free training and discounted computers and broadband service to low-income community members who are not participating in the digital age. An example of such a program is Connected Nation's Every Community Online program. This is an innovative program that is providing free digital literacy training, access to low-cost computers, and discounted broadband access to communities across the country.

Benefits:

- Increasing the community's digital literacy facilitates widespread online access to education and other public and government services, provides equal access to opportunities such as jobs and workforce training, enables people to find information about their health, and offers the opportunity to increase levels of social interaction and civic involvement.

Action Items:

- Develop partnerships with local organizations and equip them with digital literacy content
- Train staff to deliver the curriculum to potential adopters
- Promote local organizations as a source of broadband access and training
- Engage non-adopters with a comprehensive public outreach campaign, helping them understand the benefits of broadband service and inviting them to experience the value at their libraries
- Provide curriculum to teach computer and Internet use, as well as the skills required to utilize the Internet effectively for essential services, education, employment, civic engagement, and cultural participation
- Offer compelling promotion to participants, giving them the opportunity to adopt the technology for everyday use in their homes

11) Establish a "Community Technology Academy"

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

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

Benefits:

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

Action Items:

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

12) Facilitate Internet Safety Classes

Facilitate Internet Safety Classes

Goal: Ensure that community members are aware of how to navigate the Internet safely.

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

Benefits:

- This project helps ensure that community members have a solid understanding of cyber threats.
- There are many risks, some more serious than others. Among these dangers are viruses erasing entire systems, a hacker breaking into a system and altering files, someone using someone else's computer to attack others, someone stealing credit card information, sexual predators making advances at children, and criminals making unauthorized purchases. Unfortunately, there's no 100% guarantee that even with the best precautions some of these things won't happen, but there are steps that can be taken to minimize the chances.

Action Items:

- Partner with a local library or community center to offer security-awareness training initiatives that include classroom style training sessions and security awareness websites and information booklets.
- Awareness training can also be used to alleviate anxiety for community members who are not using the Internet because of fear of cyber threats.

Public Computer Centers

13) Provide Incentives to Encourage Computer Purchases among Students

Goal: Provide equal access to computers and enable digital learning.

Project Description: Develop a program that will enable students to obtain computers. Programs could include refurbished computers or new laptops or tablets. Consider a group-purchasing program, which would allow:

1. Special discount pricing
2. Warranty availability
3. Wired and Wireless usage throughout school and home
4. On campus access to tech support

5. Loaner computer access while devices are being repaired

Benefits:

- Provides equal computer access, regardless of ability to purchase.
- Supports school-wide online education initiatives.
- Enables the adoption of e-books.

Action Items:

- Research grants and private funding opportunities.
- Assess whether developing a leasing or purchasing program is more appropriate for your school.

Broadband Awareness

14) Facilitate a Technology Summit

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

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

Benefits:

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

Action Items:

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

15) Implement a Community-Based Technology Awareness Program

*Goa*l: Organize, promote, and deliver a technology awareness program that would increase utilization of technology resources in the community.

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.

Benefits:

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

Action Items:

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

Vulnerable Population Focus

16) Initiate a Community Computer Refurbishment or Recycling Program

Goal: Initiate a computer refurbishment program designed to help recycle computers donated by local businesses, government, schools and other organizations, and then distribute them to low-income households and other households who face affordability barriers to computer ownership Alternatively, develop a community recycling program to reduce the amount of hazardous materials that may enter the environment.

Project Description: Recruit community members to sanitize old computers and install new software. There are several target groups for performing refurbishments: community volunteers, high school and college students, and prison inmates. Community computer refurbishing provides an opportunity for volunteers and students to gain valuable new skills and training that can be used for career enhancement, and in some cases earn credits for school or college, while reinvesting in their communities. Communities also have the option of using prison inmates to refurbish computers so that they leave prison with some valuable job skills. Alternatively, if the computers are beyond refurbishment, the community can develop a computer recycling program. Recycling and reusing electronic equipment reduces the amount of hazardous materials that may enter the environment. Recycling and reuse programs also reduce the quantities of electronic scrap being landfilled in the state.

Benefits:

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

Action Items:

- Develop a model for computer refurbishing or recycling. A basic framework might include:
    - Step 1: Project Planning

        - Determination of minimum computer specifications
        - Acquisition and storage of donated computers
        - Determination and installation of appropriate computer operating system
        - Calculation of costs needed to carry out the program
    - Step 2: Inventory Management
        - Examine how equipment and software will be sorted and managed. Manage your inventor by identifying computers that are ready to be refurbished from those that are non-functioning.
    - Step 3: Volunteer Training

- Review established residential refurbishment and recycling programs that your community can take advantage of:
    - Dell's Reconnect program is a residential computer recycling program that offers a convenient way to recycle your used computer equipment. You can drop off any brand of used equipment at participating Goodwill donation centers in your area. It's free, and participants receive a receipt for tax purposes. To view a full list of acceptable products and locations, visit the Dell Reconnect website.
    - Earth 911 Earth 911 is a comprehensive communication medium for the environment. Earth 911 has taken environmental hotlines, websites, and other information sources nationwide, and consolidated them into one network. Once you contact the Earth 911 network, you will find community-specific information on e-Cycling and much more.
    - Electronic Industries Alliance's Consumer Education Initiative The Electronic Industries Alliance's e-Cycling Central website helps you find reuse, recycling, and donation programs for electronics products in your state.

17) Procure a Multipurpose Mobile Technology Center

Goal: Provide unserved and underserved residents with computer and Internet access.

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

Examples of existing mobile technology centers include:

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

Benefits:

- Improves digital literacy skills of community.
- Provides outreach and awareness.
- Provides opportunity for residents to participate in community's technology-planning process.

Action items:

Equip the vehicle with:

- 10-20 laptops loaded with appropriate software.
- A wireless modem that interfaces with a wireless relay station on the vehicle. Signals can be sent from any remote site in the community to partnering organization (e.g. public library) for deployment to the Web, television, or other medium.

- Large screen TV.
- Smart board for instruction.
- Wheelchair accessible workstations.
- Networked printer.
- Full-time instructor(s).
- Develop schedule of mobile technology center visits.

18) Develop a Technology Mentorship Program

Goal: Utilize student technology knowledge to implement community programs.

Project Description: Initiate a program designed to recruit local high school or college students who excel in school and exhibit advanced leadership and technology skills to assist in technology training, technical support, and outreach efforts in their communities. Recognizing students as a powerful resource for local outreach efforts, the program will tap into the technology knowledge base that exists among students, and will challenge students to extend their teaching and learning experiences beyond the classroom.

Benefits:

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

Action Items:

- Identify the program format and offerings. Similar technology mentorship program are organized as student run-help desks or student-led classes.
- The program can be hosted at a local school or community anchor institution such as a library or community center, and could be run during the school day as part of the regular curriculum, during study hall or as an afterschool activity.
- The curriculum could be borrowed from an existing technology mentorship program, or could be student-driven. Similar programs offer digital literacy training to seniors, provide computer refurbishing, build websites, and other forms of tech support to local residents.

19)

Use - Recommended Actions

Economic Opportunity

20) Create a Teleworker Support and Attraction Program

Goal: Promote or develop flexible efficient and effective work arrangements.

Project Description: Teleworking offers significant benefits to employers, employees, self-employed individuals, and entrepreneurs. These benefits include businesses infrastructure savings, emissions reduction, and congestion management. Further, teleworking can help businesses and government agencies reduce real estate, energy, and

other overhead costs, using the savings to avoid job cuts or to hire new staff. Research has shown that teleworking programs can increase an employer's productivity, and enable them to continue operating without skipping a beat in the face of a natural disaster or other emergency situation that might otherwise bring business to a halt. Teleworking also allows employees to lower their commuting costs while juggling both work and family, even accommodating people with disabilities, the elderly, mothers, and rural residents who may not be in a position to work outside the home.

It is unlikely that all employees will be able to telework. A good way to start is to identify some types of positions or job types that can be performed remotely. Before fully implementing the policy, initiate a trial period and track results. Get feedback from managers and other employees as to the benefits and any challenges they are seeing. Then fine-tune and possibly expand the program to best suit everyone's needs.

Benefits:

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

Action Items:

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

21) Host Website and Social Media Classes for Local Businesses

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

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

Action Items:

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

22) Create Local Jobs Via Teleworking Opportunities

*Goa*l: Connect IT training and education with remote employment opportunities.

Project Description: Connected Nation's Digital Works program 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.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.

Benefits:

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

Action Items:

- The Digital Works program requires a site suitable for establishing office infrastructure, educational partners to develop the workforce, and business relationships with enterprises willing to hire workers through the digital factory.
- Identify the physical, financial, and technological resources needed to establish a digital factory.
- Space to house workspace and training and support offices will be needed, as well as the equipment, such as computers and monitors for video conferencing and training.
- Develop partnerships with companies who would provide contractual employment to program graduates.
- Visit http://www.digitalworksjobs.com to learn more.

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

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

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

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

- "How-to" training for key activities such as online collaboration, search optimization, cybersecurity, equipment use, and Web 2.0 tools.
- Technical and professional support for hardware, software, and business operations.
- Licenses for business applications such as document creation, antivirus and security software, and online audio- and videoconferencing.

- Website development and registration.
- Basic communications equipment, such as low-cost personal computers and wireless routers.

Benefits:

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

Action Items:

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

Education

24) Improve Education through Digital Learning

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

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

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

Benefits:

- Increase learning time by extending learning beyond the classroom walls.
- Individualize learning and increase student engagement in school.

- Encourage self-directed learning.
- Enable parents to more effectively support their children at home.

25) Connect all School Classrooms to the Internet

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

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

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

Benefits:

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

Action Items:

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

Government

26) Improve Public Safety Communications

Goal: Leverage Broadband Technologies to Enhance Emergency Communications to and from the Public

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

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

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

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

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

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

Other relevant initiatives include:

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

27) Perform a Municipal Information Technology Assessment

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

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

Benefits:

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

Action Items:

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

28) Improve the Online Presence of Government

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

Project Description: The government's website must meet the needs of the citizen; should equal or exceed the standards of private company websites; design must be uncluttered, informative, and easy to navigate; and website best practices must be continuously monitored and implemented. Further, website administrators should be funded and required to follow the latest best practices in design and web search optimization. They should have a process for archiving content that is no longer in frequent use and no longer required to be posted on the website. In addition, the local government should regularly solicit public opinion and analyze citizens' online preferences before making changes to their website or before launching a new website.

Benefits:

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

Action Items:

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

29) Support Healthcare Providers Serving Rural Communities

Goal: Ensure that rural healthcare providers in your community have access to the robust telecommunications infrastructure required for the provision of healthcare services.

Project Description: Review the Universal Service Administration Company's (USAC) Universal Service Rural Health Care Program.The Rural Health Care program supports healthcare providers serving rural communities by funding telecommunications services necessary for the provision of healthcare. The program is intended to ensure that rural healthcare providers pay no more for telecommunications in the provision of healthcare services than their urban counterparts.

The Healthcare Connect Fund (HCF) Program is the newest component of the Rural Health Care Program. The HCF Program will provide a 65 percent discount on eligble expenses related to broadband connectivity to both individual rural health care providers (HCPs) and cosortia, which can include non-rural HCPs (if the consortium has a majority of rural sites).

Eligibility:

There are three initial criteria a health care provider (HCP) must meet to participate in the Rural Health Care Program.

1. HCPs must be one of the following types of entities:

- Post-secondary educational institutions offering health care instruction, such as teaching hospitals and medical schools,
- Community health centers or health centers providing health care to migrants,
- Local health departments or agencies,
- Community mental health centers,
- Not-for-profit hospitals,
- Rural health clinics,
- Consortia of HCPs consisting of one or more of the above entities,
- Dedicated emergency departments of rural for-profit hospitals, or
- Part-time eligible entities located in facilities that are ineligible.

2. HCPs must be a not-for-profit entity or a public entity.

3. HCPs must be located in an FCC-approved rural location.

Once your HCP has been established as eligible, you should ensure that the services you request are eligible for support.

Contact Information:

Telephone: (800) 229-5476

E-mail: rhc-admin@usac.org

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

30) Pursue Next Generation 911 Upgrades

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

Project Description: The overall system architecture of Public Safety Answering Points (PSAPs) has essentially not changed since the first 911 call was made in 1968. These 911 systems are voice-only networks based on original wireline, analog, circuit-switched infrastructure that prevent easy transmission of data and critical sharing of information that can significantly enhance the decision-making ability, response, and quality of service provided to emergency callers. To meet growing public expectations of 911-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.

Benefits:

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

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

Action Steps:

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

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

31) Improve Online Business Services Offered by the Government

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

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.

Benefits:

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

Action Items:

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

Healthcare

32) Promote Telemedicine in Remote Areas

Goal: Deliver improved healthcare services to rural residents.

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

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