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**BROADBAND &
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Broadband Policies and Regulations

For Wisconsin Stakeholders



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About Us



The University Wisconsin-Extension Broadband & E-Commerce Education Center assists community stakeholders in implementing strategies to attract broadband investments. The goals of the Center include increasing broadband utilization, business education and outreach, and community engagement and education.

<http://broadband.uwex.edu> | Twitter [@WI_Broadband](#) | wibroadband@uwex.edu

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How to Use This Document

The first section of this document provides context, including explanation about how some key terms are used specifically within this document, and a description of important policy players on the local, state, and federal level.

Section 2: A Framework of Change is generally organized from the perspective of a community moving through a progression of actions toward broadband development. This section contains broadband-related policy descriptions arranged in an order that approximates the change process stages for systemic change (see sidebar p. 2, *It's a fast moving world*). Each policy subsection within section two directs the reader to relevant case studies which describe actions that have been undertaken in Wisconsin and other parts of the United States with the intention of improved broadband adoption, utilization, and access (found in Section 3). Some serve as an example of similar actions taken in numerous communities, while others address a unique combination of challenges.

In section 3, the case studies are organized alphabetically, primarily by county. Under each county heading, multiple case studies may be featured and some include narratives from municipalities located in that county. Examples from other states or crossing boundaries are identified as such. To navigate and identify case studies relating to a particular topic, the change **stage** and **keywords** affiliated with each location are provided. The stage and keywords refer back to relevant policy subsections in section two.

Each community faces its own challenges and brings unique strengths to community building efforts. The policy generalizations and case studies included are offered simply as samples to assist with understanding the issues that have been considered by others. They are a starting point for local discussions. Community leaders draft their own guiding documents that protect their interests and include considerations unique to their region. These examples may be helpful as a starting point; communities need to engage their attorneys in reviewing documents to ensure compliance with the law, and that the needs of their citizens are being met.

This document is not intended to serve as legal advice and should not be considered as such. Local officials interested in taking action to improve broadband access and adoption in their area should involve legal counsel early in the process. Be familiar with state and local laws in your area before deciding what actions are appropriate for your community to take.

This document is an update to the publication, *Collected Broadband Regulations and Policies in Action*, originally made available by the Broadband and E-Commerce Education Center in May 2014.

Section 1: Introduction

Use of the internet in recent decades has greatly increased in its capability and integration into everyday life for both individuals and businesses. As people discover more applications and these applications require heavier use of data, some communities are finding that their broadband service needs are not being met. In response, communities are wielding a variety of tools to stimulate broadband development, defined as the increased adoption, utilization and accessibility of broadband. The goal of this document is to help Wisconsin communities navigate the complex environment surrounding broadband development and make informed decisions that improve adoption and availability.

Individual communities have unique needs and challenges to address, yet there are patterns common to how sustainable, systemic change happens, often following a flexible process supported by formal and informal leaders. Systemic change such as broadband development typically begins with building awareness of the issue, proceeds to methods of gathering community support, and follows through with actions taken to create positive, enduring transformation. [sidebar: Kotter's 8 steps]

Effective, community-wide utilization of broadband for the purpose of developing the community requires addressing the issues on more than one level. It is not a case of 'build it and they will come.' Making broadband available does not assure that residents will make use of it or get creative with it (National Small Business Association, *2013 Small Business Technology Survey*, retrieved from <http://www.nsba.biz/wp-content/uploads/2013/09/Technology-Survey-2013.pdf>). Development of people – educating them on benefits and enabling them with consumer savvy – is a necessary strategy for widespread adoption of new technology. This document presents examples to share the strategies employed to overcome barriers to adoption of high-speed internet as well as policy actions taken to expand broadband infrastructure. This compilation is intended as a starting point for the readers' own research.

It's a fast-moving world

In 1996, John P. Kotter authored the book, *Leading Change*, in which he outlined an eight-step change framework for organizations. By analyzing change failures in companies and organizations over fifteen years, Kotter identified patterns of errors that create barriers, and crafted a roadmap for transformation to overcome these barriers.

Kotter expands on these ideas in his 2014 book, *Accelerate*, in which he describes the advantages of a more fluid strategy network; this model applies more readily to community change. Communities must factor in that the parties who collaborate for larger, community change are not bound by the rules and structures that one finds in organizations. Leadership is often informal; authority comes in the form of knowledge sharing and relationship.

The process for creating significant change is described in eight stages:

1. Establish a sense of urgency
2. Create the guiding coalition
3. Form a strategic vision and initiatives
4. Communicate the change vision
5. Enable action by removing barriers
6. Generate short term wins
7. Sustain acceleration
8. Institute change

(Kotter, John P. *Accelerate: building strategic agility for a faster moving world*. Harvard Business Review Press,

Context

The phrase “broadband development” is used frequently throughout this document. Note that this phrase has no universal definition, nor is there a standardized level at which broadband service in a community is deemed “adequate”. Technology is constantly improving and different communities may have very different demands for broadband.

For the purposes of this document, *broadband* is high-speed Internet access that is always on and faster than traditional dial-up access, and which uses a wide range of frequencies, allowing large amounts of data to be transmitted simultaneously.

Broadband development refers to any action that encourages adoption and utilization of broadband technologies and/or improves internet access for community residents.

Adequate broadband refers to broadband services that are “always on”, that is, service that is available at all times without unreasonable interruption, and services that are of sufficient capacity for needs of all users.

Key policy players

These are active times regarding changes and shifts in policy, reflecting the pace of change in technology and its adoption. What seemed like science fiction a few decades ago has become commonplace in the first part of this century. Society as a whole is adjusting as technology that was formerly a luxury becomes a necessity for functioning in today’s world, impacting the way people shop, learn, manage their finances, monitor their health, market their products and look for employment.

Elected bodies and agencies from the federal to the local level play a role in shaping the regulatory and policy environment in which broadband development occurs. Also, different agencies and organizations may abide by different standards of what constitutes high-speed internet, or broadband, and these definitions may change to reflect changes in demand and technology.

At the federal level, the Federal Communications Commission (FCC) is the agency charged with regulating inter-state and international communications by radio, television, wire, satellite and cable in all 50 states, the District of Columbia and U.S. territories. The independent U.S. government agency is directed by five commissioners, appointed by the President and confirmed by Congress. The Commission is the United States' primary authority for communications law, regulation and technological innovation.

The FCC most recently updated their definition of high-speed internet in January 2015 to 25 Mbps for downloads and 3 Mbps for uploads; over half of rural Americans lack internet access at these speeds, according to the FCC. Previously the FCC definition was 4 Mbps down/3 Mbps up, set in 2010. A press release from the FCC on their January 2015 decision is available on their website at the following link: https://apps.fcc.gov/edocs_public/attachmatch/DOC-331760A1.pdf

The National Telecommunications and Information Administration (NTIA) is located within the US Department of Commerce. The agency’s responsibility is to advise the President on telecommunications

and information policy issues. According to the NTIA website, “NTIA’s programs and policymaking focus largely on expanding broadband Internet access and adoption in America, expanding the use of spectrum by all users, and ensuring that the Internet remains an engine for continued innovation and economic growth.”

The NTIA features initiatives on digital literacy, providing resources and space for collaboration at the web portal www.digitalliteracy.gov, as well as the BroadbandUSA program, with the goal of supporting community broadband projects, promoting broadband deployment and adoption. BroadbandUSA materials describe their work: “BroadbandUSA offers online and in-person technical assistance to communities; hosts regional workshops around the country; and publishes guides and tools that provide communities with proven solutions to address problems in broadband infrastructure planning, financing, construction, and operations across many types of business models.”

(<http://www2.ntia.doc.gov/about>) BroadbandUSA also maintains a national broadband map (<http://www.broadbandmap.gov/>), updating data on availability, speed and location of broadband services twice a year with the intent to assist state broadband initiatives in planning.

Beyond these initiatives, the NTIA is also involved with managing the use of telecommunications spectrum; administering grant programs that extend the deployment of broadband and communication technologies in the country; developing policy on issues related to online privacy, copyright protection, cybersecurity and other issues related to informational technology; telecommunications research; and participation in management of the Internet’s domain name system.

The NTIA provides a web classroom at <http://www.broadbandmap.gov/classroom> to supply context and definitions used in gathering and presenting data for the national broadband map. This NTIA source defines broadband as a high-speed, always-on connection to the internet. The NTIA specifies that for a service to be included on the national broadband map, the advertised speeds must be at least 768 Kbps (kilobits per second) download and 200 Kbps upload to end users.

Established in March 2015, within the Executive Branch of the federal government, the President’s interagency Broadband Opportunity Council (BOC) operates to identify, assess and remove regulatory barriers and explore opportunities for broadband deployment through action of federal agencies. Twenty-five federal agencies are represented to seek way to incentivize investment, remove regulatory barriers and align funding policies to support broadband access and adoption. The Council began its work by soliciting input with a request for comment; see <http://www.ntia.doc.gov/federal-register-notice/2015/broadband-opportunity-council-notice-and-request-comment>.

At the federal level, other agencies and departments are involved with overseeing grant funds, targeted specifically for broadband or more generally for community development, that may be relevant to communities seeking broadband development. The Broadband and E-Commerce Education Center has compiled information about these opportunities into a document, *Funding Opportunities*, available at <http://broadband.uwex.edu/resources/funding-2/>.

At the state level, the legislature sets policy regarding the regulation of telecommunications and has created funding opportunities for the expansion of broadband infrastructure. The legislature has

assigned the oversight of the broadband expansion grants to the Wisconsin Public Service Commission of Wisconsin (PSCW). Also, in 2009, the Governor designated the PSCW as the Wisconsin entity eligible to receive a federal mapping grant under the NTIA's State Broadband Data and Development Grant Program. (<http://www.link.wisconsin.gov/about-link-wisconsin>)

The PSCW created the State Broadband Office (SBO), with the goal of working with stakeholders to build partnerships with providers and consumers to enhance broadband across the state. The SBO also administers broadband improvement funding through the annual Broadband Expansion Grant Program.

PSCW documents refer users to federal agency definitions on speed standards for broadband. (http://www.broadbandmap.wisconsin.gov/documents%5CWI_Broadband_Mapping_FAQs.pdf)

At the local (county and municipal) government level, the role the local governmental body plays varies with the powers of that body as defined by state statute and with local engagement with the issue. This document highlights a variety of the potential roles.

Section 2: A Framework of Change

Policy actions taken at the local level have the potential to influence the process at any stage in the course of change. The progression presented here starts at building awareness and concludes with descriptions of how communities make sustained commitments. The stages adapted from Kotter's¹ eight steps include:

1. Creating a Sense of Urgency
2. Building a Guiding Coalition
3. Developing and Communicating a Strategic Vision
4. Enabling Action and Removing Barriers
5. Generating Short Term Wins
6. Learning from Experience/Instituting Change

Framework of Change: Creating a Sense of Urgency

Low levels of awareness and lack of a sense of urgency serve as hindrances to increasing broadband adoption and access. Local leaders, households, and businesses may understate or be unaware of the numerous benefits from improved internet service as well as the active role they can play in improving internet service in their area. Actions addressing urgency may vary in form, detail, and formality; through various means, emphasizing the urgency of broadband development is an important step which functions as a catalyst for further action that can yield more tangible results.

Broadband Resolutions

Local governments and other organizations have adopted resolutions supporting broadband development either internally or in support of another organization. These resolutions usually do not carry much legal weight; instead, their role is to affirm desire for broadband development and build momentum toward more substantial action. Forward-thinking communities that adopt broadband resolutions are taking the first steps in preparation for investment opportunities.

For examples of communities adopting broadband resolutions, see the following in the Case Studies section (3) of this document:

- *Bayfield County, Wisconsin*
- *Crawford County, Wisconsin*
- *Grant County, Wisconsin*
- *Lafayette County, Wisconsin*
- *Marinette County, Wisconsin*
- *Oneida County, Wisconsin*
- *Price County, Wisconsin*

¹ Kotter, John P. *Accelerate: building strategic agility for a faster moving world*. Harvard Business Review Press, 2014.

Community Surveys

Measuring public opinion of and needs for broadband is an important step that provides insight on the types of action needed to improve access and adoption in a given area. Surveying is an effective tool for measuring perception, current use, and demand for broadband.

Formal comprehensive planning processes often include surveying for input on topics such as transportation, health, education, and economic development. Local governments can include questions about broadband in these surveys to improve their understanding of residents' level of adoption and needs for the future.

As part of a National Telecommunications and Information Administration initiative, the Public Service Commission of Wisconsin (PSCW) has mapped broadband availability across the state. To improve the quality of data regarding connectivity and affordability, the PSCW launched statewide Broadband Demand Surveys for households and businesses. The University of Wisconsin-Extension Broadband and E-Commerce Education Center, Wisconsin Economic Development Corporation, and other statewide partners assisted and promoted this effort as well.

The Wisconsin Broadband Coverage Map is located on the LinkWisconsin website at the following link: <http://www.broadbandmap.wisconsin.gov/>

The State Broadband Office (SBO), of the PSCW, annually surveys Community Anchor Institutions for broadband subscription information. The results of these surveys are incorporated into the LinkWisconsin Broadband Coverage Map.

More information on the Broadband Demand and Community Anchor Institution Surveys is available on the LinkWisconsin and Broadband & E-Commerce Education Center websites at:

<http://www.link.wisconsin.gov/surveys>; and

<https://broadband.uwex.edu/blog/2013/03/broadband-demand-survey/>

The SBO has also partnered with CostQuest to develop the Bandwidth Assessment Tool, which helps individuals and businesses assess their current data speed needs based on their usage and number of devices in use. The Broadband & E-Commerce Education Center has promoted this resource as well.

More information on the Bandwidth Assessment Tool is available on the LinkWisconsin and CostQuest websites at the following links: <http://www.link.wisconsin.gov/bandwidth-assessment>;

<https://apps.costquest.com/bat/home>

For examples of communities utilizing community surveys, see the following in the *Case Studies* section (3) of this document:

- *Barron County, Wisconsin*
- *Dane County, Wisconsin*
- *Iron County, Wisconsin*
- *Jackson County, Wisconsin*
- *Marathon County, Wisconsin*
- *Pierce County, Wisconsin*

Framework of Change: Building a Guiding Coalition

Bringing together a group of dedicated stakeholders is essential to the success of a community development initiative, including broadband development. Some local governments have taken on responsibility for action after they passed a supporting resolution. In some cases, the body passing a resolution has designated another existing organization to guide broadband efforts, such as an economic development association or committee, or an information technology office. Some have created a new entity to guide broadband development. Alternatively, organizations external to local governments have taken it upon themselves to advocate for broadband development.

Technology Committees

Local governments may form a technology committee or broadband coalition specifically to guide community action toward broadband. These committees often consist of local officials, stakeholders, and interested citizens; their role is to perform research and advise decision makers on matters of technology, including broadband, as it pertains to government use as well as resident households and businesses.

For examples of communities building guiding coalitions, see the following in the *Case Studies* section (3) of this document:

- *Ashland County, Wisconsin*
- *Bayfield County, Wisconsin*
- *Dane County, Wisconsin*
- *State of Illinois*
- *Iron County, Wisconsin*
- *Marathon County, Wisconsin*
- *State of Minnesota*
- *Oneida County, Wisconsin*
- *Price County, Wisconsin*

Framework of Change: Developing and Communicating a Strategic Vision

With a leadership team in place, a community and/or coalition develops a strategic vision to guide action toward broadband development. What does success look like in the community? How are people using broadband to improve the quality of their lives? What is the desired future for access for residents? Communities have been using planning processes to formulate this vision of success, either as a topically focused process or part of a broader planning process.

Broadband-Inclusive Comprehensive Planning

Local governments interested in broadband development can reinforce this interest by including broadband in their comprehensive plans. Wisconsin Statute §66.1001 provides the description of comprehensive planning in the state; subsection (2) requires that comprehensive plans address particular topics including utilities and community facilities, economic development, land use, transportation, housing, intergovernmental cooperation, and plan implementation. Broadband development is often addressed in the utilities and community facilities section of a plan.

Wisconsin Statute §66.1001 is available at the following link:

<http://docs.legis.wisconsin.gov/statutes/statutes/66/X/1001>

Different governmental bodies such as cities, counties, towns, and villages have different responsibilities regarding planning. Local officials should consult with their counsel if there are any questions regarding the appropriate process to follow.

Wisconsin Statute §59.69, regulating planning for **counties**, is available at:

<http://docs.legis.wisconsin.gov/statutes/statutes/59/VII/69>

Wisconsin Statute §61.35, regulating planning for **villages**, is available at:

<http://docs.legis.wisconsin.gov/statutes/statutes/61/35>

Wisconsin Statute §62.23, regulating comprehensive planning for **cities**, is available at:

<http://docs.legis.wisconsin.gov/statutes/statutes/62/I/23> Wisconsin Statute §66.0309, regulating **regional planning commissions**, is available at:

<http://docs.legis.wisconsin.gov/statutes/statutes/66/III/0309/8>

References to broadband in comprehensive plans are often broad in nature, describing elements such as the state of utilities infrastructure in the area, lists of private providers, documented demand for improved internet service, and goals for broadband availability or access. Implementation of plans may include more specific policies and actions recommended to improve broadband development.

Broadband-Specific Planning

Organizations may develop separate plans that specifically address broadband or broadband development may be identified as an issue to address in committee or departmental plans. An increasing number of communities are focusing more attention on technology needs and providing opportunities for local officials to adopt technology in their work.

For examples of communities developing strategic visions, see the following in the *Case Studies* section (3) of this document:

- *Ashland County, Wisconsin*
- *Crawford County, Wisconsin*
- *Marathon County, Wisconsin*
- *Marquette County, Wisconsin*
- *Oneida County, Wisconsin*
- *Price County, Wisconsin*
- *St. Croix County, Wisconsin*

Framework of Change: Enabling Action and Removing Barriers

At first glance, community leaders may not recognize that current practices, policies and regulations are hindering the adoption of technology and the expansion of access to broadband. Review of current policies and practices can reveal unintended barriers and provide a chance to confirm that policies support current priorities. Actions have been taken by local governments and public-private partnerships that address public rights-of-way, towers, and funding sources.

Local Ordinances and Codes

Local governments may use ordinances, permits, and zoning codes to strategically improve broadband access. These governmental actions are subject to Wisconsin statutes regulating zoning ordinances and defining the powers of local governments; some individual statutes regulate both zoning and planning. Wisconsin Statute §66.1001(3) lists the types of ordinances that must be consistent with enacted comprehensive plans.

Public Rights-of-Way Policies

Local governments may own public rights-of-way such as roads and the spaces immediately beside, above, and below them and grant private parties the right to occupy public rights-of-way, e.g., internet service providers (ISPs) wishing to lay telecommunications infrastructure. While local governments are required to manage public rights-of-way impartially, they also retain discretion in this process including the authority to waive fees or expedite application processes.

Some towns and cities have ordinances restricting excavation and construction in public rights-of-way for non-emergency purposes within a stated period following previous pavement. In some cases, when excavation is scheduled for any reason, utilities owning or operating infrastructure in the affected area are notified so that, if desired, they may perform necessary maintenance and improvements before other work is done, in this way maximizing the improvements implemented during a single excavation and minimizing the frequency of excavation.

Additional statutory context for the construction of transmission lines is provided in Wisconsin Statutes §182.017 and §86.16, regulating transmission lines on, above, or beneath public and private property

and state and local highways, respectively. Private entities may construct transmission lines and other necessary equipment through public rights-of-way such as highways, bridges, and bodies of water or through any private lands with owner consent, subject to “reasonable regulations set by the municipality”. These lines may not interrupt public use of this infrastructure. The PSCW is responsible for hearing complaints by companies about municipal regulations; subsection (8) contains some instances of reasonable and unreasonable regulations. For state highways, consent must be granted by the state Department of Transportation as well as relevant local authorities.

Wisconsin Statute §182.017 is available at: <http://docs.legis.wisconsin.gov/statutes/statutes/182/017>

Wisconsin Statute §86.16 is available at: <http://docs.legis.wisconsin.gov/statutes/statutes/86/16>

Dig-Once Ordinances

Another tool governments of all sizes may utilize for more proactive broadband development is known as a dig-once ordinance. Though similar to right-of-way policies, dig-once ordinances *require* that any entity planning construction on public rights-of-way also allow the installation of conduit, fiber or other broadband infrastructure as part of the construction; the owner of the right-of-way is generally responsible for informing private ISPs of the opportunity for involvement. Benefits from dig-once ordinances include greater broadband investment, cost savings, and minimal damage and disruption of public rights-of-way.

Tower Ordinances

Local governments may enact ordinances regarding mobile telecommunications towers which can serve as a support for broadband infrastructure. Wisconsin Statute §66.0404 contains regulations for these ordinances including the construction of new towers, substantial modification of existing towers, and co-location of equipment owned by separate entities on a single tower.

This statute separates co-location into two classes: class 1 co-location occurs when “substantial modification” is required to attach equipment on existing structures and is regulated with newly-constructed towers; class 2 co-location does not require substantial modification. Subsection (3) regulates class 2 co-location, defined as, “the placement of a new mobile service facility on an existing support structure such that the owner of the facility does not need to construct a free standing support structure for the facility or engage in substantial modification.” In the case of class 2 co-location, local governments have only 45 days following the determination of an application’s completeness to issue a decision (as opposed to the 90 day period for newly-constructed towers and class 1 co-location); like new towers and class 1 co-locations, applications are considered approved if no decision is issued by this time.

Subsection (4) lists the issues that cannot be considered in this process; items include but are not limited to restrictions on environmental testing, permission moratoriums, fee amounts, consulting fees, application decision criteria, permit duration limitations, fall zone requirements, and height limits.

Subsection (2)(i) states that mobile tower ordinances in effect on or before July 2, 2013 may not be enforced without compliance with this statute.

Wisconsin Statute §66.0404 is available at: <http://docs.legis.wisconsin.gov/statutes/statutes/66/IV/0404>

For examples of communities using local policies to support broadband development, see the following in the *Case Studies* section (3) of this document:

- *Eau Claire County, Wisconsin*
- *La Crosse County, Wisconsin*
- *State of Minnesota*
- *Sauk County, Wisconsin*
- *St. Croix County, Wisconsin*

Public-Private Partnerships

Another way to enable action is to create partnerships between public and private entities, such as local governments and internet service providers (ISPs). The nature of these partnerships vary greatly, as do the products of their collaboration; partnerships in this section generally address individual broadband projects. Thoughtful negotiation should involve legal counsel and can yield a win for all the parties involved.

Tower Agreements

One common type of public-private partnership is the tower agreement. Local governments have the authority to enter into agreements with private ISPs allowing them to construct or install wireless telecommunications infrastructure on publicly-owned towers and land. The specific language of these agreements can vary greatly.

Common topics addressed in tower agreements include:

1. *Exclusivity*: Communities wishing to encourage competition typically negotiate non-exclusive contracts and allow several ISPs to co-locate wireless internet equipment on a single tower;
2. *Height*: Tower height can impact a project in a number of ways. Taller towers are more complicated and expensive to construct. Height can also have a significant impact on the wireless service provided by equipment attached to the tower. Finally, taller towers may physically expand the potential for co-location of equipment. Some local ordinances may limit the height of towers (see the *Tower Ordinances* subsection of this document);
3. *Responsibilities*: Agreements should address which entity will be responsible for installing and removing equipment and which will be responsible for negotiating services;
4. *Fees*: The range of fees being collected for equipment will be impacted significantly by potential market conditions, such as population density or geographic features.

The Wisconsin Department of Natural Resources (WDNR) and Wisconsin Department of Transportation (WDOT) own towers as well; the locations of these towers can be found on the LinkWisconsin

Broadband Coverage Map at: <http://www.broadbandmap.wisconsin.gov/>. For questions about WDNR tower sites, email Jennifer Lord, Radio Communications Specialist, at Jennifer.Lord@wisconsin.gov. For questions about WDOT tower sites, email Jeff Ohnstad, Engineering and Communications Section Chief, at Jeffrey.Ohnstad@dot.wi.gov.

Shared Resource Agreements

Local governments and public departments often enter agreements with private entities to share resources; these are aptly referred to as shared resource or joint-use agreements.

One type of shared resource agreement is similar to a dig-once ordinance and involves right-of-way space. For example, as part of an agreement a local government may expedite or waive portions of the permission process and grant right-of-way access to a private entity; in exchange, the private entity will install fiber or other broadband infrastructure in the right of way in addition to other planned construction. Control of this infrastructure is transferred back to the local government which may, in turn, use it internally or negotiate with private ISPs to connect to end users, such as households and businesses.

The WDOT often uses these agreements with ISPs, whereby receiving unused “dark” fiber in exchange for use of controlled-access highway public rights-of-way. More information regarding WDOT right-of-way permits is available on their website at: <http://www.dot.wisconsin.gov/business/rules/property-permits.htm>

Partnerships for Funding Co-application

Local community partnerships are being formed by entities serving as co-applicants for federal and state funding opportunities for broadband projects. Partners may offer construction services, matching funds, in-kind contributions, outreach efforts, supporting resolutions, or other contributions. These partnerships can strengthen an application and increase the chances of receiving funding. Some funding opportunities, such as the Public Service Commission of Wisconsin’s (PSCW) Broadband Expansion Grant Program, require all applications to be submitted by public-private partnerships.

The Broadband & E-Commerce Education Center has released the *Collection of Broadband Funding Opportunities* document. It is a compilation of grants and loans at the state and federal levels for broadband-related projects. This document is available on Center website at: <http://broadband.uwex.edu/resources/funding-2/>

For examples of communities utilizing public-private partnerships to support broadband development, see the following in the *Case Studies* section (3) of this document:

- *Bayfield County, Wisconsin*
- *City of Boulder, Colorado*
- *Brown County, Wisconsin*
- *Crawford County, Wisconsin*
- *Dane County, Wisconsin*
- *Delaware River and Bridge Authority, Delaware*
- *Eau Claire County, Wisconsin*
- *Fond du Lac County, Wisconsin*
- *Green County, Wisconsin*
- *Marathon County, Wisconsin*
- *State of Minnesota*
- *Oneida County, Wisconsin*
- *Scott County, Minnesota*
- *St. Croix County, Wisconsin*
- *Vilas County, Wisconsin*

Framework of Change: Generating Short Term Wins

Awareness amplifies as more of the residents learn about and experience the advantages of development. Short term wins assure people that their decisions and actions are benefitting the community. Small projects can test ideas and encourage more community involvement. Small, measureable, and sustainable improvements build momentum for long term success, especially if they are celebrated and communicated.

Broadband Adoption

Internet adoption yields numerous benefits for households and businesses that could have significant economic impacts. Households benefit from increased educational and employment opportunities; for example, many employers no longer accept paper job applications, instead requiring digital applications to be submitted online. Many classes across all levels of education implement online components in addition to traditional in-class learning; some are conducted entirely over the internet. Other household uses include online banking and social networking. Businesses can utilize broadband for telecommuting and to expand their customer bases by engaging in e-commerce. Private internet service providers are also more likely to invest in areas that demonstrate high demand for broadband service.

Surveys administered by the Pew Research Center since 2009 found that 15-20% of American adults did not use the internet. Survey respondents reported the most common reasons for not adopting included perceptions of irrelevancy, difficulty of use, and cost. The FCC's 2015 Broadband Progress Report reported that Wisconsin is below the national figures for fixed-service broadband adoption across a range of speeds. Demographic characteristics such as age, education, and income highlight differences in adoption of new technology, commonly referred to as the "digital divide". This disparity is especially significant for digital immigrants (those born before the advent of the internet and personal computing) and low-income individuals who cannot afford ongoing broadband subscription costs.

A 2012 report on the Pew Research Center surveys is available at: <http://www.pewinternet.org/2012/04/13/digital-differences/> A 2013 report on the Pew Research Center surveys is available at: <http://www.pewinternet.org/2013/09/25/whos-not-online-and-why/>

Appendices D, F, G, and H of the FCC's 2015 Broadband Progress Report compare various access and adoption rates across the United States. The Report is available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-10A1.pdf

Some local governments and agencies have actively addressed adoption in a number of ways. This document presents a limited number of examples. The NTIA website features resources and stories to help people assess their skills, find teaching tools and learn from others' experience, at: <http://www.digitalliteracy.gov/>

Digital Literacy

Digital literacy programs help individuals become more comfortable using new technology such as browsing the internet, email, social networking, online banking, and other personal and business applications.

Part of the Sustainable Broadband Adoption effort originating with the American Recovery and Reinvestment Act, UW-Extension developed and coordinated numerous projects to expand adoption and utilization of broadband. Pilot programs in communities around the state are featured in a series of videos available online at: <https://www.youtube.com/user/WIBroadband1/videos> . Written narrative case studies are also available at: <http://broadband.uwex.edu/resources/case-studies/> .

Libraries and colleges have offered digital literacy programs, shown to improve broadband adoption in rural areas. A report from the Daily Yonder describes the effect of libraries on rural broadband adoption at: <http://www.dailyyonder.com/rural-libraries-linked-higher-broadband-adoption/2015/04/08/7796>

Telecommuting and Telehealth

Telecommuting is a method of working from home or away from the office by utilizing broadband to transfer data and for video chat (e.g., Skype, FaceTime, Google Hangout). Similarly, telehealth uses broadband to provide medical services via broadband between providers and patients in rural areas.

Encouraging businesses and healthcare providers to explore these applications could improve work and health outcomes while decreasing transportation costs; of course, video chat has personal application as well, allowing individuals to connect with family members and friends across the internet.

Broadband Expositions

Stakeholders may host broadband expositions in their communities, bringing together local telecommunications providers and institutions with individuals and business owners that might benefit from adopting broadband technologies. Presentations and technical demonstrations provide information to consumers and can serve as a draw for the event.

For examples of applications and initiatives improving broadband adoption, see the following in the *Case Studies* section (3) of this document:

- *Ashland County, Wisconsin*
- *Dane County, Wisconsin*
- *State of Illinois*
- *Marathon County, Wisconsin*
- *Menominee County, Wisconsin*
- *Milwaukee County, Wisconsin*
- *Oneida County, Wisconsin*
- *State of Vermont*

Framework of Change: Learning from Experience/Instituting Change

Previous topics in this document primarily address individual projects and communities in the early stages of broadband development; this section discusses a high level of commitment to instituting long term, sustained broadband development where communities and/or organizations can take action to ensure ongoing support and create structures for maintenance of new systems, including systems of technology adoption. There are several approaches to consider, each with its own strengths and weaknesses. The suitability of any one approach depends on the circumstances and needs of the community.

Private Provider Investment

Many internet users purchase service from private ISPs, which often bundle internet with other telecommunications services such as phone and cable. Private providers may offer different types of services that are delivered in various ways (i.e., wired or wireless, fiber or DSL, etc.). In this model, the private provider owns and operates its' own infrastructure, though they often utilize public or private rights-of-way. Pricing and availability for privately-provided broadband services are generally determined by market conditions.

The LinkWisconsin Broadband Coverage Map includes information on available providers by general location and is generally updated every six months. This interactive map is available at the following link: <http://www.broadbandmap.wisconsin.gov/>

Information on the Broadband Coverage Map's creation is available at the following link: http://www.broadbandmap.wisconsin.gov/documents/WI_Broadband_Mapping_FAQs.pdf

Public-Private Partnerships

Public-private partnerships have also been used to construct broadband infrastructure and enable wider adoption of broadband technology. An effective broadband partnership spreads the risks and costs related to necessary capital investment, execution challenges, and adoption hurdles between the private and public sector.

While the structure of each community's partnership reflects local needs and circumstances, most follow one of three models as described in the NTIA's BroadbandUSA guide to public-private partnerships. Regardless of which model a community chooses, the partners each play important roles that are critical to success:

1. *Private Sector-Led*

A commercial operator (private or non-profit) builds, owns, and operates the network. Community Anchor Institutions (CAIs) and economic development authorities support the business case by contributing planning, monetary, and regulatory support, and by aggregating demand and securing customer commitments in advance.

2. *Government-Led*

A public entity (e.g., state, county, or city government, municipal electric utility) owns the network and private partners construct, operate, and/or maintain the network in exchange for financial and in-kind support, as well as the types of contributions described in the private sector-led model. The public entity may either use an existing organization, such as a municipal electric system, or create an entirely new one.

3. *Joint-Ownership Model*

A commercial operator(s) (private or non-profit) and the public enterprise jointly invest in the network and share capacity. Both partners also contribute a mix of financial, in-kind, and other support to the project.

The NTIA's BroadbandUSA guide to public-private partnerships, including case studies and best practices, is available at the following link: http://www2.ntia.doc.gov/files/ntia_ppp_010515.pdf

A 2012 Broadband & E-Commerce Education Center resource describes public-private partnerships and provides guidelines for developing strong partnerships. This resource is available at the following link: <http://broadband.uwex.edu/wp-content/uploads/2011/03/PublicPrivate-Partnership.pdf>

For an example of Public-Private Partnerships on telehealth adoption, see the following in the *Case Studies* section (3) of this document:

- *Essentia Health (Minnesota)*

Cooperatives

A cooperative is a group organized democratically and controlled by its members (typically other businesses), often for a particular economic function or sector such as agriculture, housing, or telecommunications. Cooperatives exist to meet the needs of owner members; satisfaction, not return on investment, is the metric for success. They must be well managed, well financed, and have a viable business proposition in order to compete.

Any profits generated by cooperatives are generally reinvested to finance further growth. Some surplus may be returned based on member purchases, not owner share. Business loyalty is critical for a cooperative's competitive advantage. Cooperatives require a compelling need to attract the time and talent of existing and prospective members.

Cooperatives are addressed in Chapter 185 of the Wisconsin State Statutes. This chapter is available at: <https://docs.legis.wisconsin.gov/statutes/statutes/185>

The University of Wisconsin Center for Cooperatives (UWCC) provides information and resources about cooperatives across all sectors, including a directory of cooperatives operating with the state (updated in 2011). These are available on the UWCC website at: <http://www.uwcc.wisc.edu/>

Additional information from the UWCC on cooperatives in Wisconsin and other states is available at: <http://www.uwcc.wisc.edu/pubs/CurrentResearch/state-by-state.aspx>

The Wisconsin Statewide Telephone Cooperative Association (WSTCA) is an organization for rural telecommunications cooperatives with twelve members and over ninety-five associate members (note that some but not all of these cooperatives offer internet service). More information is available on the WSTCA website at: <http://www.wstca.coop/index.html>

For an example of Cooperatives, see the following in the *Case Studies* section (3) of this document:

- *Vernon County, Wisconsin*

Community Area Networks

Similar to cooperatives and public-private partnerships, Community Area Networks (CANs) are organized by local groups to support the telecommunications needs of Community Anchor Institutions (e.g., public

buildings, schools, hospitals, libraries) that are generally public-serving. Members collaborate and share resources to maximize the functionality of the network. Wisconsin has a growing number of CANs in various stages of development.

A Broadband & E-Commerce Education Center guide to Community Area Networks released in 2012 expands on this topic. This document is available at:

<http://broadband.uwex.edu/resources/build-a-can/>

For examples of Community Area Networks, see the following in the *Case Studies* section (3) of this document:

- *City of Boulder, Colorado*
- *Brown County, Wisconsin*
- *Dane County, Wisconsin*
- *Eau Claire County, Wisconsin*
- *Grant County, Wisconsin*
- *Marathon County, Wisconsin*
- *Scott County, Minnesota*

Local Government Telecommunications Alternatives

Some local governments may wish to construct their own broadband infrastructure either for internal use or to provide services directly or indirectly to their community. Wisconsin laws currently set some requirements for local governments wishing to provide telecommunications services directly to households, businesses, and institutions.

Chapters 196 and 197 of the Wisconsin Statutes regulate public utilities and municipal acquisition of utilities; other chapters contain statutes relevant to this topic as well. Though many statutes regulate other utilities such as electricity and water, some address telecommunications and broadband. One such statute (from another chapter) is Wisconsin Statute §66.0422, which regulates local government resolutions and ordinances to provide video, telecommunications, or broadband services directly or indirectly to the public.

Enacted in 2003, §66.0422 has often been interpreted as prohibitive to local government telco services but a careful reading of its language suggests otherwise. In order to adopt an ordinance or resolution authorizing the public offering of video, telecommunications, or broadband services, subsection (2) of §66.0422 states that local governments must:

1. hold a public hearing on the proposed ordinance or resolution;
2. provide notice of the public hearing to all parties potentially affected by the proposed ordinance or resolution; and

3. no less than 30 days before the public hearing, prepare and make available for public inspection a report estimating the total costs of the proposed ordinance or resolution, and revenues derived from constructing, owning, or operating the facility, including a cost-benefit analysis of the facility for a period of at least three years.

Wisconsin Statute §66.0422 is available at: <http://docs.legis.wisconsin.gov/statutes/statutes/66/IV/0422>

Some exceptions to §66.0422 (2) are provided as well; the most prominent is contained in subsection (3), which classifies select local governments as alternative telecommunications utilities (sometimes referred to as competitive local exchange carriers) according to Wisconsin Statute § 196.203 and § 196.204. These classifications were made on November 1, 2003 by the Public Service Commission; communities that are classified as alternative telecommunications utilities are exempt from the conditions in subsection (2) if a referendum regarding the operation of municipal broadband is supported by a majority of voters. Note that not all communities that have received this classification have chosen to provide municipal broadband services, while others with classification proceeded to build their own networks but are no longer in operation today.

Wisconsin Statute §196.203 is available at: <http://docs.legis.wisconsin.gov/statutes/statutes/196/203/>

Wisconsin Statute §196.204 is available at: <http://docs.legis.wisconsin.gov/statutes/statutes/196/204>

A list of Wisconsin communities classified as alternative telecommunications utilities can be found on the Broadband & E-Commerce Education Center's website:

<http://broadband.uwex.edu/wp-content/uploads/2014/05/Alternative-Telecommunications-Providers.docx>

Another exception for local governments wishing to provide broadband services is found in subsection (3d). Local governments may circumvent the conditions of §66.0422 (2) if they ask each ISP serving within the boundaries of the local government, in writing, if they currently provide broadband service to the area or intend to within 9 months. The local government is exempt from subsection (2) if the ISPs contacted:

1. Do not respond in writing within 60 days; or
2. Respond affirmatively but are determined not to have provided services within the area or timeframe allotted.

Subsection (3m) of §66.0422 provides yet another exception for municipalities wishing to provide broadband services. Local governments are free to construct their own broadband infrastructure and offer it to ISPs for lease; the ISPs in turn connect this infrastructure to end users. There are three stipulations for this exception:

1. Local governments must offer infrastructure on a nondiscriminatory basis;
2. The infrastructure cannot compete with more than one ISP at the time the municipality authorizes its construction, ownership, or operation; and
3. The local government does not provide broadband services directly to end users.

Finally, subsection (3n) of §66.0422 states that local governments that provided video service to the public on March 1, 2004 are exempt from subsection (2).

In some cases, some local governments that once provided broadband services directly in their communities have since decided to exit the business and sell or lease all or part of their public utilities infrastructure. This is regulated under Wisconsin Statute §66.0817; local governments must pass an ordinance or resolution authorizing such a transaction, subject to approval by the PSCW or WDOT . These organizations will judge proposed agreements on the following criteria:

1. Sale price; and
2. Effect of the sale or lease on the municipality and its residents. The transaction will only be approved if it is determined to be in the best interest of the residents of the municipality.

An approved sale or lease proposal is then submitted to local voters in a referendum. A local government may finalize the sale or lease following a majority voting for approval.

It's important to note that this law regulates the sale of *complete* public utility plants. Local governments may be able to circumvent these requirements if they retain some utilities infrastructure following the sale.

Wisconsin Statute §66.0817 is available at:

<http://docs.legis.wisconsin.gov/statutes/statutes/66/VIII/0817>

For examples local government telecommunications alternatives, see the following in the *Case Studies* section (3) of this document:

- *Dane County, Wisconsin*
- *Lanlade County, Wisconsin*
- *Sauk County, Wisconsin*
- *Shawano County, Wisconsin*
- *Washington County, Wisconsin*
- *Winnebago County, Wisconsin*

Section 3: Case Studies

Ashland County, Wisconsin

[Ashland County]

- **Stages: Building a Guiding Coalition; Generating Short Term Wins**
- **Keywords: technology committee; adoption**

Since 2012, community members in **Ashland County** have been engaged in the issue of broadband development. Community discussions have been initiated by area business, and the community has sponsored speakers, focus groups and listening sessions. In November 2013, Ashland and Bayfield Counties sent a team comprised of two economic development directors and three UW-Extension educators to a training put on by the UW-Extension Broadband and E-Commerce Education Center. As a result, the group planned more outreach education. In May 2014, a Broadband Show Expo was held at the Wisconsin Indianhead Technical College, which featured educational sessions around broadband, as well as provider and educational booths where attendees could have one-on-one discussion.

In October 2014, a half-day training for area businesses was sponsored by Ashland County UW-Extension and Bayfield County UW-Extension, provided through the Broadband and E-Commerce Education Center. Twenty-four Ashland and Bayfield county business owners or staff participated in a program that included web site basics; search engine optimization; search engine marketing; social media; e-commerce; and use of a business assessment tool.

Information about the efforts in Ashland County, including those in partnership with Bayfield County and a timeline of activities, are available on the Ashland County UW-Extension website at:

<http://ashland.uwex.edu/ashland-county-community-development/#broadband>

[Ashland County: Ashland, City of]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

In October 2004, the **City of Ashland** adopted their Comprehensive Plan 2004-2024. References to telecommunications and broadband in this plan include a brief inventory of providers and public facilities (page 5-5), general objectives and plans (pages 5-13 and 5-17), acknowledgement of its role in a previous regional planning commission plan (pages 8-7), and results from a community survey measuring public opinion on internet service quality in Ashland among other topics (pages A-1 through A-7). Ashland's comprehensive plan would later be amended in January 2012, and in spring 2015 the city began soliciting proposals for its 2015-2035 plan.

The City of Ashland's Comprehensive Plan 2004-2024 is available on their website at:

<http://www.coawi.org/pdfs/ComprehensivePlan.pdf>

Barron County, Wisconsin

Barron County

- **Stage: Creating a Sense of Urgency**
- **Keywords: community survey**

Barron County partnered with the Public Service Commission to distribute Public Service Commission broadband demand surveys to residents and businesses in the county. More information is available on the Barron County website at:

<http://www.barroncountywi.gov/index.asp?Type=NONE&SEC={845137DE-5767-407E-BBF9-52C53CB136C3}>

The LinkWisconsin Broadband Coverage Map is available online at:

<http://www.broadbandmap.wisconsin.gov/>

Bayfield County, Wisconsin

[Bayfield County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: broadband resolution**

The **Bayfield County** Board of Supervisors adopted Resolution 2014-02 on January 21, 2014 supporting improved broadband internet access in their county. This resolution was preceded by administration of the PSCW Broadband Demand Survey in the county and proposes future development of a broadband improvement plan with public and private involvement. The Bayfield County UW-Extension office actively promotes education programs using the internet and was also part of a group that received a Broadband & E-Commerce Education Center Digital Leader grant.

Resolution 2014-02 is available at the Broadband & E-Commerce Education Center's website at:

http://broadband.uwex.edu/wp-content/uploads/2014/05/Bayfield_county_broadband_resolution.pdf

More information is available in the 2015 Bayfield County UW-Extension budget summary (pages 192-194) on the Bayfield County website at: <http://www.bayfieldcounty.org/DocumentCenter/View/2662>

[Bayfield County]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership (funding co-application)**

In November 2014, the Public Service Commission of Wisconsin (PSCW) awarded **Bayfield County** with a \$19,282 grant to install wireless broadband infrastructure at the Delta Lake and Twin Bear campgrounds. The county collaborated during the grant application process with Norvado Wireless, a local ISP; the ISP pledged \$5,000 toward project costs in addition to installation services. The campgrounds are visited by an estimated 14,000 people annually and did not have internet service prior to application.

An article from *Up North Explorer* is available at the Broadband & E-Commerce Education Center's website at: <http://broadband.uwex.edu/wp-content/uploads/2015/06/State-will-pay-for-broadband-at-two-Bayfield-County-campgrounds.pdf>

Boulder, City of; Colorado

[Colorado: Boulder, City of]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: community area network**

The **Boulder Research and Administrative Network (BRAN)** is a fiber-optic network connecting partner organizations including the City of Boulder, University of Colorado at Boulder, National Center for Atmospheric Research, Department of Commerce Laboratories, and other institutions. Completed in January 2000 for \$1.2 million, this network includes over eleven miles of fiber cable with annual costs at 5% of initial costs. More information is available on the BRAN website at: <http://www.branfiber.net/>

[Colorado: Boulder, City of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; shared resource agreement**

In 2013, the **City of Boulder** leased conduit and right-of-way space to Zayo Group, a private ISP. Zayo owns fiber networks in other Colorado cities intends to serve industrial, commercial, and government entities in the area in addition to installing additional conduit within the public rights-of-way (to be shared with the City). The agreement carries a term of twenty years and may be renewed for an additional ten year period. Zayo immediately pays \$5.50 per linear foot of leased conduit for a total of \$722,271. Also included in the agreement are standards for ownership, construction, conduit and fiber use, inspection, insurance, and liability.

The lease agreement between the City of Boulder and Zayo Group is available at: <http://www.branfiber.net/Conduit%20Lease%20Agreement%20between%20Zayo%20and%20the%20City%20of%20Boulder.pdf>

Brown County, Wisconsin

[Brown County: Brown County Community Area Network]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: community area network**

The County Board of Supervisors established the **Brown County Community Area Network (BCCAN)** in 2007 to improve interagency connectivity and internet access. This network consists of fiber infrastructure connecting public buildings and institutions. County libraries use this network for over 170 computers made available for public use.

Though Brown County reserves some fiber for internal use, much of what they install is “dark” (i.e. unused) fiber that is then leased to other public and private agencies. Brown County does not provide

the actual internet service for fiber it owns; instead they lease to private ISPs who, in turn, sell internet access to end users.

For more information, visit the Brown County website at:

http://www.co.brown.wi.us/departments/page_0c5151e5cab0/?department=da7ba43719e3&subdepartment=5ce81791cb01

[Brown County]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; shared resource agreement**

In May 2013, the **Brown County** Board of Supervisors passed a resolution to appropriate unused fund balances for the expansion of broadband infrastructure. This project involves a cost-sharing partnership with Merit Network to lay fiber, resulting in improved connectivity and bandwidth for the County. The County allocated a maximum of \$270,000 for this project and estimated savings of \$245,000.

A detailed report of the Brown County Board of Supervisors May 2013 meeting pages 59-61) is available at: http://www.co.brown.wi.us/i_brown/minutes/36cbc31de177/may_15th_-_long.pdf

Crawford County, Wisconsin

[Crawford County]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

Crawford County collaborated with the Mississippi River Regional Planning Commission and UW-Extension to create a new comprehensive plan, which was adopted in January 2010. Chapter 5 of this plan concerns utilities and community facilities. Concerning broadband, the plan includes an inventory of telecommunications providers in each community within the county and a map of transmission lines, substations, and communications towers (pages 5-5 and 5-6). Chapter 5 also lists the primary goals for Crawford County's utilities and community facilities; Goal C 5-13) states the intention to "improve communication technology infrastructure and maintain regulations that manage such facilities". Planned actions to reach this goal are listed as well.

The full text of Crawford County's comprehensive plan is located on their website at:

<http://crawfordcountywi.org/planning/index.htm>

[Crawford County: Ferryville, Village of; Freeman, Town of]

- **Stage: Enabling action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application**

In 2014, a public-private partnership in **Crawford County** was awarded \$125,000 from the PSCW Broadband Expansion Grant. This partnership between CenturyLink (an ISP), the Crawford County Economic Development Corporation (CCEDC), Prosperity Southwest, the Village of Ferryville, and the

Town of Freeman applied for this grant to extend six miles of fiber infrastructure between the Seneca and Ferryville service centers.

CenturyLink was the lead applicant and provided the bulk of matching funds for the \$250,000 project with Prosperity Southwest contributing as well. The application initially requested \$200,000 in grant funding but did not receive the full requested amount. Projected impact includes over 200 households that previously had little or no broadband service, as well as businesses in the area.

A press release describing the Broadband Expansion Grant award is located on the CCEDC website at: <http://crawfordcountyedc.org/blog/2014/10/24/centurylink-awarded-125000-by-PSCW-for-ferryville-project.html>

CenturyLink's funding application is located on the PSCW's website at: http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=%20200835

[Crawford County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: broadband resolution**

In 2014, the **Crawford County** Board of Supervisors adopted Resolution 18-2014 supporting improved internet access in the county. This resolution is available on the Crawford County Website at: <http://www.crawfordcountyiwi.org/clerk/Minutes/County%20Board-December%2016%202014.pdf>

Dane County, Wisconsin

[Dane County: Sun Prairie, City of]

- **Stage: Creating a Sense of Urgency; Learning from Experience/Instituting Change**
- **Keywords: community survey; local government telecommunications alternative**

Sun Prairie Utilities built its first fiber-optic ring in 1998 to provide communications for municipal buildings and the area school district. They have since expanded to include some area businesses and residential areas as well; in March 2014, Sun Prairie Utilities worked with The Motive Group to release a market feasibility study for further Fiber-to-the-Premise (FTTP, also known as Fiber-to-the-Home, FTTH) broadband service. The Motive Group had previously conducted a survey measuring public opinion on fiber in Sun Prairie. After over 700 responses, 88% of voters favored fiber services.

A press release from *The Star* on the Motive Group survey and report is located at: http://broadband.uwex.edu/wp-content/uploads/2015/06/SunPrairie-Fiber-optic-coming-soon_-The-Star_-Government2.pdf

For more details including the full text of the Motive Group report, visit the Sun Prairie Utilities website at: <http://www.sunprairieutilities.com/fiberCMSpage.cfm?cms=87&redflag=0>

[Dane County: Middleton, City of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; shared resource agreement**

The **City of Middleton** entered into an agreement in 2009 leasing a plot of land and public rights-of-way access to Verizon Wireless for the installation of telecommunications equipment. The initial term of the agreement is five years with an annual rent of \$24,000 to be paid in monthly installments, with an additional one-time fee of \$12,000 to cover the lease review process and in lieu of constructing a recreational shelter on the property. Four additional five year terms will automatically be authorized at the end of a term unless Verizon provides written notice of intent to terminate at least six months before the end of the current term. Annual rent shall increase by 10% at the start of each new term. Verizon is responsible for personal property and real estate taxes, assessments, or charges owed on the property as the result of their actions, as well as removing any structures it has built upon termination of the agreement.

The full text of this agreement is located at the Broadband & E-Commerce Education Center's website at: <http://broadband.uwex.edu/wp-content/uploads/2014/05/Middleton-Land-Lease-Agreement.pdf>

[Dane County: Belleville, Village of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; tower agreement**

In June 2010, the **Village of Belleville** Plan Commission approved a conditional use permit for the construction of telecommunications antennas and equipment by Verizon Wireless. The land on which this equipment will be installed is owned by the Village of Belleville and leased by Verizon. This lease agreement carries an initial term of five years and will be automatically extended for four additional five year terms unless Verizon provides written intent of termination at least six months before the end of any term. Verizon is also granted the right of first refusal to purchase the land, if applicable.

Verizon also agreed to allow co-location of wireless infrastructure by other private ISPs under "commercially reasonable terms". If there is a period of 12 months or more where no wireless services are provided by this equipment, it will be considered an abandonment of rights, after which Verizon has 90 days to remove all equipment.

The full texts of the conditional use permit and lease agreement are located on the Broadband & E-Commerce Education Center's website at: <http://broadband.uwex.edu/wp-content/uploads/2014/05/Belleville-Conditional-use-Permit.pdf>

[Dane County: Cottage Grove, Village of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; tower agreement**

In November 2013, the **Village of Cottage Grove** entered into an agreement granting STC Towers, a private business, an easement on property owned by the Village to establish and maintain a mobile

service facility including but not limited to the construction of towers, foundations, buildings, cables above and below ground, utility services, and other necessary structures to provide communications services. Cottage Grove reserves a portion of tower space for communications purposes, free of charge; they are also responsible for maintenance and utilities costs on village-owned equipment. STC is responsible for obtaining permits and paying fees required for construction. Any structures built by STC remain their property. Conversely, Cottage Grove may not lease, sell, or grant easement on any property to an entity intending to construct communications facilities within one mile of the STC site.

Beginning July 1, 2014, STC will pay a monthly rent of \$834 until construction begins; after this time, STC will pay an annual rent of \$10,000 for the first year, increasing by 3% annually. The term length of this agreement is 40 years. STC is responsible for removing all structures upon termination of the agreement, as well as property and bodily injury insurance and real estate and improvement taxes either directly or through reimbursement.

The full text of this agreement is available at the Broadband & E-Commerce Education Center's website at: <http://broadband.uwex.edu/wp-content/uploads/2014/05/Cottage-Grove-Mobile-Service-Agreement.pdf>

[Dane County: Madison, City of]

- **Stages: Building a Guiding Coalition; Learning from Experience/Instituting Change**
- **Keywords: technology committee; community area network**

In 2013, the **City of Madison** created the Digital Technology Committee, responsible for advising the Mayor and Common Council on tech-related issues facing the city. Of particular concern to the Committee is the growing "digital divide" between early adopters of high-speed internet and those facing barriers to access, particularly elderly or low-income residents. The City has a fiber ring called the Metropolitan Unified Fiber Network (MUFN) connecting libraries, community centers, and other public buildings for internal use; extending this network to homes and businesses may be considered by the Committee in the future.

More information on the City of Madison Digital Technology Committee is available on the City of Madison Legislative Information Center website at:

<http://www.cityofmadison.com/CityHall/legislativeInformation/roster/102250.cfm>; and
<https://madison.legistar.com/DepartmentDetail.aspx?ID=25208&GUID=694AE374-4238-472F-A86E-F646F0D1694C>

More information on the Metropolitan United Fiber Network is available at: <http://www.mufn.org/>

In October 2014, the Digital Technology Committee put out a Request for Information regarding a proposed pilot project offering free or reduced-cost internet service in neighborhoods with low-income families. A press release about this project from *The Cap Times* is available at the following link:

<http://broadband.uwex.edu/wp-content/uploads/2015/06/The-near-future-of-Madison-community-Internet-access-might-lie-with-4G-instead-of-fiber--Ct.pdf>

A November 2014 article in *The Cap Times* describing efforts to improve access and reduce the “digital divide” in Madison is available at: http://broadband.uwex.edu/wp-content/uploads/2015/06/Wired_Unwired_-Madisons-digital-divide-is-an-issue-of-both-access-and-skills_-Ct.pdf

Delaware River and Bridge Authority

[Delaware: Delaware River and Bridge Authority]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; shared resource agreement**

In 2008, the **Delaware River and Bridge Authority** adopted Resolution 08-59 authorizing a lease agreement with Fiber Technologies Networks (Fibertech), a fiber network operator. Fibertech leases one fiber-optic conduit duct on the Delaware Memorial Bridge for a period of twenty-five years. The initial on-structure rent is \$3.00 per linear foot beginning in January 2009, to increase to \$7.00 per linear foot in January 2012; off-structure rent is set at \$1.00 per linear foot.

The lease agreement between the Delaware River and Bridge Authority and Fibertech is available at: <http://www.drba.net/LinkClick.aspx?fileticket=-v2FRo8suLw%3D&tabid=72>

Eau Claire County, Wisconsin

[Eau Claire County: Chippewa Valley Internetworking Consortium]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: community area network**

The **Chippewa Valley Internetworking Consortium** (CINC) was formed as a Community Area Network in 1999. CINC operates 230 miles of fiber and sixteen towers connecting over thirty member organizations including three counties, six cities, fifteen school districts, six higher education institutions, five healthcare institutions, and more. These organizations share applications and infrastructure that result in significant cost reductions.

More information is available on the CINC website at the following link: <http://cincua.org/>

[Eau Claire County: Eau Claire, City of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: local ordinances and codes; public rights-of-way policy**

City of Eau Claire ordinance 13.10.080 prohibits the issuance of permits for re-excavation of pavement for a period of five years following the most recent complete repavement except for emergency situations. The City of Eau Claire’s municipal ordinances are located on their website at: <http://www.ci.eau-claire.wi.us/departments/administration-services/city-attorney/code-of-ordinances>

[Eau Claire County]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application**

In 2014, a public-private partnership in **Eau Claire County** successfully applied for a PSCW Broadband Expansion Grant of \$139,467. CCI Systems, an ISP, was the lead applicant and provided matching funds; additional funds were contributed by Eau Claire County, the Chippewa Valley Internetworking Consortium (CINC), and Sacred Heart and St. Joseph's Hospitals. Further support was provided by area school districts and administrators as well as the City of Eau Claire.

These funds were requested to add CCI Systems access to three existing CINC towers, repurpose a decommissioned tower on a new site for CINC and CCI Systems equipment, extend fiber infrastructure almost three miles to the repurposed tower, and upgrade Wi-Max wireless broadband equipment on existing towers. Eau Claire County will own the repurposed tower, but CINC will own the new fiber.

Projected impact of this project is over 1,200 previously unserved or underserved households plus up to 45,000 annual patrons to the area's parks and campgrounds. Public health and safety applications will also use wireless services provided by these towers.

CCI Systems' funding application is available on the PSCW's website at:
http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=%20200821

Essentia Health

[Minnesota: regional health care provider, Essentia]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: adoption**

Essentia Health is a Duluth, Minnesota-based health care provider that serves parts of Wisconsin, Minnesota, North Dakota, and Idaho. In January 2015, Essentia Health received \$213,564 in grant funds through the USDA Rural Utilities Services Distance Learning and Telemedicine Program. This funding will be matched by Essentia Health to expand telehealth services to twenty-one rural clinics and two hospitals in their network, for a total projected impact of over 300,000 people.

A press release from the USDA is available on at: <http://www.rd.usda.gov/newsroom/news-release/usda-awarding-more-10-million-grants-support-telemedicine-and-rural-health>

A press release from Essentia Health is available at:
<http://www.essentiahealth.org/main/blogs/essentia-health-awarded-grant-to-expand-telehealth-824.aspx>

Fond du Lac County, Wisconsin

[Fond du Lac County]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; tower agreement**

A project in **Fond du Lac County** and **Adams County** will result in the construction of eleven new wireless telecommunications towers in addition to equipment attached to existing public service towers. Fond du Lac County partnered with Adams County and BugTussel Wireless to construct the towers; these will expand service to underserved areas and be used internally for county public safety needs.

A press release from the *Fond du Lac Reporter* is available at: <http://broadband.uwex.edu/wp-content/uploads/2015/06/FondduLacReporter-Rural-Internet-project-nearly-complete.pdf>

Grant County, Wisconsin

[Grant County: Platteville Community Area Network]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: community area network**

Formed in 2012, the **Platteville Community Area Network** (PCAN) serves the broadband needs of the City of Platteville, Platteville Area School District, UW-Platteville, and Southwest Health Center. Joining fees range from \$500 to \$10,000 depending on the number of full-time employees while annual membership fees range from \$100 to \$1,000. More information, including the Agreement of Association, is available at: <http://plattcan.net/>

[Grant County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: broadband resolution**

In October 2014, the **Grant County** Administrative Committee, after education around the topic of broadband from the local UW-Extension Community Resource Development educator, passed a resolution supporting improved broadband access in the county. This resolution is available on the Grant County website at: http://www.co.grant.wi.gov/meetings_notes.asp?thismeeting=24638

Green County, Wisconsin

[Green County: Monroe, City of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; tower agreement**

In April 2013, the **City of Monroe** agreed to lease non-exclusive tower space for telecommunications equipment to First National Bank and Trust Company. This includes space on the water tower itself as well as nearby land for additional equipment. The agreement carries an initial term of five years and is

automatically renewed for five additional consecutive terms unless either party provides written notice of intent not to renew at least sixty days before the end of any term. First National will pay a monthly rent of \$250 for this space; this amount will increase by 2.5% each year. First National is also responsible for all construction, maintenance, and insurance for equipment covered by this lease, as well as removal of all equipment upon termination.

This agreement is available at: <http://broadband.uwex.edu/wp-content/uploads/2014/05/Monroe-Lease-Agreement.pdf>

Illinois, State of

[Illinois]

- **Stages: Building a Guiding Coalition; Generating Short Term Wins**
- **Keywords: adoption**

The **Partnership for Connected Illinois** (PCI) has started the Illinois Telehealth Initiative to facilitate stakeholder collaboration and demonstrate the positive outcomes of telehealth. A non-profit, PCI's mission is to promote broadband accessibility across the state of Illinois. Telehealth is emerging as a primary application of broadband in the health industry, where patients can receive medical care from providers via interactive video and electronic monitoring.

The Initiative identified stakeholders to form a Steering Committee tasked with identifying relevant state policies, funding sources, and opportunities for successful implementation of telehealth projects. PCI hopes telehealth will improve health outcomes and reduce costs despite projected increases in demand for health services following the passage of the Affordable Care Act in 2010 and the general aging of the population; an estimated \$500,000 is required for the phase of the Initiative.

A February 2015 press release from the *Chicago Tribune* on this initiative is located at: <http://www.chicagotribune.com/bluesky/originals/chi-matter-illinois-telehealth-initiative-bsi-20150224-story.html>

For more information, visit the PCI's website at: <http://www.broadbandillinois.org/Illinois-Telehealth-Initiative.html>

Iron County, Wisconsin

[Iron County]

- **Stage: Creating a Sense of Urgency; Building a Guiding Coalition; Developing and Communicating a Strategic Vision**
- **Keywords: technology committee; community survey**

After an initial broadband demand survey, the Gogebic Range Broadband Committee was formed to address broadband development **Iron County**. Of particular concern for the county are attracting and retaining businesses, young people, and seasonal homeowners who prefer places with strong broadband services. This committee worked with local governments, providers, and other organizations to identify infrastructure needs, administer additional surveys, and prepare for grant application. More information is available on the Iron County UW-Extension website at:

<http://iron.uwex.edu/2014/09/29/building-broadband/>

The collaborative efforts of the Gogebic Range Broadband Committee were featured on the NTIA ConnectedNation blog: <http://www.connectmycommunity.org/project-view/crossing-state-lines-for-broadband-expansion/>

Jackson County, Wisconsin

[Jackson County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: community survey**

Jackson County administrators have partnered with the Public Service Commission to utilize the residential Broadband Demand Survey. Results from this survey will be incorporated into the LinkWisconsin Broadband Coverage Map, identify underserved areas, and direct future broadband development. More information is available on the Jackson County website at:

<http://www.co.jackson.wi.us/index.asp?Type=NONE&SEC={8CE7F5C5-603F-4253-8201-952A8EB3DC82}>

The LinkWisconsin Broadband Coverage Map is available online at:

<http://www.broadbandmap.wisconsin.gov/>

LaCrosse County, Wisconsin

[LaCrosse County]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: local policy**

Some local governments provide Geographic Information System data (GIS) online; these are usually in map form and include information for individual parcels such as owner name, acreage, assessed and improved value, and school and voting district. **La Crosse County's** Parcel Tax Viewer also offers information to potential internet subscribers by supplying data on advertised broadband providers for each parcel, listing providers for wireline and wireless service as well as expected speeds. This information is taken from the NTIA National Broadband Map.

La Crosse County's Tax Parcel Viewer is available at: <http://gis.lacrossecounty.org/taxparcelviewer/>

The NTIA National Broadband Map is available at: <http://www.broadbandmap.gov/>

Lafayette County, Wisconsin

[Lafayette County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: broadband resolution**

In December 2014, the **Lafayette County** Board of Supervisors passed Resolution 36-14 supporting improved broadband access in the county, after receiving background information from the county UW-Extension Community Resource Development educator. More information is available on the Lafayette County website at: www.co.lafayette.wi.gov/meetings_notes.asp?thismeeting=25468

Langlade County, Wisconsin

[Langlade County: Antigo, City of]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: local government telecommunications alternative; public-private partnership**

The **City of Antigo** was initially certified as an Alternative Telecommunications Utility by the PSCW in 2003 but was granted voluntary decertification in February 2010 to allow the sale of its complete telecommunications facilities to Wittenberg Wireless. Antigo sought expedited decertification to allow the referendum required by Wisconsin Statute §66.0817 (4) to take place during their April 2010 elections. The decision finds that Antigo Broadband Utility generated less revenue than initially projected and could not maintain regular debt payments. The agreement is for a lease/option to Wittenberg over a twenty-year period.

The PSCW's ruling on the decertification of the City of Antigo is available at:

http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=127286

Marathon County, Wisconsin

[Marathon County: Wausau Community Area Network]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: community area network**

The **Wausau Community Area Network** (WCAN) installs and maintains a fiber network for member organizations, including Marathon County, the City of Wausau, North Central Health Care, North Central Technical College, and the Wausau School District. More information on WCAN is available on the Marathon County website at:

<http://www.co.marathon.wi.us/Government/CountyBoard/BoardsCommittees/WausauCommunityAreaNetwork.aspx>

[Marathon County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: community survey**

In 2009, **Marathon County** engaged the services of a private study team to conduct a gap analysis to identify county-wide issues related to economical broadband access and telecommunications. The data gathered by the study team indicate that “broadband offerings in Marathon County are diverse in capacity and cost, and relatively spotty in coverage, leaving many residents in the County without service.” The gap analysis report is available on the Marathon County website at:

<http://www.co.marathon.wi.us/Departments/InformationTechnology/BroadbandGapAnalysis.aspx>

In 2013, Marathon County officials promoted the Public Service Commission’s broadband availability map and broadband demand surveys to help identify underserved households and businesses in the county. More information is available on the Marathon County website at:

<http://www.co.marathon.wi.us/Home/Announcements/tabid/66/articleType/ArticleView/articleId/331/Broadband-Demand-Survey.aspx>

[Marathon County]

- **Stage: Building a Guiding Coalition; Developing and Communicating a Strategic Vision**
- **Keywords: technology committee; broadband-specific planning**

The **Marathon County Technology Committee** is responsible for implementing portions of the County’s Strategic Plan relating to technology. The Committee’s 2015 Work Plan describes the strategies, activities, and outcomes relevant to improving technology and, more specifically, broadband in Marathon County. One of the first actions taken by the committee was to establish a task force on rural broadband connectivity:

<http://www.co.marathon.wi.us/Government/CountyBoard/TaskForces/ConnectivityTaskForce.aspx>

The proposed 2015 Work Plan for the Marathon County Technology Committee is located on the Marathon County website at:

http://www.co.marathon.wi.us/Portals/0/Departments/MCB/Archives/Standing%20Committees/Technology%20Committee/2015/TECH_20150302_Packet.pdf

Marathon County’s Strategic Plan 2012-2017 is available on the Marathon County website at:

http://www.co.marathon.wi.us/Portals/0/Departments/CAD/Documents/StrategicPlan_2012-2017.pdf

[Marathon County]

- **Stage: Generating Short Term Wins**
- **Keywords: adoption; digital literacy**

Marathon County UW-Extension enlisted the use of volunteer coaches to help people improve their economic standing and promote healthy life choices through utilization of broadband. The coaches were connected to the RSVP program at United Way of Marathon County. The program helps volunteers aged 55+ apply their talents, skills and interests addressing critical community needs. County funds and

grants supported a broadband education coordinator as he recruited volunteers, developed curriculum to share and coordinated teaching events. More about the results from the project are found at:

<http://broadband.uwex.edu/wp-content/uploads/2013/11/AdoptionCaseStudyMarathonCounty2015.05.28.pdf>

[Marathon County: Schofield, City of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; tower agreement**

In 2003, the **City of Schofield** entered an agreement allowing Cellular One, an ISP, to install broadband infrastructure on a water tower/tank owned by the city as well as constructing a building nearby for equipment and maintenance purposes. Cellular One will pay \$1,200 per month to lease this space (increasing by 4% annually) and is responsible for installation, maintenance, and insurance for its equipment. The initial term of this agreement is five years and may be renewed for additional terms; either party may terminate the agreement with written notice 365 days before the date of intended termination. Cellular One is responsible for removing all equipment upon termination of this agreement.

Schofield's agreement with Cellular One can be found on the Broadband & E-Commerce Education Center's website at: <http://broadband.uwex.edu/wp-content/uploads/2014/05/Schofield-Tower-lease-CellularOne-April-10.docx>

[Marathon County: Weston, Village of]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

When the **Village of Weston** developed a new comprehensive plan in 2014, they added an entire chapter titled Broadband Technology. Topics in this chapter include maps demonstrating the state of broadband availability in the area, survey results regarding public, national and state context, benefits from adoption, regional initiatives, and technology descriptions.

The Broadband Technology chapter begins on page 99 of the Village of Weston's comprehensive plan, which is available on the Village of Weston's website at the following link:

<http://www.westonwi.gov/DocumentCenter/View/2030>

[Marathon County: Weston, Village of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application**

A partnership in Marathon County between the **Village of Weston**, Marathon County Development Corporation, Wausau Region Chamber of Commerce, and Charter Business was awarded a PSCW Broadband Expansion Grant for FY2015. The application was strengthened by the inclusion of committed partners.

Almost \$74,000 was awarded to extend fiber to two business parks; Weston will contribute matching funds while Charter will own and operate the infrastructure to provide internet service to these areas. This project has the potential to impact thirty-eight business units and seven vacant lots in addition to other areas with potential for future development.

The full text of this grant application is available on the PSCW's website at:

http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=%20200899

Marinette County, Wisconsin

[Marinette County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: broadband resolution**

On December 17, 2013, the **Marinette County** Board of Supervisors adopted a resolution supporting improved broadband access in their county. The full text of this resolution is located at the Broadband & E-Commerce Education Center's website at:

http://broadband.uwex.edu/wp-content/uploads/2014/05/Marinette_County_broadbandnovember2013.pdf

Marquette County, Wisconsin

[Marquette County]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

Adopted in 2005, chapter five of the **Marquette County** Comprehensive Plan addresses utilities and community facilities. Programs within this chapter include helping enhance telecommunication capabilities in the county, especially in rural areas; specific recommendations include laying fiber during other road construction, conducting a broadband feasibility study, exploring funding opportunities, and working with private providers. Specific references to improving telecommunications are found on pages 114, 124 and 127.

The Marquette County 2005 Comprehensive Plan is available online at:

http://www.co.marquette.wi.us/Departments/Zoning/pdf/CompPlanning/County_Plan.pdf

Menominee County, Wisconsin

[Menominee County: College of Menominee Nation]

- **Stage: Generating Short Term Wins**
- **Keywords: adoption**

Located in Keshena, Wisconsin on the Menominee Indian Reservation, the **College of Menominee Nation** was awarded a \$3,355,956 grant through the National Telecommunications and Information Administration (NTIA) in 2010 to expand public computer services. This project aims to serve the over 5,000 members of the Menominee Tribe as well as the broader public in the area. In addition to public access, the project aims to provide services such as technical training, GED training, job placement, and other workshops, as well as improve broadband service in existing computer centers.

More information is available on the NTIA's website at: <http://www2.ntia.doc.gov/grantee/college-of-menominee-nation>

Milwaukee County, Wisconsin

[Milwaukee County: Milwaukee, City of]

- **Stage: Generating Short Term Wins**
- **Keywords: adoption**

The Connecting Milwaukee Communities Project in the **City of Milwaukee** received a \$2,479,472 grant from the NTIA in 2010. This public project increases and improves computer workstations available to the public in libraries, public housing buildings, and senior centers as well as increasing operating hours and offering services such as computer training, online education, skill development, financial management, and electronic health information; these efforts will also improve broadband service in existing computer centers and specifically targets economically vulnerable populations.

More information is available on the NTIA's website at: <http://www2.ntia.doc.gov/grantee/city-of-milwaukee>

Minnesota, State of

[Minnesota]

- **Stages: Building a Guiding Coalition; Enabling Action and Removing Barriers**
- **Keywords: local policy; public rights-of-way; shared resource agreement; technology committee**

In August 2011, **Minnesota** Governor Mark Dayton established the Governor's Task Force on Broadband to direct broadband development across the state. The Task Force's 2012 Annual Report included proposals such as:

- Implementing a formal dig-once process for state highways;

- Developing a Fiber Collaboration Database for the state. This database will list upcoming construction projects and allow interested ISPs to participate by including broadband infrastructure. Minnesota Statute §161.462 was passed in 2013 to create this database. A similar database in California has succeeded in increasing broadband investment;
- Awarding scholarship funds for broadband access to students with respect to federal poverty guidelines. Similar programs from private entities and government organizations such as the FCC's Lifeline program offer discounts on monthly broadband descriptions for low-income individuals and households. Minnesota's proposed scholarship would help offset the costs of internet access and improve broadband adoption among students.

Governor Dayton's Executive Order creating the Task Force on Broadband is available at:

<http://mn.gov/governor/multimedia/pdf/EO-11-27.pdf>

The Task Force's 2012 Annual Report and Broadband Plan is available at:

http://mn.gov/commerce/images/2012_Broadband_Annual_Report.pdf

Minnesota Statute §161.462 is available at: <https://www.revisor.mn.gov/statutes/?id=161.462>

Oneida County, Wisconsin

[Oneida County: Three Lakes, Town of]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

After three years of development, the **Town of Three Lakes** adopted a new comprehensive plan in 2010 titled *Our Plan for the Future*. This plan includes a new chapter on utilities and community facilities and describes the town's goal to develop a wireless broadband network covering the entire town. This network is primarily intended to support home-based businesses and telecommuters.

Three Lakes' 2010 comprehensive plan is available on their website at:

<http://www.townofthreelakes.com/comprehensive-plan/plan-%28by-chapter%29>

[Oneida County: Northwoods Broadband and Economic Development Coalition]

- **Stage: Building a Guiding Coalition; Developing and Communicating a Strategic Vision**
- **Keywords: broadband-specific planning**

Town officials and residents later founded the **Northwoods Broadband and Economic Development Coalition** (NWBDC) to foster economic development through technology and broadband across Northern Wisconsin; the "Three Lakes Model" was developed to demonstrate successful broadband development in a rural community. NWBDC has also worked with organizations such as the Public Service Commission and the Broadband & E-Commerce Education Center to improve broadband access.

More information on the Northwoods Broadband and Economic Development Coalition, the Three Lakes Model, and other projects can be found on the NWBDC website at: <http://nwbdc.org/>

[Oneida County: Minocqua, Town of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; tower agreement**

The **Town of Minocqua** and other municipalities have entered into agreements with SonicNet in May 2013. Minocqua invested \$50,000 in the construction of three towers providing internet service to the area, giving SonicNet the exclusive rights to specific frequencies used by equipment on the towers. Each tower is 180 feet tall; this height was determined by reasonable distances the service was expected to cover. What is unique about this agreement is that the town of Minocqua built the towers, rather than the provider.

This agreement is available at: http://broadband.uwex.edu/wp-content/uploads/2014/05/Town-Tower-Lease-Agreement-Template_from_sonicnet-1.docx

[Oneida County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: broadband resolution**

In August 2013, the **Oneida County** Board of Supervisors adopted Resolution #51-2013 supporting improved broadband access in their county. This is to be achieved in cooperation with Oneida County Technology Committee, the Administration Committee, and the Oneida County Economic Development Committee (OCEDC). The City of Rhinelander passed a similar resolution to support the OCEDC's broadband efforts.

Oneida County's broadband resolution can be found on the Broadband & E-Commerce Education Center's website at: <http://broadband.uwex.edu/wp-content/uploads/2014/05/Oneida-Resolution.pdf>

[Oneida County]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

Oneida County adopted their comprehensive plan on the same day as their broadband resolution. Element #5 of the plan considers utilities and community facilities including telecommunications and broadband internet as well as anchor institutions that utilize broadband such as schools, hospitals, and libraries. The Oneida County comprehensive plan is available on the North Central Wisconsin Regional Planning Commission's website at: http://ncwrpc.org/county_ftp/oneida/OC_final_082013r.pdf

[Oneida County: Minocqua, Town of; and Hazelhurst, Town of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application; tower agreement**

In 2014, a partnership in Oneida County was awarded a PSCW Broadband Expansion Grant of \$46,450 for the installation of WiMAX facilities on three wireless telecommunications towers. Northwoods

SynKro will operate the services while nine other organizations will provide matching funds. Other partners include the Oneida County Economic Development Corporation (OCEDC), Oneida County, the Towns of Minocqua and Hazelhurst, Ministry Health Care, Marshfield Clinic, Minocqua J1 school district, Lakeland Union High School, and Grow North. This service will improve upon existing wireless service in the area and is projected to have a potential impact of 2,809 households as well as nearby schools and hospitals.

A press release from the OCEDC is available on their website at: <http://www.ocedc.org/media/news-pr/lakeland-area-broadband-will-improve-through-grant-wimax-technology-2014-11-13/>

[Oneida County: Three Lakes School District]

- **Stage: Generating Short Term Wins**
- **Keywords: adoption**

Fab Labs (short for fabrication laboratories) are a project of the Massachusetts Institute of Technology's Center for Bits and Atoms and the Fab Foundation to research and develop technology for computer-aided design and digital fabrication, often referred to as 3D printing. The project utilizes industrial-grade machinery and open-source software to encourage learning, innovation, and collaboration among users; schools and communities have implemented Fab Labs to support local entrepreneurship and STEAM curricula (Science, Technology, Engineering, Arts, Math). **Three Lakes School District** has embraced this curriculum to engage youth with skills around collaboration, creativity, innovation and design. The lab is also available to community members several times a week.

<https://sites.google.com/a/threelakesd.k12.wi.us/fab-lab-three-lakes/home>

Over 60 Fab Labs have been developed in the United States alone, with dozens more around the rest of the world and 7 currently located in Wisconsin. Collaboration requires high-speed internet to carry significant amounts of data between separate labs. For more information, visit the websites of the Center for Bits and Atoms and the Fab Foundation at: <http://fab.cba.mit.edu/about/faq/>; <http://www.fabfoundation.org/>

A list of Fab Labs around the world including several in Wisconsin, Minnesota, and Illinois is available on the Fab Foundation's website at the following link: <http://www.fabfoundation.org/fab-labs/>

Pierce County, Wisconsin

[Pierce County]

- **Stage: Creating a Sense of Urgency**
- **Keywords: community survey**

In March 2014, the Ellsworth Industrial Council conducted a survey on broadband service for residents and businesses in **Pierce County**. Surveys were mailed to every home and business in the county and received responses from 13% of households and 16% of businesses; topics included broadband

accessibility, providers, cost and quality of service, business characteristics, and service satisfaction/preferences.

The University of Wisconsin – River Falls Survey Research Center provided analysis of the data and found that 74% of residential respondents had broadband service in their home. Over 50% of residential respondents pay between \$51 and \$100 per month for internet service, while 33% pay \$50 or less. Only 15% of residential respondents indicated download speeds of 10 Mbps or more, though 42% indicated they were not sure how fast their service was. Residential respondents were generally split regarding satisfaction with current service.

Bundling services was common among business respondents; 68% bundled internet with telephone service, while 16% bundled with television (the next largest group). 62% of businesses paid \$100 or less per month for all telecommunications services. More tellingly, 34% of business respondents already received broadband service via fiber, while 80% indicated interest in a fiber network, with price and speed being the primary driver.

Of business respondents without current broadband service, 64% indicated they simply weren't interested, while 27% said it wasn't available, and 10% indicated it was too expensive.

The full report on the Pierce County Broadband Internet Survey is available on the Pierce County website at: <http://www.co.pierce.wi.us/Broadband%20survey%20report%20FINAL%20V3-1.pdf>

Price County, Wisconsin

[Price County]

- **Stages: Creating a Sense of Urgency; Building a Guiding Coalition**
- **Keywords: broadband resolution; broadband-specific planning**

As endorsed by the **Price County** Board of Supervisors, the Price County Economic Development Association (PCEDA) is the primary economic development organization for the county. In February 2015, the Board of Supervisors adopted a resolution recognizing PCEDA's recommendation that broadband development be a primary objective in Price County. This resolution further supports PCEDA as they develop a Broadband Access Improvement Plan for the county and seek funding for broadband projects.

Price County's resolution can be found on their website at:

<http://www.co.price.wi.us/AgendaCenter/ViewFile/Agenda/02172015-463>

Sauk County, Wisconsin

[Sauk County: Reedsburg, City of]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: local government telecommunications alternative; local policy**

The **City of Reedsburg** is certified by the PSCW as an alternative telecommunications provider and is served by the Reedsburg Utility Commission. After providing electric and water services since 1894, Reedsburg Utility began offering broadband service via fiber to homes and businesses in the area.

In 2010, Reedsburg Utility was awarded a \$5.2 million federal grant for additional fiber buildout to rural areas of Sauk County. Project approval was granted the following year.

For more details about Reedsburg Utility broadband, visit the About Us and Rural Buildout pages on their website at: <http://reedsburgutility.com/about-us> and <http://reedsburgutility.com/rural-buildout>

Press releases on the grant project are available from the USDA, Reedsburg Times-Press, and Milwaukee Journal-Sentinel at: <http://broadband.uwex.edu/wp-content/uploads/2015/06/USDA-Announces-5-Reedsburg-PR.pdf>

<http://broadband.uwex.edu/wp-content/uploads/2015/06/Rural-Internet-project-finally-in-motion-Reedsburg-wiscnews.pdf>

<http://broadband.uwex.edu/wp-content/uploads/2015/06/MJSentinel-Internet-provider-fears-City-of-Reedsburg-rival.pdf>

[Sauk County: Prairie du Sac, Village of; Sauk City, Village of; Prairie du Sac, Town of]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

The current Sauk Prairie Comprehensive Plan, covering the **Village of Prairie du Sac, the Village of Sauk City, and the Town of Prairie du Sac**, was first adopted in November 2005 and later amended in October 2013. Chapter six (page 153) of this plan addresses utilities and community facilities with the goal of “preserving the Sauk Prairie area’s sense of community and quality of life by maintaining and enhancing access to public services and facilities.” One of the policies listed to reach this goal is to promote high-tech wireless and fiber optic infrastructure for residents and businesses in the area (page 161). Examples of specific intended actions include the development of a Technology Master Plan, revision of land use ordinances to support broadband development, and incorporating standards for telecommunications facilities to preserve the area’s aesthetic character. A timetable for these and other actions is provided in this chapter as well.

Chapter nine of the Sauk Prairie Comprehensive Plan outlines planned intergovernmental cooperation among the numerous villages, towns, and counties in the area as well as other state and regional

organizations. The goal is to decrease costs and maximize efficiency by sharing resources, identifying potential opportunities and conflicts, and cooperatively planning for the entire area.

The Sauk Prairie Comprehensive Plan is available on the Village of Prairie du Sac's website at:

http://www.prairiedusac.net/index.asp?Type=B_BASIC&SEC={77EDA670-3A80-42DE-A99E-E494326AA1DA}&DE={544AA8E2-1EB0-4263-AA88-58FD9DFE1D90}

[Sauk County: Prairie du Sac, Village of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: local policy; public rights-of-way**

Chapter three of the **Village of Prairie du Sac's** Zoning Code regulates subdivision and land division. New subdivisions in the Village are required to install cable, telephone, and other telecommunications facilities sufficient to provide "adequate" service to each lot. These facilities must be constructed underground where possible.

The Village of Prairie du Sac Zoning Code is available on their website at:

http://www.prairiedusac.net/index.asp?Type=B_BASIC&SEC={77EDA670-3A80-42DE-A99E-E494326AA1DA}&DE={0739E743-B2D6-4401-8D50-7590F88C5688}

Scott County, Minnesota

[Minnesota: Scott County]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: community area network; public-private partnership; shared resource agreement**

In January 2015, the NTIA released a report on the utilization of public-private partnerships for broadband investment. This report includes a case study of **Scott County, Minnesota** and its investment in a fiber-optic network that began in 2007. Located just south of the Minneapolis-St. Paul area, this network connects all county facilities for a significant cost savings including schools, libraries, and police and fire departments. The network has been expanded to neighboring counties as well.

Scott County owns the network and provided upfront capital costs to fund construction. The county has partnered with private ISPs to manage and maintain the network for free; in exchange, providers have included their own private fiber-optic infrastructure in buried conduit. Future partnerships with ISPs to expand services to households and businesses will be explored. Scott County has also partnered with state institutions, including the Office of Enterprise Technology, to provide services to their facilities as well.

The Scott County case story is found on p. 11 in the NTIA report, located online at:

http://www2.ntia.doc.gov/files/ntia_ppp_010515.pdf

Shawano County, Wisconsin

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: local government telecommunications alternative; public-private partnership**

A publically-owned organization located in **Shawano County**, Shawano Municipal Utilities (SMU) constructed its first fiber ring for internal use in 1996; this network was later expanded to serve local public departments and school districts and provide cable TV and internet services. These services were eventually sold to Cellcom, a private ISP, in 2013 after years of operating cost deficits and implementation delays. The deal followed a previous failed attempt to sell the services to another private ISP. Because SMU retained their telephone services, they were able to bypass Wisconsin Statute §66.0817 requiring a referendum for the sale of municipal utilities.

An article from the *Shawano Leader* is available online at: <http://broadband.uwex.edu/wp-content/uploads/2015/06/ShawnoLeader-City-Sells.pdf>

A press release from Nsight (a partner company of Cellcom) is available at: <http://www.nsightnews.com/Press-Releases/cellcom-to-purchase-shawano-municipal-utilities-internet-and-television-services.html>

For more information, visit the Shawano Municipal Utilities website at: <http://www.shawano.tv/id74.html>

St. Croix County, Wisconsin

[St. Croix County]

- **Stage: Developing and Communicating a Strategic Vision**
- **Keywords: comprehensive plan**

The 2012 **St. Croix County** comprehensive plan lays out a vision for utilities and community facilities (page 3-1) and notes implications for increasing partnerships to meet community needs (page 3-2). Recommended Communications policies (page 3-6) include, "Encourage regional and local discussion and planning for telecommunications, broadband availability, network connectivity, and other related technologies, with the impact on public safety and Next Generation 911 demands".

Volume 2-3 of the comprehensive plan documents utilities and community facilities. This section contains a map of the county's cellular towers and an inventory of telephone service providers, as well as a brief summary of the county's broadband access. A listing of industrial parks indicates where fiber optic is available (page 3-12, fig. 3.8).

St. Croix County's comprehensive plan is available on their website at: http://www.co.saint-croix.wi.us/index.asp?Type=B_BASIC&SEC={193869EB-C649-48C6-A778-A6026605796B}

[St. Croix County: Troy, Town of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: local policy; public rights-of-way policy**

Chapter 149 of the **Town of Troy's** municipal ordinances contains Ordinance §149-4 addressing re-excavation of utility easements. Under this ordinance, all utilities with infrastructure located in public rights-of-way scheduled for reconstruction are notified and given the opportunity to make improvements on their infrastructure so that they will not require maintenance for at least five years. After all construction on the affected public rights-of-way is completed, all requests for construction that will disturb pavement are denied will be denied for a period of five years, except for emergencies threatening the public life, health, or welfare.

The Town of Troy's municipal ordinances are available at: <http://www.townoftroy.org/ordinances>

[St. Croix County: Troy, Town of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application**

In August 2010, the **Town of Troy** partnered with Baldwin Telephone, Inc. (BTI) to improve broadband access for unserved and underserved households, businesses, and public facilities in the town. Together, the Town of Troy and BTI were awarded \$4,533,949 in grant money through the American Recovery and Reinvestment Act of 2009 to provide last-mile fiber optic cable to an estimated 1,500 households, businesses, and community institutions. The grant award partially offset the total project cost of \$9 million; the town board also approved \$25,000 for grant application preparation and waived some permit fees. A press release describing the 2010 fiber project is available at BTI's website at: <http://www.baldwin-telecom.net/troy/projects.html>

Vermont, State of

[Vermont]

- **Stage: Generating Short Term Wins**
- **Keywords: adoption**

When the East Coast of the United States was hit by Hurricane Irene in 2011, many affected areas faced long roads to recovery. The **Vermont Council on Rural Development** expanded upon their previous e-Vermont Community Broadband Project by creating the Vermont Digital Economy Project to support rural communities and improve disaster preparation. This was achieved through a variety of services including financial assistance for purchasing tablets, e-commerce and social media training, and website development.

A press release from *The Daily Yonder* describing the Vermont Digital Economy Project is available at: <http://www.dailyyonder.com/hardening-against-disaster-going-digital/2015/04/06/7790>

More information on the Vermont Digital Economy Project is found at:

<http://vtrural.org/programs/digital-economy>

For more information on the e-Vermont Community Broadband Project, visit their website at:

<http://vtrural.org/programs/e-Vermont>

Vernon County, Wisconsin

[Vernon County]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: cooperatives**

Vernon Communications Cooperative in Westby began in 1950 and now serves nearly 7,000 members with broadband high-speed internet, telephone and digital television. Over the last several years, Vernon Communications Cooperative has provided many of its members throughout Vernon County with fiber optic; the most advanced network available in broadband technology. In 2006, Vernon Telephone Cooperative began one of the first fiber optic construction overbuilds in Viroqua, WI, a community of 4,400 people.

From 2013-2014, Vernon buried over 600 miles of fiber to rural homes and businesses in their serving area and in Summer 2015 Vernon Communications plans to bury an additional 370 miles. This ambitious multiyear project will cost nearly \$25 million dollars and when completed, all members of Vernon Telephone will have fiber-to-the-premise (FTTP).

Vernon Communications Cooperative is one of 13 rural communications firms in North America to be honored with the Smart Rural Community Showcase Award by the National Telephone Cooperative Association (NTCA), which recognizes Vernon Communications Cooperative's advanced communications services and collaboration with local leaders in agriculture, health care, public safety and education, as keys to its success. A Smart Rural Community leverages their broadband network for a wide range of applications that meet consumer, business, government and institutional needs to remain competitive in the global economy. Information about the award can be found at:

<http://www.vernontel.com/smartrural.html>

The Cooperative was also featured in an article in the LaCrosse Tribune, found at:

<http://broadband.uwex.edu/wp-content/uploads/2015/06/Bill-would-expand-Minn.-telemedicine-coverage-StarTribune.pdf>

Vilas County, Wisconsin

[Vilas County: Phelps, Town of; Cloverland, Town of; and Winchester, Town of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application; tower agreement**

In early 2014, two public-private partnerships in Vilas County successfully applied for grants from the Public Service Commission of Wisconsin (PSCW). SonicNet, an ISP, partnered with the Vilas County Economic Development Corporation (VCEDC), a non-profit, and the **Towns of Phelps, Cloverland, and Winchester** for the application.

One project entailed construction of three 149' communications towers that provide wireless broadband internet service. This project constructs last-mile wireless broadband infrastructure targeting areas of Vilas County that were previously unserved or underserved, as required for this grant. More than 800 households and 16 businesses are located within the proposed service area of these towers. SonicNet and the Town of Phelps will provide funds to match the \$25,205 grant from the PSCW, while the Towns of Cloverland and Winchester will provide in-kind services. Ownership of land and infrastructure will vary by tower.

A press release for this project is available at SonicNet's website at: <http://sonicnet.us/?p=172>

The full text of the SonicNet funding application is available on the PSCW's website at the following link: http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=%20200786

[Vilas County: Manitowish Waters, Town of; and Arbor Vitae, Town of]

- **Stage: Enabling Action and Removing Barriers**
- **Keywords: public-private partnership; funding co-application**

A grant funding application was submitted by a partnership between the **Town of Manitowish Waters**, the VCEDC, and CenturyLink, a private ISP, for the improvement of middle-mile broadband infrastructure in the Trout Lake area. This area is largely residential with a few businesses. One hundred and four households that previously had access to broadband no faster than 1.5 Mbps download would be affected by the proposed project.

The total proposed cost was \$118,374; the PSCW awarded the requested amount of \$95,700 while CenturyLink contributed 20% of projected costs. The Town of Manitowish Waters and the VCEDC Board of Directors signed an intergovernmental agreement including the **Town of Arbor Vitae** to support this application; this is in addition to individual resolutions supporting this application and broadband development in general.

The CenturyLink grant application, which includes the VCEDC and Manitowish Waters supporting resolutions, is available on the PSCW website at:

http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=%20200859

Washington County, Wisconsin

[Washington County: Jackson, Village of]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: local government telecommunications alternative**

The **Village of Jackson** was initially certified as an Alternative Telecommunications Utility by the PSCW in 2003 but was granted voluntary decertification in September 2010. Jackson sought expedited decertification to include the sale of its complete telecommunications facilities to Techware PC in a referendum during the November 2010 elections, as required by §66.0817 (4). This sale was pursued following insufficient revenues to pay off outstanding debts incurred during construction of the Village's fiber optic ring. Techware had previously agreed in 2009 to take over management and operations of the fiber while negotiation of a lease/option agreement took place.

The PSCW's ruling on the decertification of the Village of Jackson is available at:

http://PSCW.wi.gov/apps35/ERF_view/viewdoc.aspx?docid=139496

Winnebago County, Wisconsin

[Winnebago County: Menasha, City of]

- **Stage: Learning from Experience/Instituting Change**
- **Keywords: local government telecommunications alternative**

Certified as an Alternative Telecommunications Utility, the **City of Menasha** is served by Menasha Utilities, a non-profit organization whose leadership is determined by the Common Council (Menasha is also partially located in Calumet County). Menasha Utilities began providing water and electric services in the 1910s; currently, they also offer telecommunications services to corporate customers. This includes dark fiber leasing and high speed internet access of up to 10 Mbps.

For more details, visit the Telecommunications page of Menasha Utilities website at:

http://www.menashautilities.com/business_customers/default.asp?CategoryNumber=8

Authors: Alex Kohlhaas, Economic Development Intern, and Mary Kluz, Community Development Specialist, Broadband & E-Commerce Education Center

Reviewers: **Brian Ohm**, Professor and UWEX Planning Law Specialist, Department of Urban & Regional Planning University of Wisconsin-Madison/Extension; **Nathan Sandwick**, Community Resource Development Educator, Portage County UW-Extension Stevens Point; **Deborah Tootle**, Ph.D., Associate Professor, University Extension Community Development Collaborative, Iowa State University and University of Wisconsin – Extension, Dubuque IA.

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