Region 6 Broadband Investment Plan

Final- January 18, 2012

Background

1) The Region 6 Broadband Planning Team met regularly over a course of a year beginning in February 2011 to identify opportunities to expand broadband availability and use. The benefits of expanded area broadband connectivity are many including but not limited to:

- Support new business formation, telecommuting and job development;
- Reduce the need to travel long distances for medical care;
- Improve the ability of hospitals, schools, government and others to access specialty skills that improve their effectiveness and efficiency.
- Improve local residential, business and governmental access to education and training resources;
- Enable seniors to access social security and Medicare information on-line;
- Facilitate farm access to program information, markets and inputs;
- Speed response and improve coordination of emergency services;
- Facilitate marketing of the region to visitors; or
- Enable government to more efficiently deliver services to local residents.

2) The Region 6 Broadband Planning Team has identified the need for a coordinated regional effort to mobilize and support area communities to implement projects that improve access and adoption of broadband, especially in underserved areas. Specific initiatives could include such things as:

- Utilizing the area library network to implement public outreach to expand awareness of broadband opportunities and deliver technology skills training.
- Regional sharing of lessons learned through experiences such as the Community Area Networking approach currently underway in La Crosse.
- Expanding the use of social network tools such as Facebook to promote awareness of broadband development opportunities and promote greater collaboration among communities in the region.
- Support forums that bring together area broadband providers and community members to find solutions for areas where broadband availability is not sufficient or adoption of existing broadband is low.

3) It is noted, however, that there is greater need for improved broadband access in some areas than others. In particular, area providers continue to expand service to population centers within the region. This includes some companies extending fiber to homes and

business. But there remain gaps in rural areas that are higher cost to serve. The terrain in the region contributes to the challenge of extending service in outlying areas.

4) The many hills and valleys in the region increase the amount of infrastructure necessary to extend broadband service to farms and villages in outlying areas.

5) This document begins with a description of the regional need and opportunity, followed by an outline of a specific action to facilitate regional coordination by implementing initiatives that result in expanded broadband access and adoption. The proposed plan is careful to build on and complement other existing related broadband development initiatives happening in the region at the same time.

Priority Need

1) More than one-third of the population in Region 6 lives in La Crosse County. In La Crosse County, the average number of people per square mile (population density) is 254. The second highest population density is 48 people per square mile in Monroe County. In Jackson and Buffalo Counties, the average population density is approximately 20 people per square mile. The vast majority of communities in the Region are smaller than 2,000 people, and surrounded by farms or forestlands.

2) At a high level, broadband availability follows higher population density where there is a larger customer base and the average cost of deployment is less (because there are more customers to spread the fixed costs). In more isolated areas it is less likely that there will be a wireline broadband service provider, however, increasingly wireless broadband options are emerging. The map below illustrates the pattern of wireline broadband service maximum average download speeds advertised across the region.

3) In general, there is significant wireline broadband availability throughout the Region where people live, but there are differences in service as well as gaps, especially in more rural areas.

4) The table appearing below illustrates the disparity of broadband access across the Region:

Percent Population in Census Blocks With Advertised Available:

		Percent Population in Census Blocks With Advertised Available:			
County	Average Population Per Square Mile	≥ 10 Mbps	3 to 10 Mbps	< 3 Mbps	Mobile Option Only
Adams	29	6%	47%	46%	37%
Buffalo	19	54%	45%	2%	1%

Jackson	20	51%	42%	7%	3%
Juneau	33	66%	17%	17%	14%
La Crosse	237	99%	1%	0%	0%
Monroe	49	81%	16%	4%	1%
Trempealeau	37	57%	41%	2%	1%
Vernon	36	51%	48%	1%	1%

Source: LinkWISCONSIN Broadband Provider Survey, Q1, 2011

5) With the exception of Adams County, all counties have significant population living in Census Blocks where there is an advertised broadband service offering of greater than 10 Mbps download. These individuals often live within or near towns, villages and cities in each county. In La Crosse County, approximately 99 percent of the population lives in a Census Block where higher speed broadband service is advertised. On the other end of the spectrum is Adams County where approximately half the populations live in a Census Block where advertised broadband available delivers less than 3 Mbps download, and in many cases that option is only a mobile provider.

6) The proportion of Regional population that subscribes to a broadband service is equal to the average for the state at 64%. Broadband adoption is impacted by many factors, but most notably older residents, those with less education and those with less financial resources are less likely to subscribe to a broadband service, even when available. The demographic profile below illustrates that the average population in Region 6 is older, less educated and with a lower median income compared with statewide average.

	Percent Older Than 65 Years of age	Median Income, 2008	Percent Adults with HS Diploma or Greater
Region 1 Average	16.3%	$45,307	81.5%
Statewide Average	13.3%	$52,103	85.1%
U.S. Average	12.8%	$52,029	80.4%

US Census of Population Estimates, 2009

7) However, there are demographic differences among counties in the Region. La Crosse County for example has the highest level of median income in the region and an average population that is younger and more educated than the average for the state as a whole. In Adams County, more than a fifth of the population is older than 65 years of age and median income is approximately $14,000 lower than the state average. Consequently there is not a

one-size-fits all solution that meets the needs of every community in the region to improve broadband access and utilization.

Overview of Regional Opportunity

1) Providing an organizational framework that brings together broadband service providers and diverse leadership within a region is one of the most effective approaches to addressing broadband service gaps as well as creating more economic and social opportunities as a result of broadband that is available. The Community Area Network Model implemented in the Chippewa Valley to the North and more recently organized in La Crosse is a good example of how coordinated regional leadership can make a difference in broadband availability and use. By working together to coordinate across multiple counties and sectors, greater results can be obtained. However, as noted above, there is a diversity of needs and opportunities across the Region and different approaches may be appropriate for different areas. By centering the initiative on educating and mobilizing community based initiatives, this diversity can be accommodated.

2) Region 6 is fortunate to have a substantial base of broadband providers serving the region. All Counties have multiple telephone companies and at least one cable provider operating within local communities. In addition, with the exception of a Jackson and Trempealeau Counties, each county has at least one provider of cable services.

3) Local libraries represent an important community-based resource trusted to provide communities with information and training to help improve the beneficial adoption of broadband services that is available. Libraries can be a particularly important resource for those members of the community who do not presently have a broadband connection or computer at home. Community members who gain skills and experience with the Internet through their local library are more likely to see the benefit of subscribing to a broadband service at home or at their business.

4) In addition to libraries, other community “anchor institutions” such as medical facilities, local government, schools, higher education and public safety facilities can be a leading edge for the community in promoting wider access and utilization of broadband. By collaborating together, these anchor institutions can be more effective in working with area providers to bring necessary communications infrastructure into communities where it may presently be deficient as well as expanding the adoption of infrastructure already deployed. Medical facilities, libraries, schools, colleges and universities, public safety offices, and local government along with private business can be centers of innovation. For example, they can demonstrate the possibilities of expanding telecommuting, personal health monitoring at home or delivery of educational curriculum to homes and businesses using broadband. Innovations such as these help to create more interest and demand for broadband and more market incentive to deploy broadband in under-served areas.

Proposed Broadband Investment

1) Additional regional investment is needed for regional collaboration, research, awareness programs and other strategic actions to expand broadband access among presently underserved populations in the region.

2) The following table provides an overview of key planned investments:

Type of Investment	Activities	Responsibility
Initiative leadership	· Establish commitment from appropriate leadership organizations. · Facilitate collaboration among regional counties. · Early provider engagement · Oversee network research and planning priority process. · Coordinate with on-going regional initiatives. · Apply for and manage grants as needed. · On-going communication.	The Mississippi River Regional Planning Commission will convene diverse stakeholders including The Western Technical College, UW Extension, k-12 leadership, Cooperative Education Service Area (CESA) 4, the area library systems, business leaders, local government, public safety, area medical systems, area broadband service providers and others.
Fund and deliver targeted awareness and skill building initiatives to improve access for underserved populations	· Research potential funding sources. · Apply and manage grants if appropriate. · Implement targeted awareness	· Area Libraries · Western Technical College · Others

	and skill building initiatives	
Address broadband service gaps to key anchor institutions	· Prioritize broadband service deficiencies. · Mobilize communities to market themselves to providers. · Engage providers to find solutions to critical broadband service gaps. · Apply for broadband infrastructure grants if appropriate.	· Local leadership team including broadband providers TBD

Key Tasks and Timeline

Phase 1: Implement Collaborative Partnerships

Summer 2011 and ongoing

Task 1.1. The Mississippi River Regional Planning Commission will host an initial meeting to organize a working committee of representatives from broadband providers, business, education, libraries, regional planning organizations, local governments, health care, farm organizations and others for successful collaboration to advance broadband availability and use. Volunteers from the participating organizations will initially manage the working group. However, consideration will be given to the need for local fund raising to engage a part-time staff person to help manage regional collaboration and ensure momentum continues. Staffing for the regional working group will be incorporated within an existing regional organization to minimize operational costs.

Task 1.2. The Region 6 Broadband Working Group will leverage data on broadband availability, consumer survey results and other information assembled by the LinkWISCONSIN broadband planning process and other sources. Data profiled will include a mapping of broadband demand including such things as locations of anchor institutions, residents, businesses and other organizations desiring a higher level of broadband connectivity. This could be facilitated with an on-line web portal provided by LinkWISCONSIN enabling consumers to identify areas of broadband demand. This

information, in addition to priorities identified in regional forums, will be used to build consensus on target projects. Those projects may be included in Phase 3 of this plan.

Task 1.3. The Region 6 Broadband Working Group seeks a strong partnership with area providers to address remaining gaps in broadband service. An early task of the working group will be to meet with area providers to learn about their near-term plans for additional deployment and to identify specific opportunities for community collaboration that may improve the business case for expanded deployment.

Task 1.4. The Region 6 Broadband Working Group will create avenues for on-going communication with the public and broadband providers throughout the region. This may include the preparation of fact sheets on broadband availability and use; periodic public meetings; and on-line media such as Facebook and Twitter. Communications generated will serve as another resource to identify broadband development needs and potential projects important to the region. Those needs will be communicated on going to industry representatives, elected officials and others as appropriate.

Phase 2: Targeted Awareness and Internet Skills Training Programs Through Area Libraries

Initial demonstration Fall 2011 – Fall 2012

Task 2.1. Regional libraries along with other partners such as Western Technical College are identified as a focal point for targeted awareness and Internet skills training programs as well as public facilities where people can access the Internet. An initial demonstration initiative will be implemented through the La Crosse Public Library. The La Crosse Public Library will engage a volunteer, through Americorp (local program presently not funded, but possible to work with neighboring county), Coulee CAP or the University of Wisconsin – La Crosse for 6-12 months to identify the target audience, convince them of the usefulness of broadband access and to provide them with training opportunities at the library. The volunteer would be provided with a laptop with broadband access to enable demonstrations in the field. The goal of the project is not to touch large numbers of people, but to identify candidates who seem more likely to be successful and possibly be able to mentor others.

Task 2.2. The La Crosse Public Library demonstration will be utilized as a model for other public libraries in the Region as they become more engaged in broadband issues within their local communities. This may include up to 39 libraries that are part of the Winding Rivers Library System as well as libraries in Adams County. Other partners such as Western Technical College that has a presence in all Region 6 Counties will also be engaged in expanded outreach. Adams County has substantial experience organizing local based training and information programs using facilities located throughout the region. In addition to awareness and skill training programs, most libraries offer important public access to the Internet for those in the region who lack broadband access or a computer at home. Local k-12 schools are also a potential place for the community to gather for training and information.

Task 2.3. The Region 6 Broadband Working Group organized in Phase 1 will play a supportive role to libraries bringing together regional collaboration as well as promoting awareness of programs and facilities available from libraries, Western Technical College and other partners. The diverse partnerships organized through the Region 6 Broadband Working Group will also provide a supportive role providing letters of support for grant applications and other funding requests that may be needed.

Phase 3: Address Broadband Service Gaps

Spring – Fall, 2012

Task 3.1. The Region 6 Broadband Working Group will support local leaders including but not limited to representatives from key anchor institution networks as well as local providers. This team will utilize the community-based broadband mobilization model similar to that of the Information Technology (IT) group presently organized in La Crosse. Community stakeholders will be organized and supported with research information (developed in Phase 1) to market their community to providers. Providers will be engaged to identify solutions that address broadband service gaps in underserved communities.

Task 3.2. A small outreach team may be formed to help targeted communities to start local based efforts that could be as simple as meeting monthly at a local coffee shop. The IT group in La Crosse serves as a model. On-going outreach may include help to mobilize area communities to successfully market themselves to broadband providers. For example when a trench is open, there can be coordinated communication so other utilities can take advantage of the opportunity to bury broadband facilities. Local government and providers can work on right-of-way issues in advance of the need to lay fiber or construct a tower. By openly sharing construction plans, area health care, education, government, business and other sectors can reduce their cost of completing infrastructure projects. The Wisconsin Public Service Commission can help connect Region 6 with those from other regions in the state working on similar community collaboration models.

Task 3.3. The Working Group will organize regional support for provider, municipal or other organizational loan/grant applications as may be needed to advance solutions to broadband gaps in areas where there is business interest.

Budget

Infrastructure Funding: TBD in 2012 after careful research

Equipment and Supplies: Equipment and supply expenses are expected to be minimal and provided in-kind by participating organizations.

Paid Staff: Initially the initiative will be staffed by volunteers. However, a half-time paid professional is needed to ensure project tasks are well organized, volunteers are coordinated, grant applications are submitted as needed, and communication with all stakeholders are clear and consistent. This position would be based within an appropriate

regional leadership organization agreeable to all stakeholders. This position could be contributed in-kind by an existing organization or funded as a new position subject to available funding.

Contributed in-kind staff: TBD
Funded Paid Staff: TBD

Volunteer Time: Given limited resources, most of the key tasks are expected to be accomplished by regional volunteers.

Number of volunteer hours: TBD
Value of volunteer hours: TBD

Anticipated Impacts & Three-Year Objectives

Anticipated Outcomes and Impacts

The proposed broadband investments are anticipated to result in several important positive outcomes and impacts for the region including but not limited to:

- Greater organized regional collaboration to identify, prioritize and implement actions to improve availability and adoption of broadband services, especially in underserved rural areas.
- Area broadband providers will be actively engaged along with community leaders in a partnership to address broadband service gaps.
- More awareness of the benefits of broadband among those presently not subscribing.
- Expanded opportunities for local businesses.
- Reduced time on the road commuting to work or access health, education and other services.
- Improved business case for broadband investment in underserved areas.
- Expansion of broadband service investment in underserved locations.

Three-Year Objectives

The following objectives are targeted for Region 6 by 2014:

- An expanded number of communities will be mobilized to market themselves to broadband service providers. Broadband service providers will be actively engaged with communities in finding solutions to challenges.
- At least one library in all eight Region 6 Counties will implement expanded broadband awareness and skill training.
- More communities will have multiple broadband provider options available for purchase compared with what is available at the beginning of 2012.
- At least 20 percent of households that do not subscribe to broadband in 2012 in Region 6 will subscribe by 2014.

NOTE: These target objectives may be modified after completion of a baseline research.

Monitoring and Evaluation

1) Subject to available funding, the LinkWISCONSIN/Public Service Commission Team will support Region 6 with design and implementation of a comprehensive monitoring and evaluation effort. The monitoring process will focus initially on collecting data on inputs, activities and processes. The evaluation process focuses on outputs, outcomes and impacts.

2) Examples of inputs include such things as number of volunteer hours, hours of paid staff time, number of local partners engaged or time spent in planning meetings. Activities and Processes are such things as progress towards completing a comprehensive database of unmet residential demand, development of a memorandum of understanding with local education institution to help with a demand survey, formation of local task groups, collection of baseline data and so forth. The LinkWISCONSIN/PSCW Team will create on-line tools to support this necessary data collection.

3) The evaluation process will focus initially on outputs and outcomes defined by the above objectives. For example reaching a defined number of library customers with training. Impact data will go beyond outputs and outcomes to determine such things as the economic impact of new rural business formation; energy savings and household savings from reduced commuting, tax base improvements from new rural business development, etc.

4) Subject to available funding, a detailed monitoring and evaluation plan will be designed and implemented early in 2012.

Sustainability Plan

1) Success in attracting the targeted broadband investments will depend significantly on an upfront project design that assures the initiative will be sustainable into the future. This sustainability will be achieved through the strategic engagement and leveraging of existing organized efforts in the region that include but are not limited to:

- Integration of this priority broadband investment initiative within the emerging structure and plans for existing organizations such as the Mississippi River Regional Planning Commission,
- local libraries or Western Technical College.
- Engagement and partnership with area broadband service providers.
- Strong partnerships with area County-level economic development corporations, k-12 education, healthcare networks and other organizations or individuals.
- Outreach and engagement to appropriate state government entities and legislative audiences.

2) In short, the strength and sustainability of the project to expand broadband investment targeted to underserved areas will depend on the effective partnership of multiple existing organizations. The goal is to minimize the need to obtain funding for new operational revenues and contracts. Similarly, to the extent current broadband gaps can be filled

through helping to build a business case for existing providers to extend service to fill those gaps rather than the need to find grant or loan resources for infrastructure, the chances of success will be enhanced.

3) It is recognized however that volunteer leadership in the region is stretched. Sustainability will be enhanced by successful efforts to obtain funding for at least a half-time paid staff position within an existing organization to provide the on-going leadership and organization to manage these important partnerships.

Appendix A: Regional Description

Counties and Communities

Eight counties including Adams, Buffalo, Jackson, Juneau, La Crosse, Monroe, Trempealeau, Vernon make up the Seven Rivers Region (Region 6). La Crosse is the largest community in the region with a population greater than 50,000 people. The community of Onalaska has an estimated population over 16,000. Several other communities in the region including Sparta, Tuma and Holman have a total population between 5,000 and 10,000. The majority of communities in the region are smaller than 5,000 people with most communities smaller than 2000 people.

Population

Based on 2009 Census estimates, nearly 300,000 people live in the eight county region. Over one-third of the region's total population live in La Crosse County 113,679 and 43,760 people live in Monroe County.

Overall, population grew at rate comparable to the statewide average of just over 5% between 2000 and 2009--expanding by 14,147 people. The fastest growing counties during this time period are Juneau 8.8%, Monroe 7.0% and La Crosse 6.1%. Of the eight counties, only Buffalo County lost population over the past decade -2.7%.

On average, the population of the region is less densely populated than for the state as a whole. Population density in the Seven Rivers Region is 57 people per square mile compared to 85 people per square mile for the state. However, there are substantial differences in population density across the region. For example there are an average of 237 people per square mile in La Crosse County compared to only about 19 people per square mile in Buffalo and Jackson Counties.

Demography

With the exception of La Crosse and Monroe Counties, the population in Region 6 is substantially older than for the state. Specifically on average in Region 6, 16.3% of the population is older than 65 years of age compared to 13.3% for the state. In Adams County, 21.7% of the population is older than 65 and in Buffalo County 18.2% of the population are older than 65.

Based on 2008 Census estimates, over 96% of the region's population are white compared to about 90% of the state's population. In Jackson County, 6.5% of the populations is American Indian. In other counties of the region, American Indian's represent less than 2% of the total population. Hispanics make up three% of the population in Adams and Monroe Counties, still well below the state average of 5.1% Hispanic.

With the exception of La Crosse County, educational attainment levels are generally well below the state average. Statewide, 85.1% of the population over 25 have a High School Degree or higher. In Lacrosse County 89.7% of the population has a High School Diploma. In several counties, Adams, Jackson, Juneau and Vernon, the percentage of the population with a High School Diploma or higher is lower than 80%. The% of adults with a Bachelor's Degree or Higher in the eight county region is only 13.9% compared to 22.4% for the state. Again, La Crosse County is the exception with 25.4% of the population having a Bachelor's Degree or higher. Region-wide, less than 14% of the population have a Bachelor's Degree or higher with only 10% in Adams and Juneau Counties.

Median Household Income

2008 Median household income for the region is $45,307 compared with $52,103 for the state. Highest median income for the Region is in La Crosse $48,754, Trempealeu $48,650 and Buffalo $47,198. 2008 Median income in Adams County is $38,166, the lowest in the region. An estimated 12.4% of households in the region were below the poverty level in 2008 compared to 11% for the state. 2008 poverty levels were highest at 14% in Adams and Vernon Counties.

Appendix B: Regional Economy

Regional Economy

The U.S. Bureau of Labor Statistics organizes data into ten sectors reflected key economic drivers in the modern economy. March 2010 employment in each of these sectors for the Grow North Region is depicted in the following table.

2010 Region 6 Employment by Major Sector

Economic Sector	Q1 2010 Regional Employment	Employment Change 2007 - 2010	Sector % of Regional Total (2010)	Sector % of State Total (2010)
Natural Resource and Mining	1,803	-90	1.4%	0.8%
Construction	3,532	-1,707	2.7%	3.2%
Manufacturing	20,156	-2,557	15.6%	16.3%

Trade/Transportation & Utilities	26,926	-1,631	20.8%	19.0%
Information Services	1,473	-100	1.1%	1.8%
Financial Activities	5,527	189	4.3%	5.9%
Professional/Business Services	8,222	-809	8.36%	10.0%
Educ./Health Services	21,642	1,239	16.7%	15.0%
Leisure & Hospitality	12,051	-1,476	9.3%	9.0%
Government	24,592	1,194	19.0%	15.4%
Other Services	3,330	261	2.6%	3.2%
Regional Total	129,337	-5,405	100%	100%

Source: US Bureau of Labor and Statistics, 2007 - 2011

Over 129,337 people were employed in Region 6 during the first quarter of 2010. Approximately half of those jobs are in La Crosse County. About one-fifth of the Region 6 workforce is employed within local, state or federal government 24,592 people and another fifth if employed in trade, transportation and utilities businesses 26,926 people. Other major employing sectors are Manufacturing, education, health leisure and recreational businesses.

Region 6 lost 5,405 jobs between 2007 and the first quarter of 2010. Losses were spread fairly evenly among construction -1,707, trade, transportation and utilities -1,631, manufacturing -2,557 and hospitality -1,476. These job losses were partially offset by a 1,194 job growth in the government sector over the same time frame.

Employment Projections

The Wisconsin Department of Workforce Development models projected non-farm employment growth by industry for each of the state's eleven workforce development regions. The majority of the Seven Rivers Region is a part of the Western Workforce Development Region including Buffalo, Crawford, Jackson, Juneau, La Crosse, Monroe, Trempealeau and Vernon Counties. The following table identifies the projected employment change by major sector for the Northwest Workforce Development Region.

In general, the projected future growth prospects are positive for most of the economic drivers in the region. Education and Health Services in particular are expected to add significant jobs over the ten-year study period beginning in 2006 and ending in 2016. In contrast, the national and statewide trend of declining manufacturing employment is project to continue to impact Seven Rivers Region employment. Between 2006 and 2016,

manufacturing employment is projected to change 0.9% for the Seven Rivers Region of that food manufacturing is expected to decline -3.2%.

Workforce Trends

The following occupational categories are projected to result in the ten largest net job growth between 2006 and 2016 within the Western Workforce Development Region of which the Seven Rivers Broadband Planning Region is a part.

- Total, All Occupations net new jobs 11,230
- Healthcare Practitioners and Technical Occupations net new jobs 1,920
- Food Preparation and Serving Related Occupations net new jobs 1,370
- Healthcare Support Occupations net new jobs 980
- Office and Administrative Support Occupations net new jobs 970
- Registered Nurses net new jobs 910
- Transportation and Material Moving Occupations net new jobs 710
- Business and Financial Operations Occupations net new jobs 610
- Personal Care and Service Occupations net new jobs 610
- Truck Drivers, Heavy and Tractor-Trailer net new jobs 590

These projects emphasize job growth is projected to grow across a wide spectrum of occupational skill categories, but with a particular emphasis in health and education related fields. Some fields such as Health Care Practitioners, Registered Nurses or Business & Financial Occupations will require workers with higher levels of education. Others such as food preparation and serving occupations may require less formal post high school education.

Overall the occupational and industry trends framing economic development in the Western Region point to the need for effective education and training networks including the continued leveraging of distance delivery technologies supporting access at home and at places of work.

Appendix C: Broadband Availability

Gaps in Broadband Service

A review of the LinkWISCONSIN interactive broadband map (http://wi.linkamericadata.org/) highlights significant gaps in broadband service throughout all Counties in the Northwest Wisconsin. At a high level, broadband availability follows higher population density where there is a larger customer base and the average cost of deployment is less (because there are more customers to spread the fixed costs). In more isolated areas it is less likely that there will be a wireline broadband service provider, however, increasingly wireless broadband options are emerging.

Population density alone does not fully explain gaps in broadband availability. Other factors such as demographics of an area (demand drivers), land use patterns, economic growth potential, university proximity, physical land features, provider access to federal universal service funds and simply local leadership can also play important roles in availability

Notable Service Differences

Defining “broadband” is not simple, and many different definitions exist. The Federal Communications Commission (FCC) defines broadband in terms of data transmission speed. The FCC definitions include several ranges, with the minimum tier of “broadband” services starting at a speed of 768 Kilobits per second (Kbps) for data traveling from the Internet to your computer (downloading.) and at least 200 Kbps for data from your computer to the Internet (upload.) For purposes of this project, the FCC definition is a minimum standard to define a “broadband provider”. However, the ultimate minimum “broadband capability” for any given customer or market segment must be defined by the services for which broadband is being used. Services which are totally adequate for some purposes (e.g. uploading YouTube videos) will not support others (e.g. tele-radiology.) With greater speeds, there is greater capability.

Existing technologies have various technical limitations on the speeds that they can provide. Mixed fiber / twisted pair copper services, as typically deployed by traditional telephone companies as well as fixed wireless broadband services range from 1.5-25 Mbps or more. Fiber-to-the-home services are generally faster, while mobile wireless technology is generally slower. Defining services by technology does not tie directly to services, but it is useful in identifying what services are available, and where.

Regional Differences in Broadband Service

The tables appearing below illustrate the disparity of broadband access across the Region:

		Percent Population in Census Blocks With Advertised Available:			
County	Average Population Per Square Mile	≥ 10 Mbps	3 to 10 Mbps	< 3 Mbps	Mobile Option Only
Adams	29	6%	47%	46%	37%
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Juneau	33	66%	17%	17%	14%
La Crosse	237	99%	1%	0%	0%
Monroe	49	81%	16%	4%	1%
Trempealeau	37	57%	41%	2%	1%

Vernon	36	51%	48%	1%	1%

Source: LinkWISCONSIN Broadband Provider Survey, Q1, 2011

All eight Counties in Region 6 have significant areas with higher speed broadband service (in excess of 10 Mbps). Approximately 99% of the people living in La Crosse County live in Census Blocks where there is an advertised higher speed Internet service. In Adams and Juneau County, 46% and 17% respectively live in Census Blocks where no broadband option greater than 3 Mbps download is advertised.

To interpret the above table, it is important to emphasize a couple of qualifications. First the data reflect the maximum advertised broadband speed of service available in a Census Block. Not everyone in a given Census Block necessarily has access. Especially in rural areas, the geographic size of a Census Block is often substantial and there will be service differences locally. Also the data reflects the maximum download speed advertised in each area. For an individual customer, the actual speeds can vary depending on location. With these qualifications in mind, the data does provide a picture of differences in broadband service across the region.

Appendix D: Broadband Adoption

Percentage of Subscribers

The US Department of Commerce NTIA conducted a national consumer broadband adoption survey in October of 2010. The findings are summarized in its February 2011 Digital Nation report. National broadband adoption data reported by NTIA indicate that Wisconsin ranks 22nd in the country in broadband adoption, with an estimated 70.5% the state's residents accessing the Internet using broadband in 2010. A statewide consumer survey conducted by LinkWISCONSIN in 2010 found a somewhat lower, but still very substantial rate of broadband subscription of 64% for the state.

The LinkWISCONSIN survey also compared the rate of broadband and Internet adoption across different regions of the state. Broadband adoption in Region 6 matches the state average at 64%.

Barriers to Adoption

One factor impacting adoption in Region 6 is availability of broadband supply as noted in Appendix C. There remain substantial gaps in broadband availability, especially in less populated areas of the Region.

There are a number of reasons in addition to availability that are barriers to adoption.

Among people living in Region 6 who do not presently use the Internet, the most frequently cited reason is they do not have a computer and the second most frequently cited reason is affordability. Affordability in general is a frequently cited barrier to Internet access cited by

Region 6 residents. Twenty-three percent of people who do not use the Internet in Region 6 cite “too expensive”, compared to 15% statewide.

Recognizing these typical barriers to accessing the Internet with any technology, it is not surprising that the demographic make-up of an area is closely associated with the rate of Broadband Adoption. For example in areas with lower median income, people are less able to afford to pay for a computer and broadband subscription. Specific data is not yet available for Wisconsins, but the following table from the recent NTIA Digital Nation report illustrates the strong relationship between income and Broadband Adoption.

Educational attainment is associated with both consumer purchasing power and perceived value of Broadband. Adults with at least a Bachelor’s degree are nearly three times as likely to use Broadband than adults lacking a High School diploma.

Finally, age is an intuitive and real variable that impacts perceived value of the Internet. Also seniors are more likely to live on a fixed income impacting affordability. While perceived value is changing, as more older people recognize the Internet as a valuable tool to access health information, stay in touch with family, avoid trips out of the house in poor weather and so forth, still age matters in Broadband Adoption.

These driving demographic forces help to explain why Broadband adoption is lower in Region 6 compared to other parts of the state (See demographics in Appendix A).

Broadband adoption is also impact by people access to devices used to access the Internet.

A lack of computer at home is one of the most significant reasons cited for not using the Internet. Three-quarters of people responding to the LinkWISCONSIN consumer survey access the Internet with a home computer. Computers at work or at school are also an important means of access. Presently mobile devices are not as widely utilized for Internet access, but looking to the future mobile access is projected to be much more important. As the capabilities of mobile technologies continue to improve, there are more customers that rely on air cards, smart phones and other Internet enabled mobile devices as their primary connection to the Internet. According the Cisco Global Visual Data Mobile Data Forecast, more than 400 million of the world's Internet users could access the network solely through a mobile connection by 2014.