

Region 9 Broadband Investment Plan

Final - February 27, 2012

Background

1) Approximately one-third of Wisconsin's total population live in the seven county Southeast Wisconsin Region described as Region 9, for broadband planning purposes. The Counties included in Region 9 are Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha. While heavily populated, compared with much of the state, the region also has substantial land areas characterized by small towns, farms and open land. The average county population density ranges from over 3,900 people per square mile Milwaukee County to only 180 people per square mile in Ozaukee County.

2) The Public Service Commission of Wisconsin named twelve individuals from Southeast Wisconsin to serve on the Region 9 Broadband Planning Team. The Region 9 Team has been meeting since March of 2011 to assess opportunities and guide the development of a targeted plan to improve the availability and adoption of affordable broadband throughout the area.

3) The ability to access and use broadband has become increasingly essential to:

- Improve quality of life;
- Promote public safety and emergency response;
- Assist with educational access;
- Allow hearing impaired to utilize video phones to communicate;
- Improve economic opportunity;
- Facilitate work at home and telecommuting;
- Communicate with elected officials and government agencies;
- Improve farm and business competitiveness;
- Access personal information (e.g. healthcare or banking); and
- Others.

4) At least one broadband option is available to most people living in Region 9. However, there remain some who have only dial-up as an option and many others who presently are not subscribing to a broadband service, even where available. Reasons for not subscribing are many including such things as not being able to afford the cost of a subscription, lack of perceived value or not having access to a computer to access the Internet. For people with a disability, the access issue can be more complex as they may need to have access to specialized equipment or higher speeds to support video-conferencing to fully benefit from an Internet connection.

5) Region 9 Broadband Planning Team recognizes that access to affordable and adequate broadband is important for everyone, as it is increasingly important for access to quality of life, regional economic development and individual opportunity. However, the team determined the first priority to address underserved rural communities and targeted populations with more limited access such as low income and persons with disabilities.

6) This plan recognizes a particular role for community institutions such as libraries that can provide public computer access facilities as well as digital literacy and awareness education. Additional funding and programmatic support is needed to ensure these facilities are properly equipped to help address the digital access needs of underserved populations in Region 9. A specific funding plan defining necessary resources and budget will be determined after organizing and receiving “buy-in” from key stakeholders.

Priority Need

1) While Southeast Wisconsin is the most highly populated region in the state, it is also home to many of the state’s smaller communities with population between 1,000 and 6,000 people.

2) Associated with the many smaller communities are hundreds of local government facilities, multiple libraries, schools, local business organizations, residential commuters and so forth. The Southeast Wisconsin land use pattern with larger cities surrounded by smaller towns and small farms creates a need for access to affordable quality broadband to support local economies and the efficient delivery of community services. While not a solution in itself; broadband enables the flow of data and information to facilitate beneficial cooperation among local government, enable businesses to better access the regional workforce through telecommuting, or people living in outlying areas to access essential health services. These are just several examples of many possible benefits.

3) Because the Southeast Region has relatively high population density compared with much of the state, private broadband providers have in general found it profitable to deploy services to the majority of the population living in Region 9.

4) The LinkWISCONSIN broadband provider survey documents substantial wireline broadband coverage is available in most of the region’s communities. There are also fixed wireless high- speed Internet service providers and mobile broadband providers operating within the region that are filling gaps where wireline service is not available and offering additional options where wireline service is available.

Percent of population living in Census Blocks with selected available broadband technologies

	Copper/DSL	Cable	Fiber	Fixed Wireless	Mobile Wireless

Kenosha	86.5%	98.1%	0.2%	17.8%	100.0%
Milwaukee	99.6%	99.9%	1.7%	2.1%	100.0%
Ozaukee	96.0%	97.5%	0.9%	94.2%	100.0%
Racine	96.3%	94.4%	0.0%	82.4%	100.0%
Walworth	77.7%	84.9%	0.0%	15.5%	100.0%
Washington	88.4%	92.3%	0.0%	99.5%	100.0%
Waukesha	80.5%	99.7%	2.1%	2.2%	100.0%

Source: LinkWISCONSIN provider survey, April 2011

5) The above table illustrates that the vast majority of the Region 9 population lives in Census Blocks where an advertised DSL or Cable broadband service is available and in many cases customers have a choice between multiple options. Providers in the Region 9 report approximately 98 % of the Region’s population live in a Census Block where a wireline (cable, DSL or fiber) or a fixed-wireless broadband service provider advertises a service of 10 Mbps download speed or greater.

6) It is important, however, to recognize limitations of the available data. The data available is provider reported advertised service at the Census Block level. Especially in rural areas, service can be available to a part of the Census Block, but not to other parts. Factors such as terrain and distance from primary infrastructure connection can limit deployment to some customers in the area. Region 9 Broadband Planning Team members report there remain a significant number of rural customers that only have a dial-up option.

7) According to the LinkWISCONSIN consumer survey, about five percent of the region’s Internet users rely on dial-up. This compared to an average of 10 percent for the state. In general, consumers in Southeast Wisconsin are much more likely to purchase broadband service from a cable provider compared to other areas of the state. Approximately 50% of the Region 9 broadband customers utilize cable compared to less than one-fifth of broadband customers statewide.

8) While broadband service is widely available in most locations, those services are not always adopted. The Federal Communications Commission’s collects information from providers estimating broadband subscription by Census Tract. Estimated broadband subscription rates by county in Region 9 calculated from the Federal Communications Commission (FCC) data reports are compared in the table below.

Estimated BB Subscription Rate Total Number of Census Tracts Number of Census Tracts with:

	Estimated BB Subscription Rate	Total Number of Census Tracts	Number of Census Tracts with:	
			Subscription rate < 40%	Subscription rate > 60 %
Kenosha	68%	30	2	18
Milwaukee	57%	306	96	107
Ozaukee	65%	16	0	13
Racine	65%	38	7	23
Walworth	67%	13	2	9
Washington	63%	19	1	14
Waukesha	77%	72	0	64

Source: FCC public data file, form 477, March 2010

9) Waukesha County has the highest estimated average broadband subscription rate with an average of 77% of the County's households accessing a broadband service. The estimated average rate of broadband subscription is twenty percent lower for Milwaukee County. However, even at 57%, Milwaukee County's subscription rate is equal to the average for the state of Wisconsin as estimated by FCC Census Tract broadband subscription data. With the exception of Milwaukee County, the rate of broadband subscription is higher in all counties of Region 9 compared to the state

10) Notably, out of nearly 500 Census Tracts that make up Region 9, only 108 have an average estimated broadband subscription rate less than 40%. And of those 108 lowest subscribing areas, 96 are in Milwaukee County. Typically in Census Tracts within counties outside of Milwaukee, 60% or higher of the population subscribe to broadband in Region 9.

11) Looking more closely at the data, demographic factors are closely related to broadband adoption. In particular household income can be a limiting variable. Among the 108 Region 9 Census Tracts where the average estimated broadband subscription rate is lower than 40%, 100 are Census Tracts where the 2009 median income is lower than \$40,000 per year. On the other end of the spectrum, there are 82 Region 9 Census Tracts with an estimated average broadband subscription rate greater than 80%. Approximately three-quarters of those Census Tracts have 2009 median income in excess of \$60,000 per year.

12) In addition to limited income, broadband adoption research generally recognizes that older and/or less educated populations are less likely to subscribe to broadband. The Region 9 Broadband Planning Team also recognizes the importance as well as the challenges in accessing broadband among people with disabilities.

13) While there is no data on use of broadband among populations with disabilities specific to Wisconsin, the National Telecommunications and Information Administration reports national data on home use of broadband among populations with disabilities.

14) Among six different categories of disability, broadband usage at home is approximately one-half that of the general population surveyed in the same research. As noted by the Region 9 Broadband Planning Team, these individuals are located in communities throughout the region and would in most cases benefit from better access and/or use of broadband.

Overview of Regional Opportunity

1) Region 9 consumers not presently using broadband were asked in the 2010 LinkWISCONSIN broadband survey “what would motivate them to subscribe to a broadband service. Among frequent answers were:

- Better broadband pricing (more affordable options);
- Nothing will convince me (lack of perceived value);
- Access to a PC; and
- Training (digital literacy skills)

2) These four concepts frame opportunities to advance broadband access in Southeast Wisconsin. While broadband is widely available throughout the region, lower income residents may not be able to afford either the necessary equipment or monthly subscription cost. For populations with disabilities, specialized equipment and software is sometimes needed to access the Internet. The cost of making these adaptations can be significant. Options to address affordability challenges include, but are not limited to:

- Partnering with area broadband service providers to create special pricing options or public computer locations targeted to “new adopters” meeting agreed upon criteria.
- Accessing government or private foundation grants to help subsidize broadband access for underserved rural locations, low-income households or populations with disabilities.
- Working with area non-profits to establish programs or grants to finance specialized equipment needed to access broadband for those that may be sight-impaired, hearing impaired or have other disabilities.
- Partnering with area businesses to encourage broadband access for targeted purposes such as telecommuting or workforce development.

3) The area library systems represent a special resource available to the region to help expand access among the presently underserved and non-adopting households in the region. Multiple libraries are located in every county of Region 9. Libraries along with schools and health care facilities are recognized within the Federal Telecommunications Act of 1996 as of special importance for providing affordable access to on-line information to their communities.

4) Many public libraries in Southeast Wisconsin have bandwidth through the TEACH program, which in 1998 provided 1.5 Mbps service to libraries for \$100 per month. This cost/amount factor stayed the same until 2010 where libraries could get 3.0 Mbps service, if the usage could be justified. While 1.5 Mbps was sufficient for text web back in 1998, it is woefully inadequate for the video age of 2011. The increase in bandwidth for libraries/systems will likely require the replacement or upgrading of network related equipment (routers, switches) as well as for equipment costs, installation costs and continued support.

5) Libraries represent an existing resource that can be utilized to enhance broadband access in underserved rural areas as well as for low-income households and populations with disabilities. Specifically, libraries provide:

- Access to public computers;
- Awareness education to help non-adopters understand the value of broadband; and
- Digital literacy training.

6) Because current library computing resources are often outdated, additional funding will be needed to fulfill the regional opportunity. Recent data on the library service opportunity was developed as a part of a successful Wisconsin federal grant application in 2010. However, that grant was turned down by the state. Nevertheless, groundwork developed for the earlier grant application provides a building block to search for a new funding source.

Proposed Broadband Investment

Additional regional investment is needed to improve both availability and use among those in Region 9 that presently lack adequate access or presently do not subscribe to broadband.

The following table provides an overview of key planned investments:

Type of Investment	Activities	Responsibility
Leadership	<ul style="list-style-type: none"> • Establish commitment from appropriate leadership organization. 	<ul style="list-style-type: none"> • Regional library systems together with

	<ul style="list-style-type: none"> • Solicit and manage regional partnerships. • Apply for and manage grants if needed. • On-going communication. 	<p>area nonprofits, SERPC, Wingspread, local governments, business interests, broadband providers and others.</p>
Research	<ul style="list-style-type: none"> • Survey organizations and agencies serving low income households and persons with disabilities to determine: <ul style="list-style-type: none"> ○ Needs that can be addressed by better access/use of broadband. ○ Broadband service available in areas where target populations live. ○ Barriers to use and adoption of broadband among target populations. Assess realistic options (policy and programmatic) to address identified service and adoption gaps. ○ Identify programs and partners to promote solutions 	<ul style="list-style-type: none"> • Area nonprofits and governmental agencies that provide services to targeted populations. • Area universities and technical colleges.
Outreach	<ul style="list-style-type: none"> • Seek funding to expand library-based public computer access. 	<ul style="list-style-type: none"> • Area library system, selected non-profits,

	<ul style="list-style-type: none"> • Promote public and private partnerships to extend broadband access to underserved areas and targeted populations. • Implement initiatives to promote awareness among targeted populations on benefits of broadband adoption. • Implement digital literacy skills training targeted to low income households and populations with disabilities. 	<p>selected public agencies and others.</p>
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Key Tasks and Timeline

Phase 1: Convene Area Leadership

Fall 2011 and ongoing

Task 1.1. Representatives from regional library systems along with other non-profits and public agencies which serve targeted populations (low income households, persons with disabilities, unserved rural areas) will convene a leadership group to refine an Region 9 project plan. The convening of local stakeholders will be facilitated by working with existing regionwide networks such as The Southeastern Wisconsin Regional Planning Commission (SERPC) and the Johnson Foundation network Wingspread (<http://www.johnsonfdn.org/>). Quarterly newsletters and other communications from the organizations represented by the Region 9 Broadband Planning Team will be leveraged to reach out to stakeholders including business, k-12 schools, higher education, farmer organizations, libraries, non-profits, local government, health care, broadband provider representatives and others as appropriate.

Task 1.2. The regional leadership group will identify and secure resources as needed to successfully support plan implementation. The plan is designed to utilize volunteers and skills of existing organizations to the maximum extent possible. However, it is recognized that success of the initiative will require additional funding. Specific funding and budget needs will be determined following convening of local stakeholders in Task 1.1. The leadership group will organize and implement strategies around existing initiatives such as programs managed by area non-profits, libraries, schools, businesses broadband providers

or government agencies. Examples are the previous grant request developed by the State of Wisconsin to expand affordable bandwidth and equipment at public libraries or provider sponsored grants to help establish public computer labs, or business sponsored telecommuting projects.

Task 1.3. The regional leadership group is expected to continue for a period of at least three years to oversee implementation of the planned project activities. This group will all ensure coordination with related on-going regional initiatives.

Phase 2: Research

Fall 2011 – Spring 2012

Task 2.1. A detailed inventory of non-profits, libraries, schools, health care facilities government agencies, businesses and other organizations that deliver services to the targeted populations will be created as a first step. Also an inventory existing programs directly related to providing broadband access to low- income households, populations with disabilities and underserved rural locations will be developed. These could include provider-sponsored programs, non-profit or faith based initiatives, public housing programs, library programs and others.

Task 2.2. Based on the organization and program inventory accomplished in Task 2.1, a survey will be implemented of these organizations and program sponsors to assess:

- Needs that can be addressed through improved access and use of broadband;
- Geographic areas where access is particularly limited among the target populations;
- Barriers to adoption where broadband service is available (e.g. affordability, awareness of possibilities, computer access, comfort or skills using technology); and
- Opportunities to better match available resources with needs.

Task 2.3. A third research priority is to identify potential funding partners. These could include but are not limited to private Foundations, business partnerships, provider-sponsored programs and government grant programs.

Phase 3: Outreach

Spring 2012 and beyond

Task 3.1. Funding will be pursued to continue and expand regional library system capabilities to provide public access computers with broadband Internet access for low income households, populations with disabilities and in unserved rural locations. This may include offering workshops and training to promote awareness and skills to utilize the Internet. The initiative will build on leadership and past initiatives from The Division of Public Libraries, Technologies and Community Learning that are part of the Department of Public Instruction. Locally the public library and system directors and boards in Region 9 will be a catalyst for organizing area leadership. This will include seeking support from local governments, businesses, area non-profits and others. An estimated 10 million dollars is

needed to pay for increased bandwidth access as well as upgrading of network related equipment.

Task 3.2. Outreach will be implemented to promote public and private partnerships to encourage expanded access to broadband among low-income households, populations with disabilities and unserved rural areas in Region 9. These may include broadband provider sponsored initiatives, business telework initiatives, non-profit or faith based programs and others. While most existing initiatives have been targeted within Milwaukee County, this project will seek to expand regional collaboration and include expanded public and private partnerships reaching populations in surrounding counties.

Task 3.3. Related to Tasks 3.1 and 3.2, outreach will also include the expanded delivery of broadband awareness education and digital literacy training. This may include delivery through area libraries as well as in partnership with schools, higher education and others.

Budget

It is recognized that contributed time and volunteers by itself is not adequate to achieve project goals. The budget for this plan and strategy to obtain needed funding will be determined after receiving “buy-in” key stakeholders around specific project goals and tasks (Phase 1).

Infrastructure Funding: This project emphasizes leveraging existing deployed infrastructure. Additional funded infrastructure needs, if any, will be determined over the course of the project. In particular additional broadband infrastructure may be needed to upgrade connections to some public libraries or meet needs in underserved rural locations

Equipment and Supplies: Equipment upgrades will be pursued for area libraries.

Paid Staff: An optional half-time paid professional is suggested to ensure project tasks are well organized, volunteers are coordinated, grant applications are submitted as needed, communication with all stakeholders are clear and consistent. This position could be contributed in-kind by an existing organization or funded as a new position subject to available funding.

Contributed Time: Given limited resources, many of the key tasks are expected to be accomplished by contributed time and local volunteers.

Other Investment: Other possible investments include program expenditure, research contracts and outreach expenses.

Possible sources of funding include grants from government and foundations; public and private partnerships with local broadband service providers; and contributions from local businesses.

Anticipated Impacts & Three-Year Objectives

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

- Expanded broadband adoption and use among low income households and populations with disabilities.
- Community “buy-in” to expand broadband services to targeted populations.
- Upgrade of broadband services at area libraries to at least 10 Mbps (preferably greater).
- Improved efficiency in the delivery of public programs for low-income households and households with disabilities throughout the region.
- Expanded business access to the regional workforce and improved income earning opportunities for individuals within target populations.
- Sustainable regional partnerships with collaboration to encourage the better broadband access and use throughout the region.

Three-Year Objectives:

The following PRELIMINARY objectives are targeted for Region 9 by 2014:

- Increase in the number of low-income households accessing and using broadband in each of the Region 9 counties.
- Increase in the number of people with disabilities accessing and using broadband in each of the Region 9 counties.
- The availability of an “affordable” broadband connection of a minimum of 10 Mbps for most libraries throughout Region 9.
- Expanded awareness of options enabled by broadband for all residents in Region 9 but among targeted populations in particular.
- Reduction in remaining broadband service gaps in the most rural areas of Region 9.

Monitoring and Evaluation

1) Subject to available funding, the LinkWISCONSIN/Public Service Commission Team will support Region 9 design and implement 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 development of a memorandum of understanding with local university campus providing student interns to support project activities, formation of local task groups and so forth. The LinkWISCONSIN/PSC 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 improving awareness of broadband opportunities among targeted

populations, or expanding bandwidth to area libraries. Impact data will go beyond outputs and outcomes to determine such things as the economic impact of more people with disabilities gaining jobs; energy savings and household savings from reduced commuting, improved efficiency in the delivery of health services to targeted populations, 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 context of existing library system and non-profit sector initiatives.
- Collaboration with local government, education and other key sectors.
- Engagement and partnership with area broadband service providers.
- Strong partnerships with on-going programs supporting targeted populations.
- Strong partnerships with area Regional Planning Commissions.
- 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 populations is building on existing resources. 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 load 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

Seven counties including Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha make up Region 9.

Milwaukee is the largest city in the region with a population greater than 600,000 people. Four more cities in the Region have an estimated population over 50,000 people, these include Waukesha, Kenosha, West Allis, and Racine. Several other communities in the

region including Brookfield, Wauwatosa, and Oak Creek have a total population between 30,000 and 50,000. Most communities in the region are smaller than 30,000 people with several communities smaller than 10,000 people.

Population

The total Region 9 population is just over 2 million in 2010. And approximately half of that population (947,735) live in Milwaukee County. Waukesha County is the second largest in the region with 389,891 people.

Four of the seven Counties in the Region grew faster than the state decade average of just over 6 % including Kenosha, Walworth, Washington and Waukesha Counties. Washington is the fastest growing county in the region with population increasing 12.25% over ten years.

Population in the Southwest region is more widely dispersed than the average for state. On average, about 31 people per square mile live in Southwest Wisconsin compared to an average of 86.3 people per square mile for the state. Population density is highest in Grant County at 41.4 people per square mile and lowest in Crawford County at 27.9 people per square mile.

Demography

16.1 percent of the population living in Southwest Wisconsin are 65 years or older compared to 13.3 percent for the state in 2008. Richland County has the highest

There is substantial variance in population density across Region 9, with population density of nearly 4,000 people per square mile in Milwaukee County compared to only 184 people per square mile in Walworth County. However, all seven Region 9 Counties have a higher population density than the state average of 105 people per square mile.

Demographics

With the exception of Racine and Kenosha Counties, educational attainment levels are generally well above the state average in Region 9. Statewide over 85 percent of the populations older than 24 has at least a High School Degree. In Racine County 82.9 percent of the population has a High School Diploma. In Waukesha and Ozaukee counties, the percentage of the population with a High School Diploma or higher is greater than 91 percent. The percent of adults with a Bachelor's Degree or Higher in the seven county Region is 25.6 percent compared to 22.4 percent for the state.

In all seven Region 9 counties, the number of people older than 50 years of age makes up a substantial proportion of the population and is among the most rapidly growing population segment. Nearly one-third of the Region's population is over the age of 50 in 2010.

Based on 2008 Census estimates, 90.1percent of the region's population are white compared to 89.7 percent of the state's population. In Milwaukee County, 25.7 percent of the populations are Black. In Ozaukee, Walworth, Washington, and Waukesha Counties,

the Black populations represent less than 2% of the total. Hispanics make up 12 percent of the population in Milwaukee County. Racine at 10.2 percent holds the second largest Hispanic population, still well above the state average of 5.1 percent Hispanic. The American Indian population in the Milwaukee Region is less than 1 percent.

Median Household Income

2008 Median household income for the Region 9 is \$60,352 compared with \$52,103 for the state. Highest median income for the state are in Waukesha County \$75,754 and Ozaukee County \$70,568. 2008 Median income in Milwaukee County is \$45,902, the lowest in the region. An estimated 8.6% of households in the region were below the poverty level in 2008 compared to 11.0% for the state. 2008 poverty levels highest at 17% in Milwaukee County followed by Kenosha, Racine, and Walworth Counties at 10% each.

Placeholder

Appendix B: Regional Economy

Economic Engines

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

2010 Region 9 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	1,707	-569	0.2%	0.8%
Construction	26,778	-15,506	2.9%	3.2%
Manufacturing	141,128	-27,473	15.5%	16.3%
Trade/Transportation & Utilities	164,835	-20,769	18.1%	19.0%
Information Services	16,433	-2,570	1.81%	1.8%

Financial Activities	58,667	-4,486	6.5%	5.9%
Professional/Business Services	113,589	-15,718	12.5%	10.0%
Educ./Health Services	162,228	8,651	17.8%	15.0%
Leisure & Hospitality	81,723	-10,866	9.0%	9.0%
Government	111,584	4,376	12.3%	15.4%
Other Services	30,835	-1,435	3.4%	3.2%
<i>Regional Total</i>	909,544	-86,372	100%	100%

Source: US Bureau of Labor and Statistics, 2007 - 2010

Total first Quarter 2010 employment for Region 9 is just over 900,000 workers. The Regional economy is relatively diversified with no major sector representing more than a fifth of the regions economy. The major sector Trade/Transportation and Utilities is the largest single sector with just over 18 percent of the regional workforce. This followed by the major sector Education/Health Services employing 17.8 percent of the workforce and manufacturing employing 15.5 percent of the workforce.

The national economic recession impacted all sectors of the regional economy. Only the major sectors of Education/Health Services and Government gained net new jobs between 2007 and 2010, and those gains were relatively modest. Overall the regional economy lost 86,372 net jobs between 2007 and the first quarter of 2010.

Economic Forecast

Overall the Wisconsin Department of Revenue projects economic growth for the Milwaukee-Waukesha and West Allis MSA moving into the future. Total non-farm employment is projected to grow at a rate in excess of 1.7 percent per year for the next three years.

Appendix C: Broadband Availability

Gaps in Broadband Service

A review of the LinkWISCONSIN interactive broadband map (<http://wi.linkamericadata.org/>) highlights gaps in broadband service within Region 8 Counties. 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) or 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 table below illustrates broadband access across the Region:

Percent Population in Census Blocks With Advertised Maximum Download Speeds Available At:

	Percent Population in Census Blocks With Advertised Maximum Download Speeds Available At:				
County	≥ 10 Mbps	3 to 10 Mbps	< 3 Mbps	Mobile Option Only	No Option Greater than 768 kbps.
Kenosha	98.1	1.8	0.0	0.1	0.0

Milwaukee	99.9	0.1	0.0	0.0	0.0
Ozaukee	98.4	1.4	0.1	0.1	0.0
Racine	98.4	1.6	0.0	0.0	0.0
Walworth	90.1	4.2	5.7	0.1	0.0
Washington	95.6	4.4	0.0	0.0	0.0
Waukesha	99.9	0.1	0.0	0.0	0.

Source: LinkWISCONSIN Broadband Provider Survey, 2010 data

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. It is also important to recognize in less densely populated areas, there is often a substantial land area involved even when only a relatively few people may live in underserved Census Blocks. Regional Broadband Team members knowledgeable of the region report there remain a substantial number of households that have dial-up as the only option.

In general the provider survey data for the Region indicates the vast majority of customers in the region live in Census Blocks with access to an advertised service option of 10 Mbps or greater.

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. Among nine regions, broadband adoption in Region 9 ranks 1st with 76% of the area population adopting broadband at home.

Barriers to Adoption

One factor impacting adoption in Region 9 is availability of broadband supply. As noted in Appendix C, broadband is generally available in all counties in the Region. However, there are a number of reasons in addition to availability that are barriers to adoption.

Among people living in Region 9 who do not presently use the Internet, the most frequently cited reason is they do not have a computer. Second is “too expensive”. The affordability of a computer is more difficult for lower income households and factors such as age enter into decisions to buy a computer. Other major reasons for not accessing the Internet are a lack of perceived value, lack of access to a broadband option and overall affordability.

Impact of Demographics

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 consumer survey data is not yet available for Wisconsin, 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 likely to differ among different areas and populations within the Region (See demographics in Appendix A).

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

As noted above a lack of computer at home is one of the most significant reasons cited for not using the Internet. More than 80 percent of Region 9 households 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.