

# Region 8 Broadband Investment Plan

Final- February 14, 2012

## Background

The Region 8 Broadband Planning Team has met regularly for approximately one-year beginning January 2011 to assess opportunities to improve the availability and adoption of affordable broadband services.

State of the art communications is an important asset to attract and retain leading edge industries such as higher education, bio-technology, information systems or precision manufacturing. However, the availability of affordable broadband communications supports the Region's economy and quality of life in multiple other ways. For example:

- Area farm operators can utilize web sites to advertise fresh products available for U-pick, at on-farm produce stands and at cooperative farmers markets.
- Businesses of all types can improve profitability by accessing information on best practices, finding the lowest price for supplies or tapping into new markets utilizing the web.
- Time, money and energy can be saved when area residents reduce daily commutes by teleworking from their home one or more days a week. When people work from home they are more likely to shop at local businesses.
- Scenic rural areas can be more successful attracting retirees (and their income) if area residents can access health services, manage finances and desired information on-line from home.
- Businesses can reduce workforce costs by providing work-site training options and recruiting employees on-line.
- Dairy farms can improve profitability by adopting modern video and web technologies to monitor and track production from the barn to the final market anywhere in the world.
- Unemployed and low-income residents can access education, job advertisements and other critical services to help them gain employment and contribute to the area economy.

In brief, the ability to access and effectively use broadband is an essential regional asset for both creating local economic opportunities and providing the means for area residents and businesses to participate in opportunities that are available. In a recent Brookings Institute Report, it is estimated that for every one percentage point increase in broadband penetration in a state, non-farm private employment is projected to increase by 0.2 to 0.3 percent.

The Region 8 Broadband Planning Team has chosen to focus this plan on a holistic assessment of current barriers to broadband access (both gaps in availability and adoption) in the Region. And then defining options (people, policies and programs) to address those gaps. While potentially applicable to other areas of the state, the scope of this plan is

intentionally focused on needs in Region 8 and in particular the application of broadband to improve the local and regional economies.

The primary anticipated outcome of this plan is consensus among area stakeholders (providers, business, agriculture, local government, education, energy, health care, libraries, non-profits, etc). Specifically consensus on actions with promise to improve both availability and use of broadband among individuals and businesses in Region 8 whose current access or adoption is insufficient to support economic opportunity. The context for identified actions will be specific scenarios relevant to underserved areas and underserved populations in the Region. The plan places emphasis on actions in the direct control of local stakeholders, while recognizing that broader state and federal policy decisions are a factor that frame local opportunities.

## Priority Need

The current rate of unemployment varies significantly across the Region 8 area. Dane County has the lowest unemployment rate in the state (5.3%) while the unemployment rate in Rock County is nearly double that rate at 10.2%. The current unemployment rate in all six outlying counties is greater than the state average.

Available jobs in a given county do not necessarily limit opportunities. Individuals cross county boundaries for employment. For example, 40 percent of the Jefferson County workforce commutes out of the county to jobs. Even so, the county level unemployment rates track reasonably closely with county level loss of non-farm jobs between 2007 and 2010. Three counties, Dane, Columbia and Sauk all had a smaller percentage job loss during this period than that state average. But again net job loss was substantially lower in Dane County and over three times larger in Rock County than in Dane County.

To the extent local economic decline in outlying counties of the Madison Area causes people to commute further for work, it also puts pressure on local community economies as out-commuters shop less in local businesses and eventually may move closer to their jobs. The result can be a cycle of economic decline for the smaller communities in the region.

While not a “cure-all” solution, available and appropriately utilized broadband communications can help expand economic opportunities in multiple ways as noted in the opening section of this plan. Broadband access however is not uniformly available throughout the region.

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
Columbia	74.9%	55.0%	0.0%	20.6%	100.0%
Dane	97.3%	95.6%	1.9%	1.2%	100.0%
Dodge	62.2%	81.8%	0.0%	50.5%	100.0%
Green	85.1%	60.6%	7.3%	0.0%	100.0%
Jefferson	73.8%	83.6%	1.0%	0.00%	100.0%
Rock	90.3%	90.8%	0.0%	0.0%	100.0%
Sauk	68.3%	71.8%	13.5%	92.6%	100.0

*Source: LinkWisconsin provider survey, April 2011*

The above table illustrates that the vast majority of the Region 8 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. On average, approximately 95 % 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 3 Mbps download speed or greater.

However, also as noted, broadband service is less available in rural less densely populated areas. This in part because the cost of providing broadband service increases substantially in less populated areas as there are fewer customers over which to spread the capital costs of deploying service and less revenue potential. Fixed wireless providers are in some cases helping to fill these gaps. A significant percentage of the populations of Columbia, Dodge and Sauk Counties have access to a fixed wireless broadband service option. While mobile wireless broadband service is becoming relatively universal throughout the region, various factors including terrain, foliage, lakes and other barriers can make access to such service spotty, especially in outlying areas. In addition many people do not have smart phones or other mobile devices that can take advantage of wireless broadband service when available.

Even in locations where broadband service is available, those services are not necessarily adopted. The Federal Communications Commissions collects information from providers estimating broadband subscription by Census Tract. Estimated broadband subscription rates by county in Region 8 calculated from the FCC data reports are compared in the table below.

Estimated percentage of households subscribing to broadband by county and comparison of Census Tracts with low and high rates of subscription

	Estimated BB Subscription Rate	Total Number of Census Tracts	Number of Census Tracts with:	
			Subscription rate < 40%	Subscription rate > 60 %
Columbia	45%	12	6	3
Dane	63%	92	19	45
Dodge	47%	20	6	3
Green	58%	8	0	4
Jefferson	55%	20	4	6
Rock	56%	36	8	12
Sauk	57%	11	4	3

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

Dane County has the highest estimated subscription rate with an average of 63% of the Counties households accessing a broadband service. Although even in Dane County, individual Census Tracts have lower rate of subscription. Approximately one-fifth of Dane County Census Blocks have estimated broadband subscription rates less than 40 percent. However, in approximately half of the Census Tracts in Dane County, at least 60 out of every 100 households subscribes to a broadband service and in a significant number of Census blocks more than 80 out of 100 households subscribes to a broadband service. Within outlying counties, not only is the estimated average subscription rate lower than Dane County, but there are also a significant number of Census Tracts with very low rate of broadband subscription. For example in half the Census Tracts in Columbia County, less than 40 out of every 100 households subscribe to a broadband service.

Service availability is one factor that impacts the level of broadband adoption in an area. However, the rate of adoption (or subscription) is influenced by many factors including such things as age, educational attainment and income. In general, everything else equal, people that are older, with lower levels of education and/or lower income are less likely to purchase a broadband service.

The above chart was assembled from result of a 2010 LinkWisconsin consumer survey for Region 8. Of particular note, among people in the region currently not using the Internet, nearly a third believe it is a “waste of time”. This percentage is double the state average. Also consistent with this finding, one-third of Region 8 consumers indicate “there is nothing that would convince them to subscribe to a broadband service” compared with one-fifth of consumers statewide. Other major factors include lack of a computer and expense. About one-third of Region 8 consumers indicate a “better price” would motivate them to subscribe to a broadband service.

## Overview of Regional Opportunity

The data presented above emphasizes that filling service gaps is only one aspect of the broadband challenge facing Region 8. To motivate the engagement of individuals, organizations and communities, the expanded availability and use of broadband must be meaningful to the Region’s and the localities’ futures. For this reason, the Region 8 Broadband Planning Team has chosen to focus this plan on development of a holistic approach to targeting appropriate strategies for applying broadband to address the area’s diverse economic needs.

Available and appropriately utilized broadband impacts the economy both directly and indirectly.

Over half the consumers in Region 8 identified the application of broadband to reduce healthcare costs as “very important” for the economy and 45% identified use of broadband to improve access to education as “very important”. Approximately one-third identified improving the perception of the area as good for business, improving farm operations and working at home as “very important” for the area economy.

When asked specifically how small business can be motivated to expand adoption of broadband, the majority of consumers surveyed responded “improve availability”.

This plan develops a template to organize people, encourage policies and leverage programs to advance broadband as a tool to improve the Region’s economy.

People: Successful local initiatives that advance broadband availability and use organize and build consensus among regional leadership on a shared direction. Example of key organizations to be engaged in Region 8 includes but is not limited to:

- THRIVE
- Capital Area Regional Planning Council and member local governments
- County Economic Development Consortium
- Area CESA and member K-12 school districts
- Regional Library System and member libraries
- UW-Madison, administrators, faculty and students
- Madison Area Technical College, administrators, faculty and students

- Farmer organizations
- Area Workforce Development Board
- Internet Service Providers at the local, corporate and foundation levels
- County-UW Extension Offices in each county
- Area non-profits
- Area Community Action Programs
- Community Chambers of Commerce and their members
- Wisconsin Rural Partners - Government offices at municipal, county and state level
- Community civic group members - Motivated citizens (especially those 'stuck with dial-up')
- Media organizations
- Hospitals and clinic administrators, boards of directors and foundations
- Broadband service providers
- Representatives of key state agencies such as Department of Public Instruction and Department of Administration.

Policies: Federal, state and local policies frame feasible actions and influence the motivations of local broadband service providers to invest in additional infrastructure.

Local policies include such things as:

- Facilitate provider access to right-of-way for deployment of towers and other communication infrastructure;
- Reduce the cost of maintaining the sidewalk, pavement and public facilities located within the public right-of-way by facilitating provider coordination to minimize the number of pavement cuts and dislocation of other public facilities necessitated by the construction or installation of fiber optic facilities.
- Incorporate broadband infrastructure within local comprehensive plans; or
- Acquire and promote utilization of broadband services within local government facilities.

State policies include such things as:

- Acquire or build dedicated communication infrastructure serving public facilities (such as BadgerNet and WisNet);
- Include broadband availability and use within state economic development planning initiatives;
- Allow providers to access and use right-of-way on state controlled lands to deploy communications infrastructure;
- Legislative actions that limit or expand private provider obligations; or
- Establish targeted subsidy programs such as a state "universal service fund" to incent more broadband deployment in underserved and unserved areas of the state.

Potential Federal policies are outlined in detail within the National Broadband Plan and include such things as:

- Design policies to ensure robust competition and, as a result maximize consumer welfare, innovation and investment;
- Ensure efficient allocation and management of assets government controls or influences, such as spectrum, poles, and rights-of-way, to encourage network upgrades and competitive entry;
- Reform current universal service mechanisms to support deployment of broadband and voice in high-cost areas; and ensure that low-income Americans can afford broadband; and in addition, support efforts to boost adoption and utilization; or
- Reform laws, policies, standards and incentives to maximize the benefits of broadband in sectors government influences significantly, such as public education, health care and government operations.
- Programs: Targeted programs can help improve the availability and adoption of broadband. Examples include:
  - Public/private partnerships to access federal grants available to encourage expanded broadband infrastructure deployment in underserved and unserved areas.
  - Information and awareness programs designed to encourage business adoption and use of broadband.
  - Delivery of technology skills training including partnerships with libraries and non-profits managing public computing centers
  - Public/private partnerships providing discounted computers and discount service for targeted populations.

Region 8 has the capacity to bring together these elements of people, policies and programs to expand economic opportunity in targeted geographies and among targeted sectors within the Region. The appropriate geographic focus for initial implementation depends in part on the availability of local champions to move an initiative forward. Leadership of The Jefferson County Economic Development Corporation has already stepped forward as one organization with interest providing an “enabling catalyst” for local implementation of a Region 8 model.

## Proposed Broadband Investment

Additional regional investment is needed to improve both availability and use among those in Region 8 that presently lack adequate access to broadband necessary support economic opportunity.

The following table provides an overview of key planned investments:

Type of Investment	Activities	Responsibility
Leadership	• Establish commitment from	• Convening leadership group TBD.

	<p>appropriate leadership organization.</p> <ul style="list-style-type: none"> <li>• Solicit and manage regional partnerships.</li> <li>• Apply for and manage grants if needed.</li> <li>• On-going communication.</li> </ul>	
Consensus Strategy Formation	<ul style="list-style-type: none"> <li>• Refine understanding of area broadband service gaps (both availability and adoption) currently a barrier to economic opportunity in Region 8.</li> <li>• Assess realistic options (policy and programmatic) to address identified service gaps.</li> <li>• Facilitate consensus on priorities for initial action.</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate facilitating organization such as La Follette School of Public Affairs or higher education.</li> <li>• UW or other partner to help support data and research needs.</li> <li>• Broadband demand research tools provided by PSCW/LinkWisconsin</li> </ul>
Targeted Field Application	<ul style="list-style-type: none"> <li>• Implement at least one targeted application to demonstrate and refine Region 8 strategy.</li> <li>• Assess opportunities for replication.</li> </ul>	<ul style="list-style-type: none"> <li>• County Economic Development organizations and/or sector focused leadership such as farmer organizations.</li> </ul>

# Key Tasks and Timeline

## Phase 1- Convene Area Leadership

Summer 2011 and ongoing

**Task 1.1.** A regional organization with appropriate mission and resources will be assigned the responsibility to convene a “regional leadership group” to guide the implementation of the plan. The leadership group will at a minimum include representation from Madison Area economic development organizations, small business, k-12 schools, higher education, farmer organizations, libraries, non-profits, local government, health care and broadband provider representatives.

**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. In particular, the Madison area has a number of individuals and organizations with experience in the development of broadband communications policy and programs. However, it is recognized that additional financial resources may be needed to pay for such things as a part-time staff person to manage the work of volunteers and oversee activities. To the extent paid staff is needed, it is preferred that he or she be located within an existing organization to minimize additional resource needs.

**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 – Consensus Strategy Formation

Fall 2011 – Spring 2012

**Task 2.1.** Additional research will be implemented to refine understanding of broadband service gaps (both availability and adoption) that presently limit economic opportunity in the Region. LinkWISCONSIN will continue to support the Region with access to provider service data and provide access to additional data on broadband adoption where available. An appropriate partner from the UW or the Madison Area Technical College will be sought to provide faculty and student resources to help in refining data collection and analysis as needed. Local Economic Development organizations (such as the Jefferson County Economic Development Consortium) as well as area resources such as libraries and non-profits will be encouraged to participate by sponsoring local-based public meetings throughout the region to better understand the service gaps presently limiting economic opportunity and potential actions that offer the greatest promise to address those gaps.

**Task 2.2.** The leadership team will identify and recruit a team of local “experts” with experience in broadband application and policy from the Region 8 area. Potential resources include higher education, state agencies, volunteer consultants and others. This “expert”

team will initially be assigned the task of identifying both policy and programmatic options to expand broadband availability and adoption in underserved areas. Examples of options to be considered include but are not limited to:

- Innovative community driven initiatives;
- Best practices in broadband adoption for sectors such as small farms, dairy or small business; or
- Policy innovations such as the establishment of a state universal service fund directed to improving the business case for broadband infrastructure investment in underserved rural locations.

The work of the expert team will be guided by the specific Region 8 framework defined by research accomplished in Task 1.2. A brief whitepaper will be prepared highlighting relevant options and recommendations for priority actions.

**Task 2.3.** An appropriate partner within the region will be recruited to facilitate key stakeholders included on the Leadership Team (formed in Phase 1). Specifically the goal of facilitators will be to design a consensus strategy to improve both availability and use of broadband among those in Region 8 that presently lack adequate access necessary support economic opportunity. The whitepaper developed by the expert team will provide a starting point for the consensus process. The resulting strategy will be one that is actionable in that it will include well defined steps that can be undertaken by Region to advance the overall objective of improving the availability and adoption of broadband for the betterment of the area's economy. Defined actions may also include longer-term advocacy of policy reforms supporting the local strategy, but directed to a wider audience such as the state legislature, the Federal Communications Commission or others.

### **Phase 3. Targeted Field Application**

Spring 2012 and beyond

**Task 3.1.** The consensus strategy developed in Phase 2 will be implemented and refined by at least one geographic area or potentially economic sector in Region 8. As noted above in this plan, the Jefferson County Economic Development Consortium has stepped forward as on geographic location interested in participating. Other possibilities include a specific sector such as improved access and adoption within presently underserved or underserved farm operations. Multiple applications are possible depending on local resources and interest.

**Task 3.2.** Identified local partners will provide the leadership to implement initial field applications of the Region 8 strategy. The details will be developed as a result of Phase 2 in this plan along with the needs of partnering regions or sectors.

**Task 3.3.** As noted below in this plan, the initial field applications of the Region 8 strategy will be carefully monitored and evaluated to further refine the strategy and explore opportunity for replication in other geographic areas both within Region 8 and other areas of the state.

## 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 will be determined over the course of the project.

**Equipment and Supplies:** No major equipment or supply anticipated for this project.

**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, most of the key tasks are expected to be accomplished using contributed time from local businesses, organizations and households.

**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

### 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:

- Expanded community and business awareness of broadband benefits including such things as business development, telecommuting, farm applications and others.
- Reduction of broadband service gaps, especially in outlying rural counties of the Region 8 area.
- Better availability of “affordable” broadband options throughout the region.
- Better inclusion of broadband availability and adoption considerations within area comprehensive planning and economic development activities.
- Improvement of broadband subscription rates among households, farms and other businesses in areas with low current adoption.
- Successful advocacy of innovative policy reforms to incent provider investment in unserved and underserved areas.

- Reduction in broadband service gaps in low-density areas.
- Sustainable regional partnerships with collaboration to encourage the better access to broadband supporting economic opportunity,

### **Three-Year Objectives:**

The following PRELIMINARY objectives are targeted for Region 8 by 2014:

- Key stakeholder consensus will be reached on policy and programmatic actions most effective to advance broadband access supporting local economic opportunity.
- At least one specific consensus policy reform to support improved broadband availability and/or adoption will be articulated and advocated at the local, state or federal level.
- Business and household surveys will demonstrate expanded community and business awareness of how broadband can be applied to support economic opportunity
- At least one field application of the consensus Region 8 strategy will be implemented in the Region and measurable benefits including expanded availability and adoption will be achieved.
- Broadband infrastructure and adoption goals will be incorporated into the majority of updated comprehensive and economic development plans updated by 2014 within Region 8.

## **Monitoring and Evaluation**

Subject to available funding, the LinkWISCONSIN/Public Service Commission Team will support Region 8 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.

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 to help with survey research, formation of local task groups, collection of baseline data on business broadband access and adoption, and so forth. The LinkWISCONSIN/PSC Team will create on-line tools to support this necessary data collection.

The evaluation process will focus initially on outputs and outcomes defined by the above objectives. For example identifying expanded awareness of broadband opportunities among area farm operators, or assessing additional broadband connections to area businesses as well as the uses of those connections. 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.

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

# Sustainability Plan

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 planning and economic development initiatives.
- Collaboration with area higher education.
- Engagement and partnership with area broadband service providers.
- Strong partnerships with area County-level economic development corporations and business associations.
- Strong partnerships with area Regional Planning Commissions.
- Outreach and engagement to appropriate state government entities and legislative audiences.

In short, the strength and sustainability of the project to expand broadband investment targeted to rural businesses 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 load resources for infrastructure, the chances of success will be enhanced.

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, Columbia, Dane, Dodge, Green, Jefferson, Rock, Sauk Counties make up the South Central Region (Region 8). Centrally located in the South Central Region, Madison, the capitol of Wisconsin, is the largest with over 230,000 people. Other than Madison, only Janesville and Beloit have more than 30,000 residents. Several cities have a population between 10,000 and 30,000 people. Even more cities and towns in the region are generally smaller than 10,000 people.

### **Population**

The 2010 US Census of Population reports 976,500 people live in Region 8. Approximately half of those people live in Dane County. Overall, regional population increased by more

than 10 percent between 2000 and 2010. Population grew in all seven Counties over the last decade with the fastest percentage growth rate occurring in Dane County and the lowest percentage growth rate occurring in Dodge County.

Population density also differs substantially across the region. In Dane County, there are almost 400 people per square mile, followed by Rock County with 220.6 people per square mile and Jefferson County with 138.7 people per square mile. On the other end of the spectrum, Columbia, Green, and Sauk Counties have less than 70 people per square mile. Overall, average population density for the region approximately 150.4 people per square mile compared to about 86 people per square mile for the state.

### **Demography**

Overall, the population for the South Central Region is less racially diverse than for the state as a whole. According to 2008 Census estimates, 95.3% of the region's population are white compared to 89.7% of the states population that are white. There are racial diversity exceptions among individual counties. Notably, 4.6% of the Dane County population are Asian and 5% are Hispanic. Hispanics represent 6.3% of the population in Rock County and 5.8% of the population in Jefferson County compared to 5.1% of the states population. The largest population of American Indians in the region is approximately 1% in Sauk County compared to an average of 5.5% of the state's overall population.

Overall, population density in Region 8 is higher than the statewide average. Within the Region the average is 177 people per square mile compared to 105 people per square mile for the state. However there is substantial variance with 408 people per square mile in Dane County and only 63 people per square mile in Green County.

### **Demographics**

In general, high school graduation rates are higher for Wisconsin than for the nation. 85.1% of Wisconsin residents have a high school diploma or higher compared to an 80.4% for the nation. Educational achievement for Region 8 is consistent with this trend. Dane County also has the highest percentage of the population with a Bachelor's Degree or greater at 40.6% compared to Columbia, Green, Jefferson, Rock and Sauk Counties which range between 17.6 and 16.7%. Dodge County falls slightly lower than the rest at 13.2%.

### **Income**

2007 average per capita income for Region 8 is \$34,948 compared to \$36,272 for the state. Dane County has the highest 2007 per capita income estimated to be \$43,617. Dodge, Green, Jefferson, Rock and Sauk Counties each have estimated 2007 per capita income ranging between \$30,000 and \$34,000. Columbia County has the second highest 2007 per capita income in the region at \$37,230.

## **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 8 Employment by Major Sector

<b>Economic Sector</b>	<b>Q1 2010 Regional Employment</b>	<b>Employment Change 2007 - 2010</b>	<b>Sector % of Regional Total (2010)</b>	<b>Sector % of State Total (2010)</b>
Natural Resource and Mining	3,924	-209	0.8%	0.8%
Construction	15,718	-9,442	3.3%	3.2%
Manufacturing	59,997	-15,782	12.6%	16.3%
Trade/Transportation & Utilities	86,022	-9,521	18.1%	19.0%
Information Services	12,732	144	2.7%	1.8%
Financial Activities	30,497	-1,662	6.4%	5.9%
Professional/Business Services	45,499	-4052	9.6%	10.0%
Educ./Health Services	59,136	3,343	12.4%	15.0%
Leisure & Hospitality	45,884	-3,973	9.6%	9.0%
Government	101,546	4,496	21.3%	15.4%
Other Services	15,500	-650	3.3%	3.2%
<i>Regional Total</i>	476,471	-37,290	100%	100%

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

Total first Quarter 2010 employment for Region 8 is just over 476,000 workers. Approximately sixty percent of the Region's employment is based in Dane County. With the

State Capital and a major university, state government employment represents a significantly larger share of total employment than is the average for the state employing over one-fifth of the Region's work force. Health Care, Professional Services, Financial Services and Trade also are large significant employing sectors for the Region. Not reflected in the above statistics is the important farm and agriculture sector. Particularly in outlying rural areas, agriculture is an important component of the Region's economic base.

The national economic recession impacted all sectors of the regional economy. Overall 37,290 net jobs were lost from the Region 8 economy between 2007 and March of 2010. Only the major sectors of Education/Health Services, Information Services and Government gained net new jobs between 2007 and 2010, and those gains were relatively modest.

### **Economic Trends**

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 South Central Region is a part of the South Central Workforce Development Region including Columbia, Dane, Dodge, Jefferson, Marquette, and Sauk Counties, not all Region 8 counties are included in this Workforce Development Region. The following table identifies the projected employment change by major sector for the South Central 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 period beginning in 2006 and ending in 2016. Notably the Information/Prof. Services/Other Services Sector is expected to continue to also add net jobs over this same ten year period. In contrast, the national and statewide trend of declining manufacturing employment is project to continue to impact South Central Region employment. Between 2006 and 2016, manufacturing employment is projected to grow only by 0.4% for the South Central Region of that machinery manufacturing is expected to decline -5.1%.

### **Major Employers**

The top five employers in each county listed above typically employ at least 250 people and often more than 500 with a few up to 1000 people. These employers are reflective of the regions economic drivers described above, led in particular by trade and transpiration, manufacturing, health care and education.

### **Workforce Challenges**

NOTE OCCUPATIONAL PROJECTIONS FOR WORKFORCE DEVELOPMENT REGIONS ARE AVAILABLE IN EXCEL FORMAT AT

[http://dwd.wisconsin.gov/oea/employment\\_projections/south\\_central/](http://dwd.wisconsin.gov/oea/employment_projections/south_central/)

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

- Total, All Occupations net new jobs 39,720
- Healthcare Practitioners and Technical Occupations net new jobs 4,300
- Food Preparation and Serving Related Occupations net new jobs 4,180
- Office and Administrative Support Occupations net new jobs 3,650
- Healthcare Support Occupations net new jobs 2,730
- Business and Financial Operations Occupations net new jobs 2,580
- Personal Care and Service Occupations net new jobs 2,560
- Education, Training, and Library Occupations net new jobs 2,350
- Building and Grounds Cleaning and Maintenance Occupations net new jobs 2,310
- Community and Social Services Occupations net new jobs 2,270

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, library occupations or Business & Financial Occupations will require workers with higher levels of education. Others such as grounds maintenance and food preparation and serving occupations may require less formal post high school education.

Overall the occupational and industry trends framing economic development in the South Central 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 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 (uploading). 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 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:

County	Percent Population in Census Blocks With Advertised Maximum Download Speeds Available At:				
	≥ 10 Mbps	3 to 10 Mbps	< 3 Mbps	Mobile Option Only	No Option Greater than 768 kbps.
Columbia	66.8	15.9	17.3	15.6	0.0
Dane	97.3	1.7	1.0	1.0	0.0
Dodge	81.4	13.3	5.2	4.9	0.0
Green	88.6	3.0	8.4	7.7	0.0
Jefferson	86.2	3.7	10.2	9.8	0.0

Rock	93.2	1.4	5.5	5.5	0.0
Sauk	75.1	17.3	7.6	3.6	0.0

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.

## 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 8 ranks 3rd with 66% 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 8 who do not presently use the Internet, the most frequently cited reason is they believe it is a waste of time. Second is they do not have a computer and third is that it 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. Notably more than twice the percentage of people not using the Internet in Region 8 cite a

belief that going on-line is a waste of time than is the average for the state indicating a lack of perceived value.

### **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).

### **How People Access the Internet**

Broadband adoption is also impacted 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. Nearly 80 percent of Region 8 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.