



Information Technology Assessment and Plan for the Northeast Region

Introduction

Broadband high-speed Internet access is transforming Nebraska's economy and society. Businesses are using the technology to become more efficient, reduce costs, expand their markets and increase revenues. New technologies are expanding social opportunities and enhancing quality of life for Nebraskans.

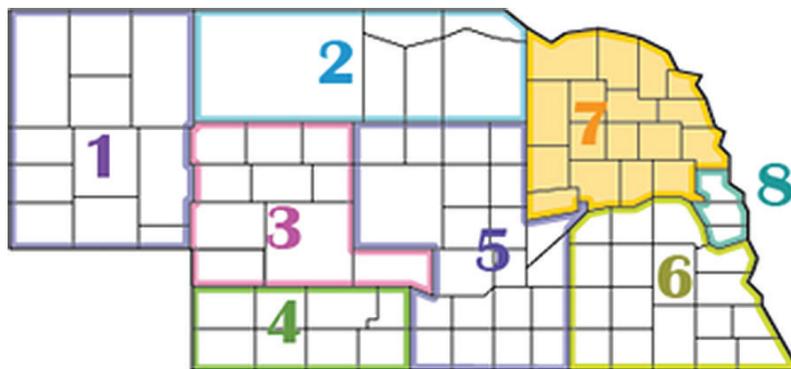


Figure 1. The Northeast region of Nebraska

Adoption and use of broadband in Northeast Nebraska is evolving. People and businesses are somewhat satisfied with the speed and connectivity of the Internet. They use many of the first generation tools and applications, if not daily at least periodically, to manage their lives. Much of the data and video transferred is one-directional, meaning downloaded to computers; however, use of smart phones and tablets is increasing. Facebook is the social media of choice and is used primarily as a tool for connecting/communicating with friends and family.

These changing conditions are pushing communities to seek ways to become “e-communities,” defined as communities that are aware of their diverse information technology needs and that strategically plan to use these technologies to meet their future economic, community and social development needs. Leadership of e-communities is also planning how to use information technology to recruit and retain youth and grow businesses.

Planning Process

Interested residents from Knox, Cedar, Dixon, Dakota, Antelope, Pierce, Wayne, Thurston, Boone, Madison, Stanton, Cuming, Burt, Nance, Platte, Colfax and Dodge counties (see Figure 1) participated in a number of information-gathering activities. This report summarizes input collected and subsequent priorities determined as a result of information gathered at those events. Ten people served on a regional planning team with a regional coach. They coordinated the events and information gathering.

Forty-six people participated in a kickoff regional forum on March 23, 2011, that offered businesses and residents from across the region the opportunity to learn about the Nebraska Broadband Mapping and Planning Initiative. Survey results from an initial household survey were shared, and the statewide broadband coverage map was introduced (see Figure 2).

Planning team members believed that adoption might be lagging, particularly for government, agriculture and business. The consensus was that broadband is critical for economic development, as well as retaining youth (29% of the region's population is age 19 and under) and attracting young families (23% of population is 20 to 39 years old) back to the region. The committee's desire was to facilitate interviews or surveys with these populations to determine exactly how they use broadband and how it benefits them.

The team also reviewed existing household survey data and analyzed regional data from statewide surveys of county and municipal officials, economic development professionals and teachers. In addition, the team initiated other activities that included a survey of high school-age youth; a focus group with ag producers and the Northeast Nebraska Education Technology Association members; face-to-face programs with parents to assess their use of broadband; and informal interviews with personnel in 15 manufacturing and service businesses. While the surveys and interviews didn't identify broad constraints, public officials participating in the government surveys indicated challenges related to funding, staffing, skill level/knowledge base and upgrades in equipment.

In March 2013, a listening session with the Northeast Nebraska Development Network membership identified the need to promote broadband adoption and utilization as an incentive for economic development. The session, conducted by UNL Extension, identified the following points specific to broadband and other technologies:

- Information technology and broadband access can help diversify the regional economy with healthcare, agriculture and manufacturing.
- Technical assistance and education are needed to operate new applications.
- The need for broadband and the applications it facilitates will increase.
- Incorporate technology into education at a younger age and aim for computer access ratios of 1 to 1 in schools.

The collaborative approach to this planning process has encouraged the Northeast Nebraska Economic Development District to integrate broadband adoption and utilization into its Regional Blueprint for Sustainability Initiative, a comprehensive planning effort to guide future economic development for 17 counties.

Areas where broadband can directly impact the future of the Northeast region

The planning team identified areas and trends where broadband access could directly impact the future of the Northeast region. They are listed here.

- Education
 - Enhanced opportunities for teachers to integrate online media and virtual classrooms with instruction and learning by students in the physical classroom. Taking courses for personal and career development not offered in school.
- Entertainment
 - Transition of television to real-time entertainment (download what you want, when you want, where you want), uploading of real-time video and interactive virtual gaming.
- Agriculture
 - Managing inputs, tracking machinery use and maintenance, environmental assessments.
- Healthcare
 - Enrollment and management of individual and small group health insurance as set forth by the Patient Protection and Affordable Care Act.
 - Expanding healthcare networks beyond trade centers to rural areas by continuing to close the connectivity gap for small and medium size providers.
 - E-care or the use of video, data and images for patient health monitoring and decision support.

- Energy
 - The use of broadband to allow consumers to communicate with smart meters connected to homes and businesses to automatically manage lights, thermostats and appliances.
 - Communicating with the smart grid for distribution of wind power.
- Government
 - Emergency management for natural disasters; homeland security
 - E-commerce, public input, etc.

Household Survey Results (2010) for Region

The 2010 household survey found that location matters in broadband adoption. About 72 percent of residents in the Northeast region have adopted broadband compared to 76 percent statewide and 82 percent of metropolitan households. Statewide, most households expressed satisfaction with the reliability, speed and support of their Internet service. However, 64 percent of Northeast region residents were satisfied with the speed of their Internet service, compared to 70 percent of Omaha residents.

Over one-third (36%) of Northeast region residents are satisfied with the types of Internet services available in their community, compared to 43 percent in the Omaha metro area. Approximately two in 10 Northeast region residents think the current services are very adequate for attracting new residents (21%) or for future generations (19%). Statewide, 46 percent of households say there are free public “hotspots” available in their community; 32 percent of Northeast region residents say they have free public “hotspots” in their community.

Mapping Wireline and Wireless Coverage in Nebraska

The Nebraska Broadband Mapping Project provides statewide coverage maps, available online at broadband.nebraska.gov/mapping. The State of Nebraska created this site to offer information regarding broadband availability and planning activities to its citizens. Collaboration among the state, federal government, broadband providers and community organizations makes possible an up-to-date representation of broadband availability through an interactive map.

Figure 2 shows wireline and wireless coverage for the state as of Dec. 31, 2012. The green shading represents the fixed wireless coverage; blue represents mobile wireless coverage; red represents DSL wireline coverage; lavender represents fiber wireline service; and orange represents cable wireline coverage. The interactive map allows users to select individual service options or see combinations, with county and regional boundary indications. In addition, the map includes the option to gauge available Internet speed and identify provider options by address. More details on mapped service coverage are included in the guide at the left of the state map. Unshaded areas represent the unserved areas of the state. The map shows that the majority of the Northeast region is covered by cable, DSL, fiber or fixed wireless in addition to mobile wireless.

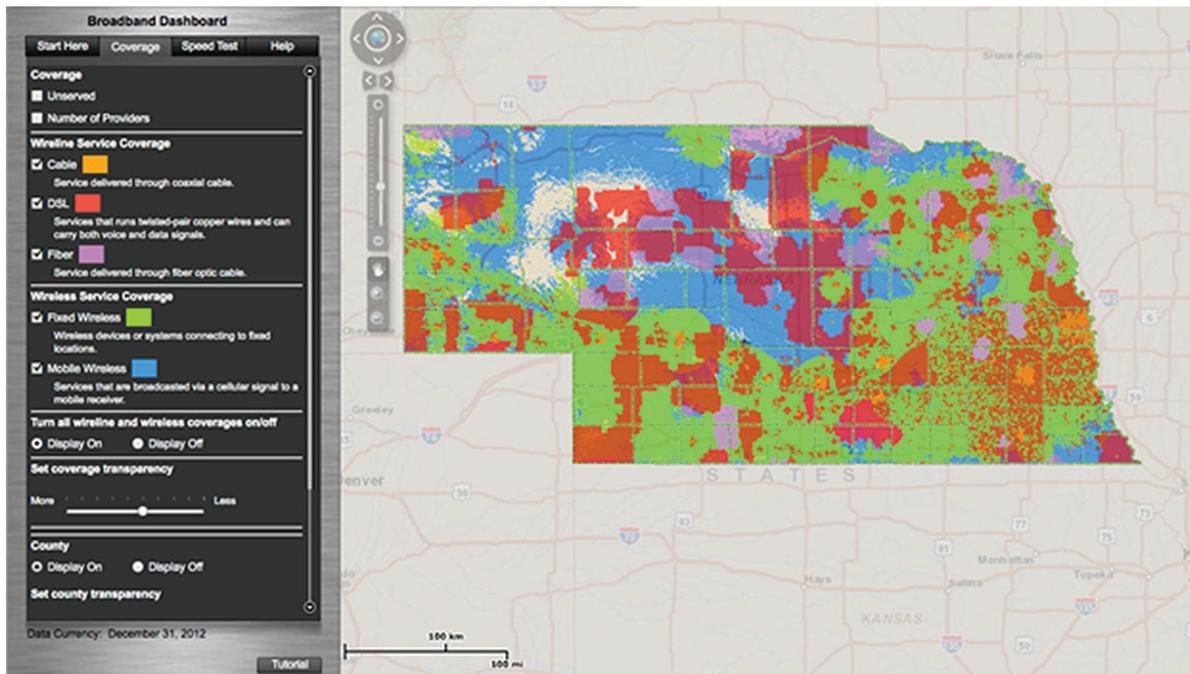


Figure 2. Broadband wireline and wireless coverage in Nebraska

The map in Figure 3 provides a better view of areas in the Northeast region that are currently unserved (dark purple shading). According to data collected, the Northeast region has very few locations that are unserved. While areas of the region may be pushing for higher speeds, overall there are options for broadband.

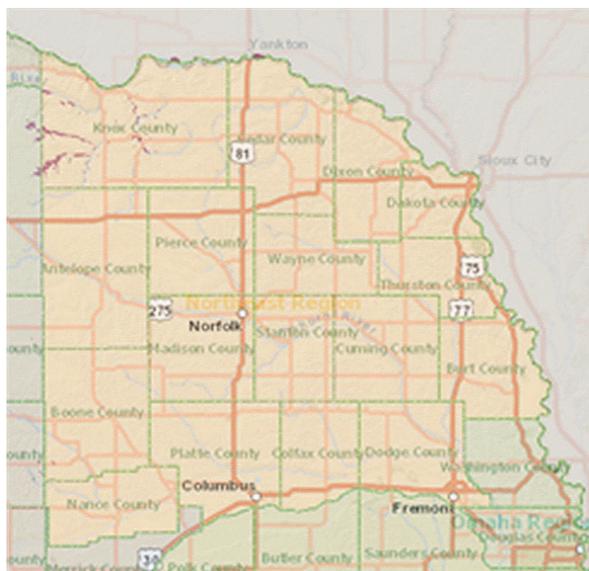


Figure 3. Unserved areas in northeast region (no broadband services available in shaded area)

Northeast Region Broadband Vision Statement and Goals

Providers, residents, businesses and local officials work closely to ensure broadband access is reliable and affordable, that adoption is facilitated by awareness and educational opportunities, and that the technology can be used to stimulate regional growth.

Key goals set by the regional planning team include determining the current status of broadband adoption and utilization, and promoting broadband connectivity as an incentive for rural economic development and the attraction/retention of youth and young families. Involving youth in this process is another key goal cited by the regional planning team.

The successful realization of this vision, and the growing success of the region depend on reliable and affordable access to broadband services by all geographic areas.

Priority Areas

Working in three priority areas, the planning team hopes to stimulate broadband awareness, adoption and utilization. The priorities are:

Priority 1: Work with telecommunications providers and other stakeholders to ensure the availability and affordability of quality broadband for all — *Identify new ways to collaborate to build broadband infrastructure, increase digital literacy and encourage the provisioning of broadband services at a fair range of affordability.*

Priority 2: Promote broadband adoption as an incentive to retain and return increasing numbers of rural youth and working age adults — *Determine current broadband capacity and establish benchmarks, and provide broadband and technology education.*

Priority 3: Promote broadband adoption and utilization as an incentive for economic development — *Objectives focus on strengthening the case for adoption by demonstrating how it can make a real difference (i.e., technology education and creating IT jobs).*

Access to affordable and reliable broadband services

Broadband is as important to the region as roads were in the 20th century. While the current infrastructure is somewhat adequate and much better than the FCC definition, there's a need for increasing the integration and build-out of multiple technologies (fiber, wireless and cellular) to accommodate the more sophisticated and intensive applications that are required for the next level of adoption.

Two years ago the broadband planning committee perceived that broadband access for most of the anchor institutions (education, hospitals, government) in the region was being adequately met. Residents within city limits had access to at least fixed wireless, cable-modem or DSL technology. However, there was (and still is) concern about access to the last mile or to the farms and ranches that produce much of the state's economic wealth.

The group felt that adoption might be lagging particularly for government, agriculture and somewhat for business. The consensus was that broadband is critical for economic development, as well as retaining youth (29% of the region's population is age 19 and under) and attracting young families (23% of population is 20 to 39 years old) back to the region. The committee's desire was to facilitate interviews or surveys with these populations to determine exactly how they use broadband and how it benefits them.

It is important to work with telecommunications providers and other stakeholders to ensure the availability of affordable and reliable broadband services for all.

Brief summary of strengths, issues and needs

Northeast Nebraska is still developing in terms of its adoption and use of broadband. To increase adoption broadband must be affordable and reliable. With median household income no more than \$40,000 for families in this region, affordability could become a constraint in the adoption of more data intensive applications.

The Northeast planning team identified broadband as critical for economic development, as well as for retaining youth and attracting young families back to the region.

Action Plan

Leadership in the region must find new ways to collaborate to build broadband infrastructure, encourage availability of broadband services at a fair range of affordability, and increase digital literacy.

- Encourage communities, service providers, industry and other stakeholders to strategize and implement plans for building out the fiber backbone to increase local capacity.
- Work with local private and public sector partners to develop new models for financing and managing local broadband networks.
- Work with local private and public sector partners to identify unserved and underserved portions (last mile) of the region and deploy reasonable infrastructure to meet at least basic communication needs.
- Initiate an awareness campaign by encouraging public and private sector websites to add a link to the Public Service Commission Broadband Mapping Tool.
 - Provide a plug 'n play program with literature explaining how to use the broadband mapping website for use by chambers of commerce, community clubs and other groups.
- Increase demand for broadband by improving digital literacy. Strengthen the case for adoption by demonstrating how it can make a difference.
 - Educators must make a case for broadband in terms that people in the region relate to. Answers to “what’s in it for me” have to be tangible and address immediate needs. Education has to be customized and specific to an audience. It needs to be presented in terms of profitability, savings and efficiency.
 - Encourage public officials to allocate resources to increase digital literacy. This may include:
 - increasing library budgets;
 - adding public access and providing training for all audiences;
 - adding line items for e-commerce and other applications citizens can use for interacting with government to county and municipal budgets;
 - using the funding initially for rebuilds of websites;
 - negotiating inter-local agreements with other government entities to fund/hire IT professionals.
- Maintain current levels of in-home broadband access for minimizing the loss of any economic opportunity from education, home-business and job searches. Also maintain current levels of access for the significant retired and aging population in the region.

In a free market economy it is acknowledged that it is not the provider’s responsibility to make all the services affordable, a very subjective term; it is the users’ responsibility to budget and allocate available funds. However, current and potential broadband consumers can work with providers to establish a reasonable and fair range of affordability based on population and income data for the region; critical need; use and application; amount and rate of data transfer; and market rate.

Promote broadband adoption as an incentive to attract and retain youth and young families

Brief summary of strengths, issues and needs

As indicated by the 2010 Census, one-third of the population in the region is 19 and younger. Lack of broadband capacity and speed could inhibit this population from staying or returning to the region.

With help from the school systems, a survey of high-school-age youth was conducted (n=317). Youth in the region use a variety of devices to connect to the Internet daily to perform many tasks. Almost three-fourths of Northeast Nebraska high school students who answered an online survey in the spring of 2012 reported having a laptop computer at home. A little less than half (45.4%) had smart phones, and over half had a gaming system (59.8%). Even though tablets had just entered the marketplace, over 20% reported having one. Over two-thirds (68%) reported spending one to three hours or more using their home Internet connection daily. Over 80% of the respondents reported using the home connection for connecting to social media, performing school work and watching YouTube. Over 65% reported shopping online and downloading music. Almost 9% were engaged in distance education. While 31% reported having no opinion, 57% of the respondents reported that having broadband in their community would help entice them to live and work here.

Action Plan

The planning team identified a short term goal of determining current capacity and a long-term goal of planning a robust expansion of the current broadband services. The planning team also set 5 and 10 year benchmarks to double and/or triple current capacity.

- Ask all levels of government to allocate resources for broadband expansion and to work with service providers to:
 - Lay fiber in conjunction with street construction and housing development to increase fiber to home and business
 - Build local networks to support entrepreneurs and new business startups and
 - Provide broadband/IT education specifically for young agriculture producers who are transitioning to take over management responsibilities from farmers and ranchers preparing to retire.

Promote broadband adoption and utilization as an incentive for economic development

The region has identified economic development and e-commerce as priorities. This region has a number of strengths, resources and assets that can be leveraged to enhance economic and e-commerce development by the adoption and use of broadband technologies.

Brief summary of strengths, issues and needs

Fifteen economic development professionals in the region participated in a statewide survey of the Nebraska Economic Development Association. Only two of the 15 have or will have some aspect of broadband in their economic development plans. Asked if high-speed Internet services were being used to attract businesses and employees, 46% indicated not at all effective to being slightly effective, while 52% indicated being more than slightly effective to very effective. Almost two-thirds indicated that it was not at all effective to only slightly effective at retaining businesses or making them more competitive and or profitable. Nearly three-fourths (73%) indicated that it was not at all to slightly effective in increasing business startups and home-based businesses. Most (52%) felt that

high speed Internet was helping to improve job skills and professional development. Almost 47% indicated that it was helping to attract tourism.

Action Plan

Actions center on strengthening the case for adoption by demonstrating how it can make a real difference. This involves identifying current capabilities, enhancing job creation, and providing IT educational opportunities.

- Identify training needs related to basic and advanced IT applications; work with community colleges, libraries and other education providers to coordinate and deliver training.
- Provide technology education as part of workforce development.
- Encourage businesses to use consultants to determine how to use sophisticated broadband applications and cloud computing to increase profits.
 - Coordinate opportunities for businesses to come together with consultants to analyze operations and to develop strategies for incorporating broadband applications.
- Determine broadband engineering requirements for facilities related to manufacturing and light industry for the next 5 to 10 years.
- Compare proposed specifications with existing available networks (fiber, wireless and cellular); work with stakeholders to overcome connectivity gaps.
- Work with regional leadership to create IT jobs by integrating information and data management into business planning and operations, rather than treating it as an add-on responsibility with low priority.
 - Engage and encourage businesses to develop short and long-term broadband goals around application and data management.

Conclusion

This document reflects the current status and identifies future broadband technology needs of the Nebraska Broadband Initiative Northeast Region. The content has been developed with the input and assistance of residents of the Northeast region. Changes to this plan will occur due to the dynamic nature of the technologies and the implementation of the action plans. Your input and feedback may stimulate and contribute to updates in the regional plan. Share feedback on this plan with Carroll Welte, North Central regional coach, by phone at 402-374-2929, or by email at cwelte1@unl.edu.

Broadband is changing everything — education, business, government, healthcare, etc. Everyone in the region is a stakeholder; directly or indirectly, one way or another everyone is affected by broadband.

Therefore implementation of this plan is not the sole responsibility of any one group or agency in Northeast Nebraska. Everyone is responsible for adopting and utilizing broadband for progress, prosperity and a better quality of life.

Northeast Region Team Representation

Member Name	Group represented
Mike Danahy	ESU 2
Lisa Hurley	NENEDD
Brian Kesting	City of Wayne
Lance Martin	Olsson & Associates Consulting
Terry Eriksen	Northeast NE Telephone Co.
Art Tanderup	Retired school official
Darci Lindgren	Holy Family School – Lindsay
Michael Enszer	City of S. Sioux City
Amber Fritz	Avera Creighton Hospital
Tom Schommer	Telebeep

Techniques for Information Gathering

Activity	Audience Size	Date of Contact
Northeast Broadband Planning team	10	2011-2013
Broadband Regional Forum	46	March 23, 2011
Youth Assessment	317	Spring 2012
Phone contacts – Business leaders	25	2011-2013
Phone contacts – City officials	25	2011-2013

For additional information, contact:
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References

Internet Connectivity and Use in Nebraska Survey.

http://liferaydemo.unl.edu/c/document_library/get_file?uuid=32e75940-6288-401e-93a4-9a3ebd8a2398&groupId=4583971&pdf

Engaging People. Linking the World Broadband Planning Workbook

http://broadband.nebraska.gov/c/document_library/get_file?uuid=d7b74d0f-c89b-4c74-907d-ec3331eabb03&groupId=1874&pdf



The Nebraska Broadband Initiative

This Broadband Mapping and Planning Initiative is funded through a grant to the Nebraska Public Service Commission by the U.S. Department of Commerce's National Telecommunications and Information Administration and aims to increase broadband adoption and utilization.

Project partners include the University of Nebraska, Nebraska Department of Economic Development, Nebraska Information Technology Commission, Nebraska Public Service Commission, and the AIM Institute.