



# **National Telecommunications and Information Administration**

Broadband Technology Opportunities Program  
Evaluation Study

Order Number D10PD18645



## **Case Study Report Round 2**

### **C.K. Blandin Foundation Sustainable Broadband Adoption**

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# Executive Summary

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*“One of the biggest long-term successes of our involvement in MIRC are the relationships that were developed and strengthened throughout the program that have helped in spurring broadband-based economic development.” – Director of Office of Innovation and Strategic Alliances, Minnesota Department of Employment and Economic Development (DEED)*

The C.K. Blandin Foundation, founded in 1941, is a private foundation based in Grand Rapids, Minnesota. The mission of the C.K. Blandin Foundation is to strengthen communities in rural Minnesota, especially the Grand Rapids area. In December 2002, the Foundation launched its broadband initiative to improve Minnesota’s rural communities through the development of telecommunications markets and infrastructure. On March 1, 2010, the National Telecommunications and Information Administration (NTIA) awarded the C.K. Blandin Foundation with a Broadband Technology Opportunities Program (BTOP) Sustainable Broadband Adoption (SBA) grant for \$4.86 million to implement the Minnesota Intelligent Rural Communities (MIRC) project. The primary objectives of the grant were to:

- Increase the “culture of use” of broadband-based services
- Increase efficiency and effectiveness of digital literacy training service delivery
- Increase economic vitality in rural Minnesota communities

Additionally, the project had the goal of reducing the gap between rural Minnesota and metro area broadband adoption, increasing adoption by 2 percent over its statistically anticipated growth. The MIRC initiative worked to meet these goals through education, training, technical assistance, and removing barriers to adoption. The C.K. Blandin Foundation accomplished this through a project design that mobilized eight statewide partners and eleven Demonstration Communities, each of which designed their own projects that worked in tandem with other partners. At the state level, the BTOP funding intended to accomplish the following:

- Fund the collection, refurbishment, and distribution of 1,000 computers. The project partner PCs for People doubled this goal by distributing 2,067 computers.
- Provide 1,500 hours of training to small and alternative energy businesses. Minnesota Renewable Energy Marketplace (MNREM) provided 1,687 hours of training.
- Develop a Digital Literacy curriculum that would be available to organizations and individuals across the state and reach 2,700 learners through training events. The Digital Literacy training reached 5,929 learners by the end of 2012.
- Provide outreach to 6,000 small businesses and train 2,000 unique businesses in the use of broadband-related tools. University of Minnesota Extension (UME) reached 6,150 and trained 2,475 small businesses.
- Support sixty small businesses with direct technical assistance. UME more than tripled this number, assisting 196 businesses.
- Provide a more advanced training, the Knowledge Worker course, thirty-two times. This course nearly reached this goal, providing the course thirty-one times during the grant period.
- Statewide Regional Development Commissions (RDC) reached more than 250,000 rural Minnesotans through a public awareness campaign.

In addition to these statewide activities, the grant also funded nearly 100 projects in 11 Demonstration Communities throughout Minnesota. These ranged from installing wireless access

points in schools and purchasing iPads for hospitals to hiring students to help small businesses create websites and record documentaries available for streaming on community websites.

Community organizations typically implemented projects in libraries, schools, healthcare facilities, support agencies, and businesses. The region surrounding the Demonstration Communities is generally older and less demographically diverse than the State of Minnesota, with lower levels of income and education. Broadband service is generally of poorer quality than that found in the rest of the state. However, there are significant exceptions to this overall picture. In particular, Kandiyohi County continues its successful efforts to integrate immigrants from Latin America and Africa into its community.

While the Demonstration Communities implemented the majority of project initiatives, statewide partners also targeted all of rural Minnesota. According to a grant-funded evaluation study, broadband adoption in the Demonstration Communities vs. all of rural Minnesota was 61.7 percent vs. 64 percent at the beginning of the project, narrowing to 68.8 percent vs. 70.6 percent adoption at the end of the grant period. This represents an increase of 0.5 percentage points in the Demonstration Communities as compared to non-demonstration communities.

The case study presented here is one of fifteen case studies performed by ASR Analytics, LLC (ASR) on a sample of eight Public Computer Center (PCC) and seven SBA grants. It is part of a larger mixed-methods evaluation of the social and economic impacts of the BTOP program.

The purpose of this case study is to:<sup>1</sup>

- Identify how the grantee maximized the impact of the BTOP investment.
- Identify successful techniques, tools, materials, and strategies used to implement the project.
- Identify any best practices, and gather evidence from third parties, such as consumers and anchor institutions, as to the impact of the project in the community.

This case study is primarily qualitative. ASR collected the information presented in this report during two field visits to evaluate the social and economic impact of MIRC. The evaluation study team originally met with members of the C.K. Blandin Foundation over a three-day period in September 2011, visiting four of the eleven Demonstration Communities and meeting with statewide partners. The communities visited included the City of Windom, Upper Minnesota Valley, Stevens County/ the City of Morris, and Kandiyohi County/City of Willmar. ASR conducted a follow-up site visit with the grantee from February 20-22, 2013. This site visit included interviews with representatives from five statewide partners and six Demonstration Communities, including Upper Minnesota Valley, Kandiyohi County/City of Willmar, and four not visited during the first site visit: Benton County, Grand Rapids, Leech Lake Band of Ojibwe, and Cook County. The Stevens County/City of Morris Demonstration Community was not able to meet during the site visit but provided information through email, and ASR conducted a telephone interview with the City of Windom following the site visit.

The evaluation study team performed a total of twenty-two case study site visit interviews and facility tours. ASR transcribed the discussions and used this information, and other information and reports provided by the grantee, to supplement Quarterly Performance Progress Reports (PPR), Annual Performance Progress Reports (APR), and other publicly available information.

This report further investigates the initial impacts uncovered during the first round of visits and identifies additional impacts that occurred in the time between the site visits. The results presented in this report reflect the evaluation study team's observations at the time of the second site visit. This report includes both qualitative and quantitative components, and it serves as a basis for *Interim Report 2*, which will analyze data from fifteen case studies.

The evaluation study team noted the following major impacts of the MIRC SBA grant:

- Demonstration Community staff report multiple instances of individuals retaining jobs or moving up in their positions as a result of attending a Digital Literacy training or using another grant resource such as PCCs or a PCs for People home computer. The total number of individuals obtaining jobs is not known, as no grant-wide mechanism was in place to track job placements resulting from the grant.
- Small businesses throughout rural Minnesota have benefited from the increased digital presence. They gained knowledge and skills through statewide partner courses and technical assistance in several Demonstration Community projects. This impact was particularly large in tourist areas, where many customers rely on the Internet to discover, navigate to, and access information about local businesses. In addition, networks of businesses have formed to share resources and best practices, supporting innovation in the use of digital tools into the future.
- Several Demonstration Community projects have increased the skills of individuals hired to implement the projects. For example, high school students in Benton County learned how to use global positioning system (GPS) tools and geographic information system (GIS) software to help farmers and other agricultural businesses. In at least two other communities, projects trained high school students and paid them to help get businesses online, increasing students' digital and entrepreneurial skills in addition to facilitating community participation.
- The 2,067 PCs distributed to low-income households resulted in many impacts. Some of the stories the evaluation study team heard included parents pursuing higher education while they took care of their children at home; parents being better able to communicate with their children's schools using the Internet and email; and individuals searching for and finding jobs.
- Local governments around the state created websites and community portals to make information and processes more readily available online. This resulted in increased community and civic engagement by residents in these communities.
- In each Demonstration Community, representatives reported increased partnerships, relationships, and capacity that resulted from many institutions working together on the same goal. It has also given much of rural Minnesota the understanding and framework to drive change through a broadband-based economic development model.
- MIRC set the stage for the increased efficacy of statewide partners working toward broadband adoption. For example, through grant activities PCs for People was able to increase its distribution networks in rural Minnesota, opening new offices and depots in several Demonstration Communities. This has increased the capacity for distributing free and low-cost computers to low-income individuals throughout the state.

The grant was essential to achieving these impacts. Before BTOP, many of the relationships between partners that produced these impacts did not exist, and many local governments and service agencies were working with fewer resources. Anchor institutions would not have access to the curricula and webinars created by the statewide partners, and would not have been able to deliver these trainings to their clients. Perhaps most of all, rural Minnesota would not be as well positioned as they are now to continue to effect change in broadband penetration, adoption, and the resulting economic development outcomes. As discussed in this report, the focus of the C.K. Blandin Foundation on improving these conditions was a key part of achieving the benefits described.

# Section 1. Introduction

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The C.K. Blandin Foundation, founded in 1941, is a private foundation based in Grand Rapids, Minnesota. The mission of the Foundation is to strengthen communities in rural Minnesota, especially the Grand Rapids area. In December 2002, the Foundation launched its broadband initiative to improve Minnesota's rural communities through the development of telecommunications markets and infrastructure. On March 1, 2010, the National Telecommunications and Information Administration (NTIA) awarded the C.K. Blandin Foundation with a Broadband Technology Opportunities Program (BTOP) Sustainable Broadband Adoption (SBA) grant for \$4.86 million to implement the Minnesota Intelligent Rural Communities (MIRC) project. The MIRC initiative works to increase broadband usage among rural residents through education, training, technical assistance, and removing barriers to adoption. The grant targeted residents, small businesses, local governments, and services providers in rural Minnesota. The C.K. Blandin Foundation collaborated with eight statewide agencies and eleven Demonstration Communities throughout rural Minnesota to accomplish the goals of creating an increased "culture of use" for broadband, better capacity for delivering digital literacy training, and increased economic vitality of rural Minnesota.

## 1.1 What the Interviewees Told Us

Figure 1 displays words that interviewees used frequently during discussions between ASR Analytics, LLC (ASR) and project staff. These interviewees included C.K. Blandin Foundation management, statewide partner representatives, and staff members and organizational partners from six Demonstration Communities: Benton County, Kandiyohi County, the City of Willmar Economic Development Commission (EDC), Upper Minnesota Valley Regional Development Commission (RDC), Leech Lake Band of Ojibwe, City of Grand Rapids, and Cook County. The word cloud displays the 100 words used most frequently by the interviewees. The purpose of the word cloud is to provide a succinct visual summary of the conversations that occurred. The analysis excludes statements made by ASR personnel during the interviews, as were common words, such as prepositions, articles, and conjunctions, which were identified using a standard "stop list."

As shown in the word cloud, the respondents perceived the grant as centered on community, which reflects the approach of the grantee toward broadband adoption and use. Other significant words indicate a focusing on computers and the people who use them. The grant covered several focus areas, as discussed in Section 2, under a larger economic development framework that used indicators from the Intelligent Community Forum (ICF) to track progress and focus implementation.<sup>2</sup> These indicators included broadband connectivity, digital skills of the workforce, digital inclusion, innovation, and marketing in order to foster technology-led economic development. In addition to "community," "people," "project," "computer," other significant words in the word cloud illustrate this holistic approach, including "development," "online," "classes," "access," "website," "digital," "businesses," and "connection."



## Section 2. Impacts

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MIRC focused on three outcomes as part of the project design:

- Increased “culture of use” of broadband-based services
- Increased efficiency and effectiveness of digital literacy training service delivery
- Increased economic vitality in rural Minnesota communities

Additionally, the project had the goal of reducing the gap between rural Minnesota and metro area broadband adoption, increasing adoption by 2 percent over its statistically anticipated growth.

As presented in the sections below, the grant has achieved results in most of these areas, results which have led to economic and social impacts in the focus areas of Digital Literacy, Workforce and Economic Development, Civic Engagement, and Healthcare.

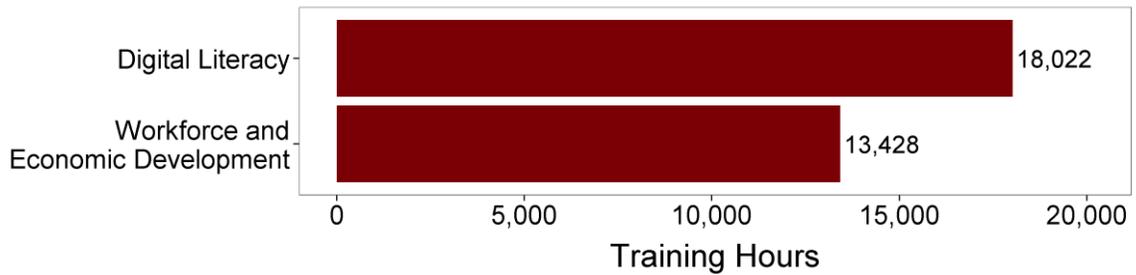
The grant produced impacts on the individual, community, and statewide level, ranging from users getting and retaining jobs because of public computer use to setting the stage for statewide partnerships and policies. The accounts ASR heard include the following:

- “Through our extended pilot project targeted at Somali residents, a number of participants and students were employed or seeking employment at a local food manufacturer. Because they had digital literacy skills, they were able to retain those positions and seek other employment.”
- “An 80-year-old businesswoman in the northern part of Minnesota had to close her business because of the economy. Yet this woman needed to subsidize her income in order to survive. She couldn’t do so without digital literacy skills. She took the Digital Literacy training and, as a result of learning those basic skills, she’s now a part-time church administrative assistant.”
- “I made a forty-minute documentary last summer that I wouldn’t have had the skills or any knowhow to do before this project, so it definitely started my career as a videographer by giving me opportunity, access to equipment, and lots of groups looking for content.”
- “According to respondents, businesses would have ‘dried up’ without the BTOP grant, as it provided a catalyst for the business community to understand the importance of broadband to their continued success.”
- “If not for the BTOP grant we wouldn’t be putting public meetings out to the public, and we’ve got people who live sixty miles away, so that is important. We have one county commissioner who prepared to run for office. She watched the county board meetings from her job sixty miles [away].”
- “Legislators are now going to put together a Broadband Development Office. That’s never been done in this state before. These relationships that occurred between the nonprofit communities, the actual communities themselves, and the providers wouldn’t have been there if not for MIRC.”
- “I think the opportunity to work with the Blandin Foundation and the MIRC community is extraordinary. They helped create this learning experience for citizens to gain knowledge and learn about the society and economy in which they live, how broadband can help people stay in their communities by helping them receive training rather than having to go away to school and then stay away and find work and never go back.”
- “There’s a common language that in many ways different folks are speaking now, that they may not have really spoken thirty months ago. MIRC set a stage, it provided connections that weren’t there before, and it gave everybody a common language.”

## 2.1 Focus Areas

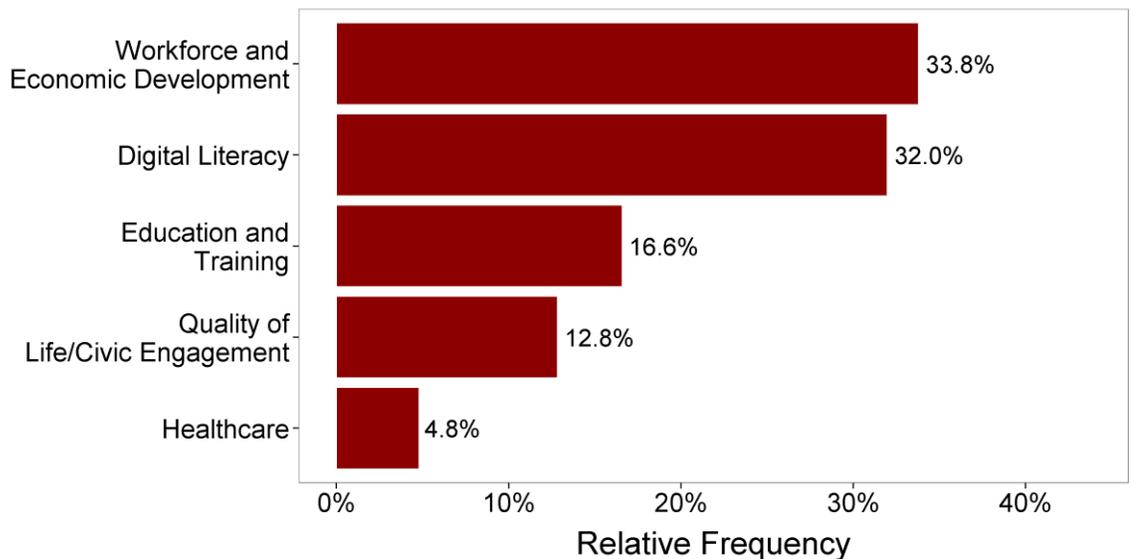
This section describes the impacts of the MIRC project in terms of five focus areas. In order to analyze where impacts should expect to be found for this project, ASR tabulated the training hours for the C.K. Blandin Foundation reported in the 2012 APR using the focus area categories described in *Interim Report 1*.<sup>3</sup>

**Figure 2. Grantee Training Hours Categorized by Focus Area**



As shown in Figure 2, training hours reported in the 2012 APR for the C.K. Blandin Foundation focused on subjects related to Digital Literacy and Workforce and Economic Development. ASR also analyzed the statements grantees made during the interviews and focus groups and categorized them based on focus area, as shown in Figure 3.

**Figure 3. Focus Area Statements Made by Interviewees**



The results presented in the figure provide another measure of the grantee's focus. Most responses and discussions in the interviews and focus groups centered on Workforce and Economic Development and Digital Literacy, though discussions included all focus areas.

## 2.2 Workforce and Economic Development

*"In terms of enhancement for participants I get to work for, I would definitely recommend that our state representatives support the Digital Literacy training. This not only adds people to the workforce, it enhances the employers' employment pool." – Job Counselor, Southwest Minnesota Private Industry Council*

This focus area includes activities intended to increase overall employment of the target population, or to assist employed members of that population in finding jobs that offer increased salaries, better benefits, or a more attractive career path, including self-employment. Workforce and Economic Development activities can be performed for one's own benefit, or they may be done on behalf of another person to assist with his or her employment situation. In order for project activities to be included in this category, it must be the intention of the grantee to assist members of the workforce in improving their employment outcomes, and project resources must be devoted to this purpose. MIRC projects directed a significant portion of activities toward Workforce and Economic Development.

Several aspects of the C.K. Blandin Foundation grant contributed to outcomes in this focus area:

- **Digital Literacy training curriculum specifically addressed to job seekers.** The Minnesota Department of Employment and Economic Development (DEED) developed the Digital Literacy training curriculum with input from WorkForce Centers, the Adult Basic Education (ABE) program, community colleges, libraries, and other community-based organizations. DEED made the curriculum available to all Demonstration Communities, as well as to other organizations in rural Minnesota. The grantee reports that many users retained jobs, were promoted, or were placed in new jobs because of the Digital Literacy training. For example, after completing the training, one employed 52-year-old man moved up within his company to a position that used his new computer skills. The grantee also pointed out that the Digital Literacy training has an added benefit of improving the employment pool for businesses in rural Minnesota.
- **Knowledge Worker course.** Minnesota Learning Commons developed this sixteen-hour online course, which they designed for unemployed, underemployed, and dislocated workers and employees. Though this course was not as popular in the Demonstration Communities, Minnesota Learning Commons reported particular success in working with the WorkForce Centers and DEED staff to offer the course to their clientele. MIRC offered the course 31 times to 236 students, whose average age was 50. According to the partner, "the Knowledge Worker class is a great resource to people who are looking for work or wanting to change careers, in addition to being a class that increases participants' skill at using the computer."
- **Expanded access to computer centers in partnership with thirty WorkForce Centers.** DEED and its partners facilitated expanded access, and users received access to the Digital Literacy training curriculum and other ABE resources. Staff reported both new jobs created through the grant implementation and users getting jobs regularly because of this expanded access and training.
- **PCs for People computer distribution.** This statewide partner secured, refurbished, and distributed more than twice the number of computers as in its original objective. According to surveys collected from each recipient, 36 percent said they would be using the computer for job-related activities.<sup>4</sup>
- **Minnesota Renewable Energy Marketplace (MNREM) business training.** MNREM is a MIRC statewide partner that provided training and assistance to small businesses, primarily in the renewable energy sector, on the use of broadband-based technologies. A survey of businesses early in the grant period found that, although businesses perceived broadband as very important, fewer than 50 percent used it. One Demonstration Community reported that many business owners were able to develop the skills to improve their business operations, and some small business owners were even able to find part-time contracting work doing similar tasks for

other businesses. According to the partner, “while learning about social media networks to build businesses, a real world network that supported economic development was being formed.”

- **Small business and entrepreneur training.** University of Minnesota Extension (UME) provided 306 workshops to 2,082 unique businesses and 4,206 attendees. They provided one-on-one consulting to 196 businesses, which was more than three times the original goal. Awareness campaigns reached more than 6,000 businesses. Staff members found that the percentage of businesses that had a digital presence increased because of these trainings. Moreover, they found that those businesses that attended UME trainings increased their digital presence at a greater rate than those who did not.<sup>5</sup> The partner estimated that between 8 and 9 percent of businesses in MIRC communities attended at least one of the workshops. Among attendees, the median employment size was four employees, and UME reported that many of the participants were from tourism-related businesses. One success story follows: “The owners of Kettle River Ironworks had a web presence but it was not very effective until they attended a Connecting Rural Communities program. It was then that they contacted their extension educator, who helped them redesign their website, which now includes a shopping cart, and with their search engine optimization. The owners also claimed their place on Google Maps per advice from another MIRC workshop attendee. Their online sales have increased to the point that one owner quit her day job, and they hired a full-time employee.”
- **Demonstration Community projects.** In addition to the statewide projects described above, many grant activities contributed to Workforce and Economic Development impacts on the smaller Demonstration Community scale. Examples include the following:
  - The Leech Lake Band of Ojibwe opened a computer lab for job seekers and those in their Temporary Employment Program (TEP) using grant funds. This Demonstration Community identified one success story: “Two women in our office don't have employment outside of TEP, but they've worked with us enough over the last couple months that they've been accessing TEP. They're starting to gain job skills working in the office with us. It stems from a lot from the MIRC work and creating that culture of use.”
  - Several communities hired local students to visit area businesses and help them claim their Google Place. Businesses are thus more visible to potential customers, including tourists, resulting in increased business. For example, before the MIRC project, a coffee shop in Grand Marais had the wrong location in Google Maps, and the owner reported getting a dozen or more calls a day during the tourist season asking where she was located. Since claiming their location on the map and correcting the error, she no longer gets these calls, and more customers are able to navigate to her shop, resulting in increased business.
  - A WorkForce Center in Winona created a “website that offers support to businesses exploring e-commerce, social media, and other Internet business applications. The website is a resource for individuals who completed the extension online training, for individuals who have completed new business training at the WorkForce Center, and for small business in general.” The website is available at [www.digitalperch.com](http://www.digitalperch.com).
  - The Morris Public Library was able to install a Business and Career Center with four laptop computers, a printer, and a wireless router. When a nearby WorkForce Center affiliate office closed, job seekers who had no other option to find employment information and assistance began to use the library intensively.

## 2.3 Digital Literacy

*“To have the basic skills through this Digital Literacy project allows people one step up in order to advance their future, whether it's through employment or just general communication.” – Staff member, Southwest Minnesota Private Industry Council*

This focus area is fundamental to all the others. Digital Literacy defines a set of skills and abilities that enable an individual to interact with the digital aspects of culture, and to maintain a digital

identity. In the National Broadband Plan, the Federal Communications Commission (FCC) defines digital literacy as "the skills needed to use information and communications technology to find, evaluate, create, and communicate information."<sup>6</sup>

Digital Literacy was central to the MIRC project, and was carried out through the Digital Literacy training, Regional Development Commission (RDC) awareness campaigns, PCs for People computer distribution, and numerous location-specific projects in Demonstration Communities. The Digital Literacy curriculum, as mentioned above, focused on the unemployed and underemployed, but impacts were not limited to Workforce and Economic Development. The grantee, statewide partners, and Demonstration Community representatives report the following impacts:

- According to the grant-funded evaluation study, the Demonstration Communities that were aware of the Digital Literacy training, and that implemented it in their service areas, saw the highest growth in adoption rate throughout the grant.<sup>7</sup>
- Because of the collaborative nature of the Digital Literacy curriculum development, the training also introduced learners to the many resources available through project partners. This ensured that users were able to find information that was relevant to them while they were learning basic digital literacy skills.
- According to the grantee, "If it had not been for the development of a basic Digital Literacy training where there is an assessment and a consistent measurement tool, we would not see the change that we're seeing. That's true systemic change, increased partnerships and capacity between ABE and DEED and other state-wide organizations."
- PCs for People distributed more than double the original goal of 1,000 computers to low-income individuals throughout rural Minnesota. Of the computers distributed, MIRC designated 275 computers for 11 Demonstration Communities.
- The program distributed 2,067 computers, often in conjunction with Digital Literacy training. Demonstration Community partners and computer recipients report a number of impacts from this increased home access, including making it easier for parents to take online classes, increased community participation in local government, better access to job opportunities, and the ability to start a home business.
- According to PCs for People, a major outcome was the facilitation of partnerships throughout rural Minnesota that assisted with the distribution of computers during the timeframe of the MIRC grant and that will make it easier to perform these activities in the future. Several affiliates opened in Demonstration Communities, including Cook County Higher Education and a separate office and distribution point in Grand Rapids.

In addition, several Demonstration Communities carried out activities that promoted Digital Literacy. Examples and their impacts include the following:

- In Leech Lake, the Temporary Employment Program installed a computer lab that is open to the public and expanded services to four labs in more remote areas, including thirty-two computers, nine laptops, and four printers. The labs offered the Digital Literacy training, and many users who went through the training also received computers from PCs for People. Staff members report that participants use the labs extensively, and other communities within the Leech Lake Band of Ojibwe are asking for their own computer labs. Users have completed general equivalency degree (GED) exams and found jobs. One staff member was also able to put his digital literacy skills to use in creating a webpage for a local politician.
- In Grand Rapids, several organizations worked together to provide access and training to the community. The public library and ElderCircle both provided one-on-one help and training on basic computer skills, and the YMCA offered access for anyone in the community. An ElderCircle staff member reported that seniors are now better able to connect to the outside world and keep in touch with their families. A local bank offered additional classes, and participants used the skills they learned to engage in online banking.

Finally, 10 RDCs throughout the state provided outreach through an awareness campaign that ultimately reached 250,000 people in rural Minnesota. According to the University of Minnesota Crookston evaluation study of the MIRC project, Demonstration Communities saw the most growth in several indicators, including broadband adoption, when a larger portion of the population was aware of MIRC project activities.<sup>8</sup>

## 2.4 Education and Training

*“A lot of students were parents who were trying to go to college. They had to do research and, would have to get an Internet connection at the college or at the library, which is not convenient when you have small children. So it was a real asset for them to have this Internet connectivity and a computer that worked.” – Executive Director, KOOTASCA, Grand Rapids Demonstration Community project partner*

This focus area includes activities that lead to a certificate or diploma that would typically be awarded by an educational institution, or that indicates the recipient has received training that is recognized as valuable for career advancement. Examples of certificates or diplomas include the following: community college degrees, four-year college degrees, advanced degrees, GEDs, certifications in advanced software technologies such as network engineering, and other licenses or certifications that reflect knowledge of a particular subject at a level that would typically be taught at an educational institution.

The ABE through the Department of Education and the State of Minnesota delivered Digital Literacy training in many sites throughout Minnesota. They found that this training was helpful to their students who were pursuing higher education. Specific impacts include the following:

- Project partners reported that a number of students in the Digital Literacy trainings were able to continue their education successfully after completing the class. As an example, two students who were struggling in community college attended an ABE MIRC Digital Literacy class, and were then able to go back to school and complete their classes at the community college. These students graduated in spring 2013 with associate degrees.
- According to one ABE program manager, “digital literacy is important to our students because they will be using computers on the job, applying for jobs, and, especially with the new GED test coming out, they will be taking the test on the computer. It will be a computer-based test starting in 2014. So our students will have to have those skills in order to take any tests.”

PCs for People collected surveys from each recipient to track how recipients said they would use the distributed computers. Sixty-six percent of households receiving computers reported that they expected to use the computer for education-related activities.<sup>9</sup> For example, in the Grand Rapids area, one parent reported that her son has improved his grades a great deal because of being able to play educational games on their home computer they received from PCs for People. Another parent noted that a home computer is helpful for communicating with the school. She is able to check on her son’s grades and behavior online and through email with his teachers.

In addition, numerous Demonstration Community projects took place in collaboration with public and private K-12 schools as well as community colleges and universities. Many other projects facilitated educational impacts. Examples include the following:

- Three high schools in the Grand Rapids area installed videoconferencing rooms. These facilities enable students to take more advanced or infrequently offered courses only offered in one of the three schools, for example, advanced Spanish and Physics. These offerings prepare students better for college.
- In Worthington, the school district purchased forty iPads for teacher and student use in elementary to high school classrooms. Impacts include more student engagement. At Winfair

School, performance increased significantly when students received access to the iPads, and when they were not available, the students protested that the homework was more difficult.

- Cook County Higher Education used grant funds to buy several computers and videoconferencing equipment. These new facilities allow students to access the computers at any time, and provide access to more online classes than the center would be able to facilitate without these tools. The center also formed a PCs for People depot where it distributes low-cost computers to high school and college students. According to the director, the completion rate for courses offered through Cook County Higher Education is much higher than the national average of completion of an online course or program. The national average is between 60 and 80 percent, while this facility has a 90 percent completion rate. The director attributes this success to the support network developed through the center.
- At Independent Lifestyles in Benton County, staff members reported that adaptive equipment purchased with grant funds has been very useful. For example, a community member with severe carpal tunnel syndrome was able to try a variety of equipment to find which keyboard would work best for her. She was then able to return to school to earn her degree.
- Benton County created a website to help high school students implement projects that benefit the local agricultural community. For example, students carried out a well-water testing project with the help of GPS equipment and a mapping software program. Students conducted water tests and reported the findings on a website, and farmers were able to view results and make appropriate changes when water conditions were not ideal. According to the school, all of the students learned a variety of skills, including website development, water collection techniques, interviewing skills, and how to use GPS receivers and water-testing procedures.

## 2.5 Quality of Life/Civic Engagement

*“Most government meetings are on our website the very next day. We’ve just been able to bump up all of our systems to be able to do that, and there’s real appreciation from the people who are starting to adopt broadband or other technologies to be able to get that information.” – Boreal Access staff member, Cook County*

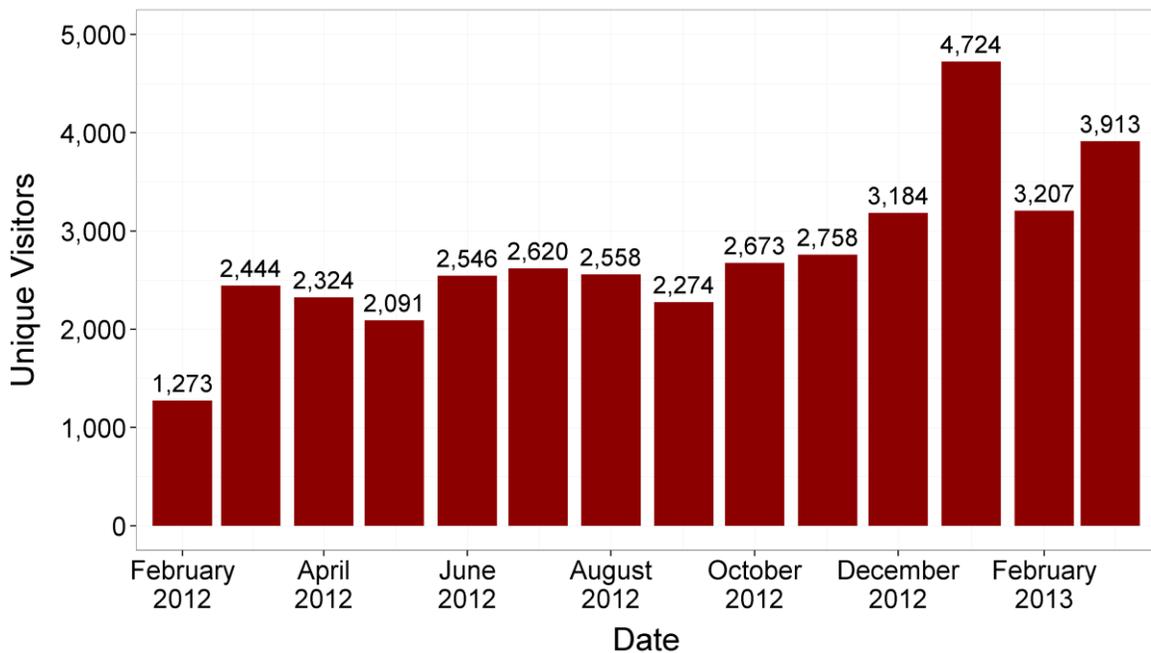
The Quality of Life/Civic Engagement category includes activities that create stronger and more integrated communities, and those that promote interaction between citizens and their governments. Numerous impacts in this focus area stemmed from the projects in the Demonstration Community, including:

- Grant funds facilitated development of a technology center at Independent Lifestyles that makes computers accessible to people with disabilities. According to a staff member, “this has brought so many opportunities for the community and the agency. It allows for more integration of the disability community into the general community and for getting the community involved with the disability population.”
- In Cook County, at the time of the site visit, Boreal Access had created and archived eighty-nine community videos including high school football games and government and community meetings. They had more than 2,000 viewers for their archived content and another 2,200 unique viewers for their live streaming events.
- In the Leech Lake Band of Ojibwe Demonstration Community, the grant has improved the government’s capacity to put more resources online and facilitated member access to them through computer labs and PCs for People computer distributions. One of these services is a mapping project in which community members and community development planners have access to knowledge about community assets.
- The City of Morris’s Rental Housing Licensing Program developed an interactive website to provide inspection results, guidance, and educational information to tenants, landlords, and other interested parties. According to a project staff member, the website’s educational pages

and blog get between 119 and 728 hits per month. Residents can more easily find quality housing, and landlords have expressed appreciation for being able to advertise rentals through the site.

- The Cities of Bellingham and Echo created their own city websites with grant funds. Bellingham developed a WordPress site and Facebook page, which served mainly to market and disseminate information about its recent 125<sup>th</sup> anniversary celebration. Echo developed a website using GovOffice with forty-two distinct pages, including information about local businesses and ordinances.
- In the Big Stone County Public Internet Government Access Project, the county provided public access to government information including geographic information system (GIS), highway project information, and county government forms. As of the site visit in February 2013, the GIS portal had 8,600 total visits and the website has seen 120,000 visits since May 2011. According to the Demonstration Community, “it’s certainly saving time in the courthouse for employees. It’s also really made a connection to their business and community sector that before didn’t exist.”
- Stevens County created a website listing community information related to employment, housing, healthcare, education, business, and recreation and links to local government sites. A local business designed the portal, which has improved access to local business and government. More citizens are using the site than expected, and, according to the Demonstration Community’s final report, “Sharing information through a community information network has increased the individual community members’ sense of belonging to a ‘village’.”
- The City of Windom Demonstration Community used \$9,000 in grant funds to build a website providing information on local activities and government services.<sup>10</sup> The website allows users to submit forms and pay for services and utilities online, and converts easily to Spanish for bilingual use. Figure 4 shows that the number of unique visitors has slowly increased from when it launched in February of 2012.

**Figure 4. Unique Visitors to City of Windom Website**



## 2.6 Healthcare

*“The MIRC project has offered us the ability to expand patient education, indeed further patient involvement, with one of our key goals being to get patients much more involved in their own healthcare goal setting and management. That’s what this is all about.”*

*– Sawtooth Mountain Clinic staff member, Cook County*

Though none of the statewide MIRC partners focused specifically on healthcare, several Demonstration Communities implemented projects that addressed this focus area:

- In Cook County, a local clinic piloted a project that uses monitoring and videoconferencing technologies to help seniors stay in independent living with a higher quality of life. The clinic found that the project was successful in helping seniors stay in their homes, and will be implementing it to a wider audience in the future. This clinic also used three iPads to help patients register and fill out forms, which is successfully introducing them to the technology that will be more widely implemented because of the BTOP Comprehensive Community Infrastructure (CCI) grant serving this area. In addition, the clinic redesigned the clinic web page to communicate more effectively with patients, and collaborated with another Demonstration Community project to create several video healthcare messages that are available for the community to access on the website. According to staff members, the website and videos have helped to inspire many members of the community to take a more proactive role in their health.
- The City of Willmar Demonstration Community provided touchscreen computers to ten seniors and laptops to fifteen of their relatives loaded with HomeStream software. The goal was to facilitate seniors’ engagement in telemedicine and telehealth activities with support from their families. Though the Demonstration Community partners were disappointed with the HomeStream software and the quality of support the company provided, they did find that the seniors were eager to participate and are still using the computers in their homes. Seniors adapted to using different software to communicate with their families and communities. According to the project partner, the seniors are more engaged in the community. During the grant period, all of the seniors that participated in the pilot were able to stay in their homes.
- In Benton County, a similar project used a different software company, GrandCare, to implement a successful healthcare pilot with twelve seniors. Families were able to use the software to monitor seniors’ daily activities and healthcare outcomes, as well as communicate directly with healthcare providers.
- The Windom Demonstration Community purchased five iPads for a hospital. The rehab department has found the iPads to be very helpful in conveying information to patients, and it is using the iPads extensively. Speech therapy with younger patients is easier with the iPads, which make exercises more like games. According to the Demonstration Community project partner, the investment in iPads for patients has advanced investments in tablet technologies by three to four years.

## Section 3. Recovery Act Goals

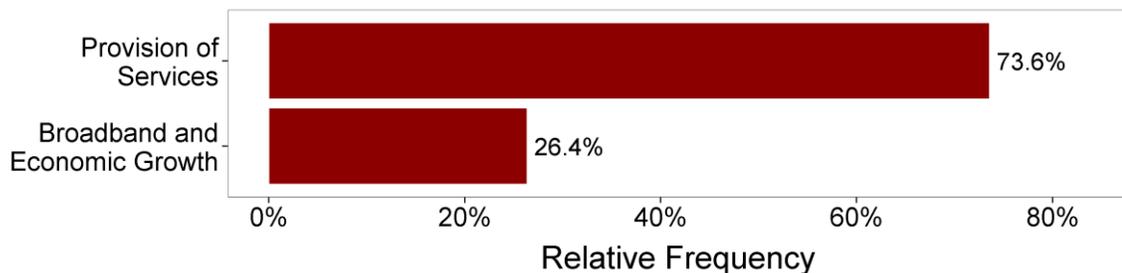
This section describes the activities and outcomes associated with Recovery Act goals. Of the five Recovery Act goals for the BTOP program as a whole, two relate most directly to PCC and SBA programs. These are as follows:

1. Provide broadband education, awareness, training, access, equipment, and support to
  - a. Schools, libraries, medical and healthcare providers, community colleges and other institutions of higher learning, and other community support organizations
  - b. Organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband services by vulnerable populations (e.g., low-income, unemployed, seniors)
  - c. Job-creating strategic facilities located in state- or federally designated economic development zones
2. Stimulate the demand for broadband, economic growth, and job creation

This section of the document describes how the MIRC SBA project contributed to the achievement of these goals.

Figure 5 presents the relative frequency of topics related to Recovery Act goals as discussed during interviews and focus groups. These topics were categorized by the two Recovery Act goals discussed above.

**Figure 5. Recovery Act Goals Statements Made by Interviewees**



The most frequently mentioned Recovery Act goal was the provision of services, which included collaborating with numerous state and community organizations to provide rural Minnesota with broadband education, awareness, training, access, equipment, and support. Statewide agencies, RDCs, and the eleven Demonstration Communities addressed these goals throughout the state. Job creation attributable to the grant and partners' work with small and alternative energy businesses both contributed to Broadband and Economic Growth, though the grantee mentioned it less frequently. The following sections describe how the MIRC SBA grant addressed Recovery Act goals.

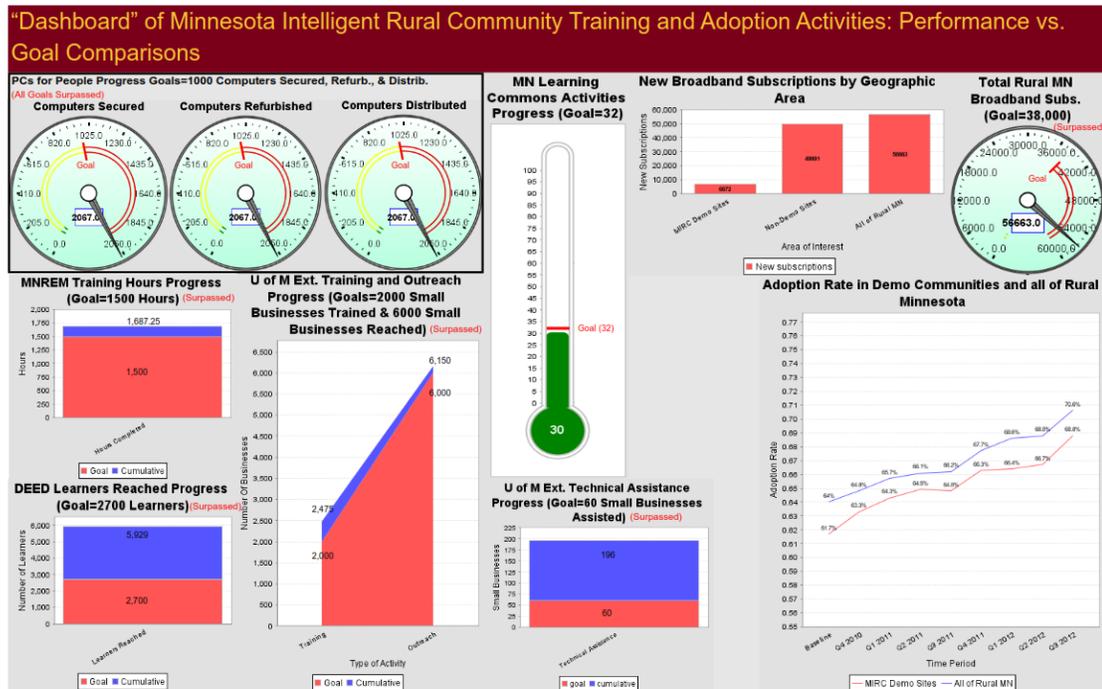
### 3.1 Provision of Services

One of the grant's main goals was to increase the "culture of use" of broadband-based services in rural Minnesota, and this was one of the most important impacts reported by the grantee. The MIRC project did this by providing holistic services that included broadband education, awareness, training, access, equipment, and support. The grant's unique method of leveraging a wide variety of statewide and local institutions facilitated both the provision of services to these organizations as

well as the organizations' ability to provide broadband services to their target populations, which in many cases included vulnerable populations.

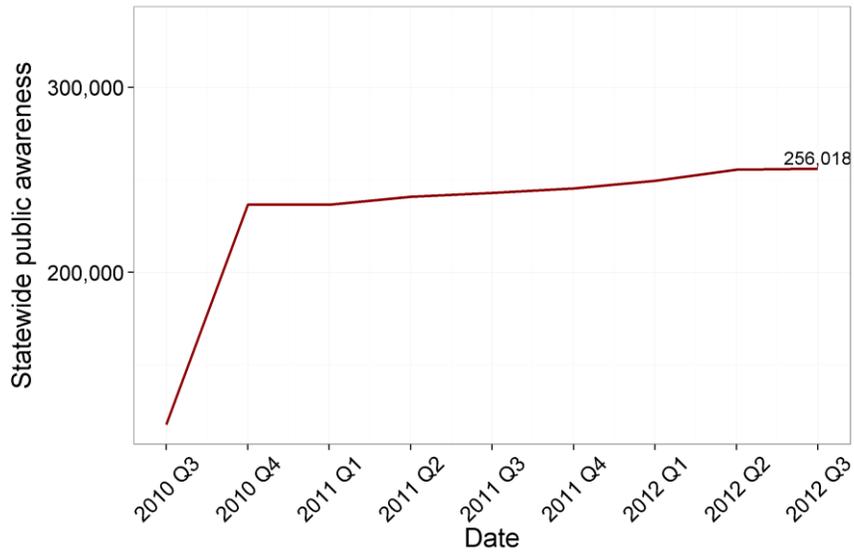
All together, the project sought to “create technologically and economically vital rural communities, competing and thriving in the broadband economy, with sustainable broadband adoption, job growth, and wealth creation.”<sup>11</sup> As part of the grant, the grantee developed a project dashboard that presents statistics on key metrics used to track progress toward objectives. As shown in Figure 6, MIRC has exceeded most of the output goals it set for itself at the beginning of the project:

**Figure 6. Dashboard of MIRC Training and Adoption Activities**



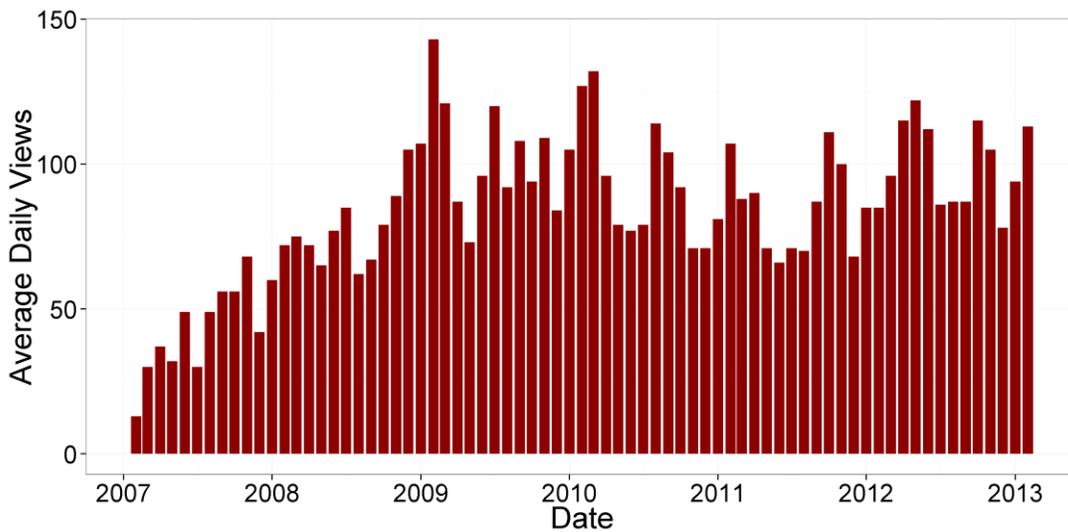
As shown in Figure 7, by the end of the grant period, MIRC partners had reached 256,018 individuals through media awareness campaigns and by convening events carried out by Regional Development Commissions. These campaigns, which were some of the earliest grant activities, served to set the stage for increasing broadband awareness. Marketing and advertising for specific projects complemented the campaigns. According to surveys conducted by the Intelligent Community Forum, which also provided the framework for project implementation, Demonstration Communities saw the greatest improvement in marketing and advocacy throughout the life of the grant. Other areas measured included digital inclusion, digital skills of the workforce, broadband connectivity, and innovation. Communities raised their scores in marketing and advocacy by an average of 26 percent.<sup>12</sup>

**Figure 7. Cumulative Statewide Public Awareness**



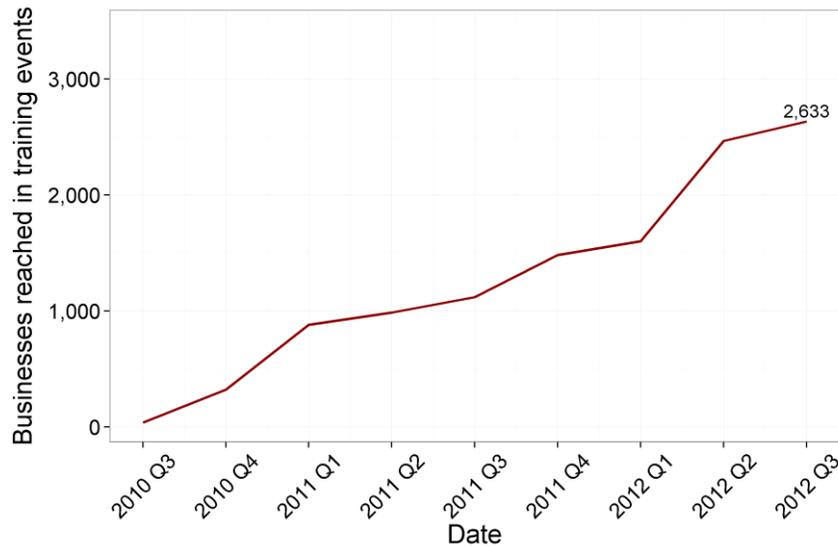
In addition to the awareness campaign carried out by the RDCs, the grantee raised awareness of broadband-related topics through its Blandin on Broadband blog.<sup>13</sup> Figure 8 shows the website statistics for average daily views by month. Though the blog has been active since 2007, views increased while the state was preparing for and implementing the grant from 2009 to 2013.

**Figure 8. Blandin on Broadband Blog Average Daily Views**

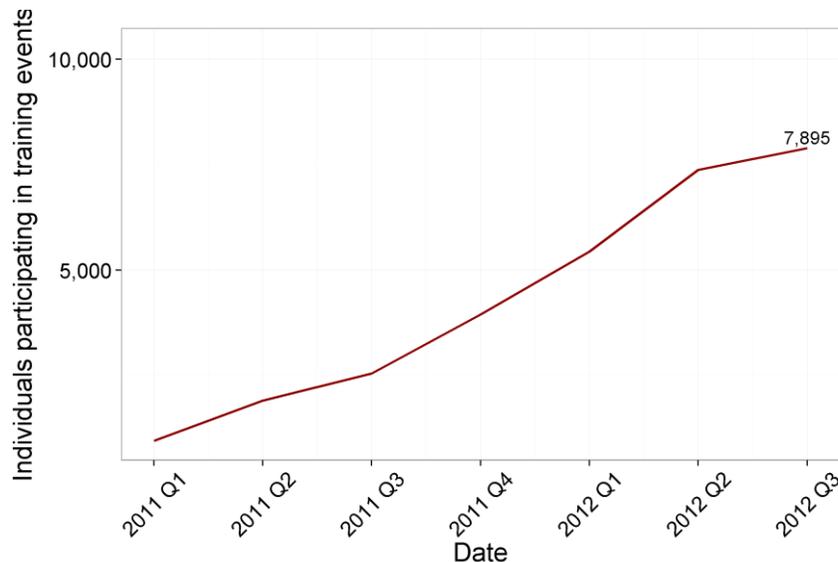


By the end of 2012, MIRC partners had trained at least 7,895 individuals and 2,633 businesses in the use of broadband cumulatively throughout the grant, including through the Digital Literacy, Knowledge Worker, and MNREM statewide partner trainings, as shown in Figure 9 and Figure 10.<sup>14</sup>

**Figure 9. Total Businesses Participating in Training Sessions**



**Figure 10. Total Individuals Participating in Training Sessions**



These partners offered trainings and curriculum to Demonstration Communities and other organizations throughout rural Minnesota, who adapted curricula to users' needs. For example, DEED structured the Digital Literacy curriculum to allow individuals in a classroom with diverse user skills to participate successfully alongside one another. They created a series of independent lessons that individual learners could take sequentially or skip based on their needs. In addition, the training is available online so that learners may access it at home or in a computer lab with support from trainers.

The training was also adapted to be accessible to English for Speakers of Other Languages (ESOL) learners by translating them into Spanish and Somali. Seeing a need, the C.K. Blandin Foundation commissioned a report with grant funds entitled "Bridging the Gaps: Best Practices and Resources for Building Digital Literacy with Non-English Speaking Communities," which was made

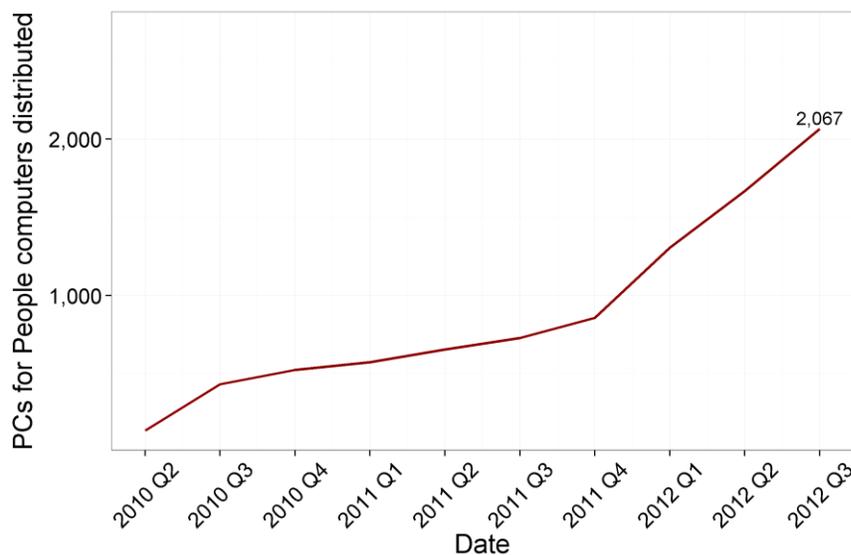
available to Demonstration Communities in November 2012 and continues to inform digital literacy work throughout the state.<sup>15</sup>

In addition, trainings and Demonstration Community projects often furthered broadband education by informing participants which broadband services were available in their area. For example, in August 2011, the Benton County Demonstration Community produced a pamphlet detailing Internet, cable, and telephone options available to residents, including speeds, prices, and contact information for providers.<sup>16</sup>

Though the grantee did not track the number of hours that PCCs were able to remain open because of grant funding, several partner organizations reported that the grant facilitated additional open PCC hours. For example, a computer lab in the Nobles County Integration Collaborative was able to purchase equipment and a wireless access point, allowing public access five days and two evenings per week. Funds also paid two instructors to teach Digital Literacy courses in Spanish, Karen, and Somali. Staff members recruited participants from the immigrant community through bilingual presentations, language-specific fliers posted in the community, and marketing efforts of other community organizations.

In addition to equipment bought for organizations participating in Demonstration Community projects, PCs for People distributed more than double the planned number computers to low-income individuals throughout rural Minnesota for home use. As shown in Figure 11, they had surpassed their goal of 1,000 computers by the second quarter of 2011 and completed the project with 2,067 computers refurbished and distributed.<sup>17</sup> In the process of carrying out the grant, the statewide partner opened a new office in Grand Rapids and several affiliate offices in other Demonstration Communities, for example, Cook County Higher Education. PCs for People reports that these new networks will lead to more efficient computer distribution in rural Minnesota in the future.

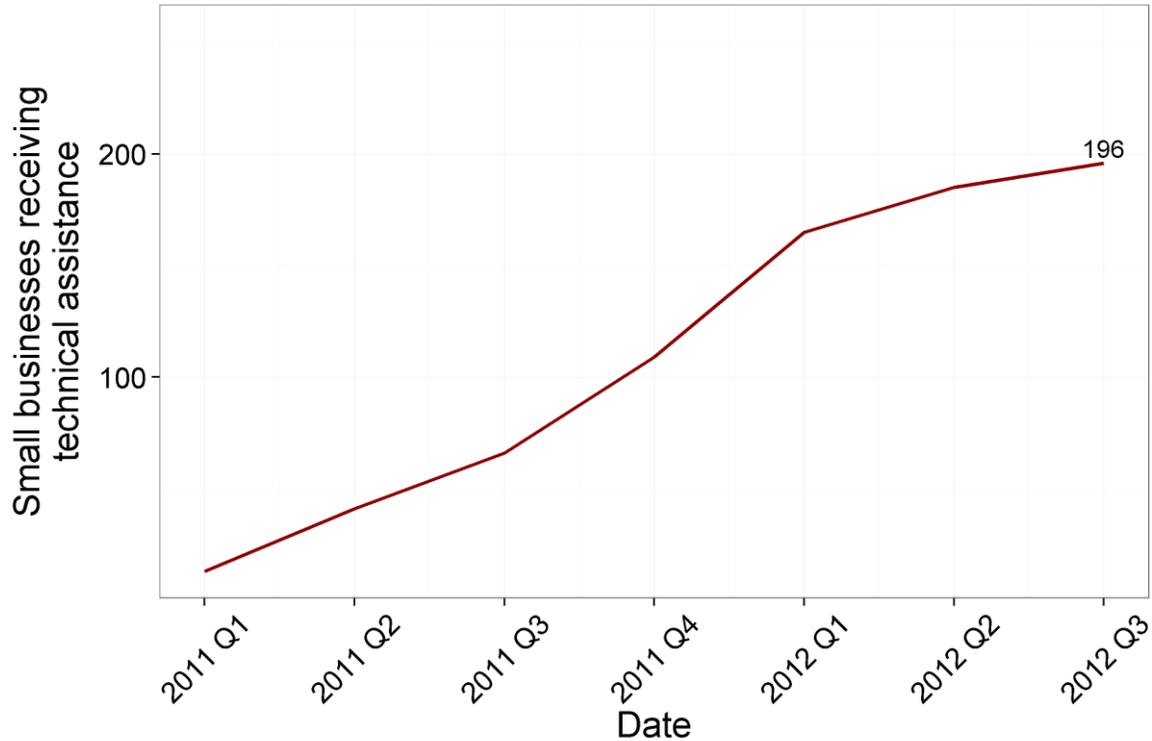
**Figure 11. Total PCs for People Computer Distribution**



UME offered several Technical Assistance mini-grants to Demonstration Communities using grant funds. These grants funded activities such as building websites for local businesses, covering transaction costs for a Chamber of Commerce website, adding resume builder and mobile application functionality to a local government website, and hiring consultants to help with broadband and Internet technologies. As shown in Figure 12, UME also provided broadband

support to 196 businesses throughout rural Minnesota, surpassing the original goal of 60 businesses by a factor of 3.

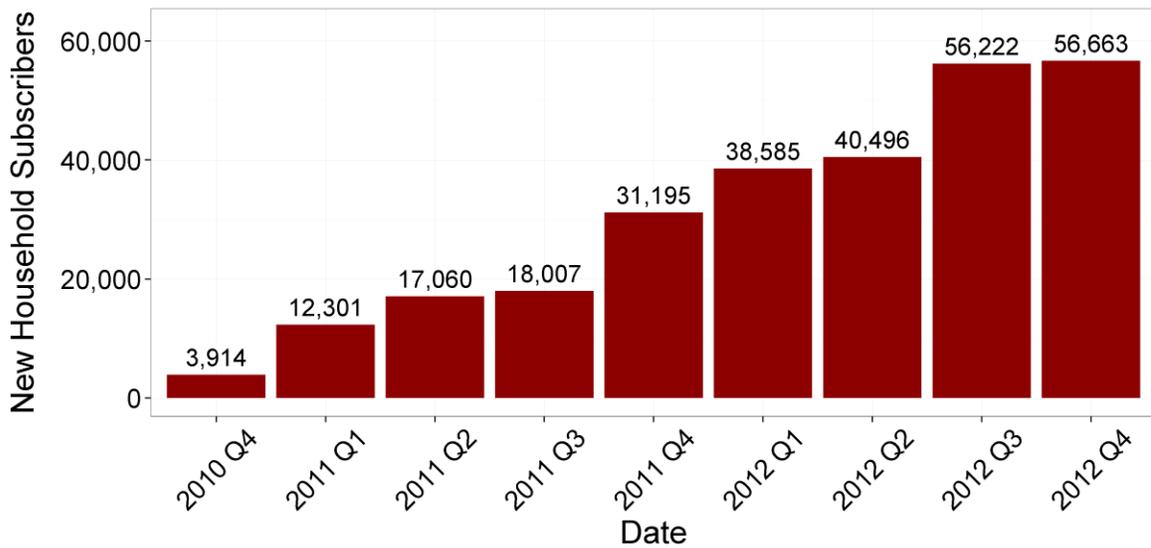
**Figure 12. Total Small Businesses Receiving UME Assistance**



### 3.2 Broadband and Economic Growth

As an SBA grant, the overarching goal of the MIRC project was encouraging broadband adoption in rural Minnesota. Figure 13 depicts the levels of new household broadband subscribers throughout rural Minnesota since the beginning of the grant period.<sup>18</sup> The C.K. Blandin Foundation determined subscribership based on three methodologies for measuring subscription including a statewide survey, aggregate data from Internet Service Providers (ISP), and transactional data from a private firm. The C.K. Blandin Foundation's original goal was to generate 38,556 new household subscribers. The MIRC project reached this goal early in 2012, and by the end of the grant had surpassed it by 18,107 additional subscribers, for a total of 56,663.

**Figure 13. Cumulative Household Subscribers**



At the beginning of the project, the broadband adoption rate in MIRC Demonstration Communities was lower than that for the rest of rural Minnesota, at 61.7 percent vs. 64.0 percent.<sup>19</sup> At the end of the project, there was a slight narrowing of this gap, with MIRC communities showing a 68.8 percent adoption rate versus a 70.6 percent adoption rate for other rural communities. The gap between these adoption rates was approximately 1.8 percent at the end of the study, versus 2.3 percent at the beginning of the study.<sup>20</sup> According to the Foundation's grant-funded evaluation study, there was a narrowing of the gap between MIRC Demonstration Communities of approximately 0.5 percentage points during the time period studied.

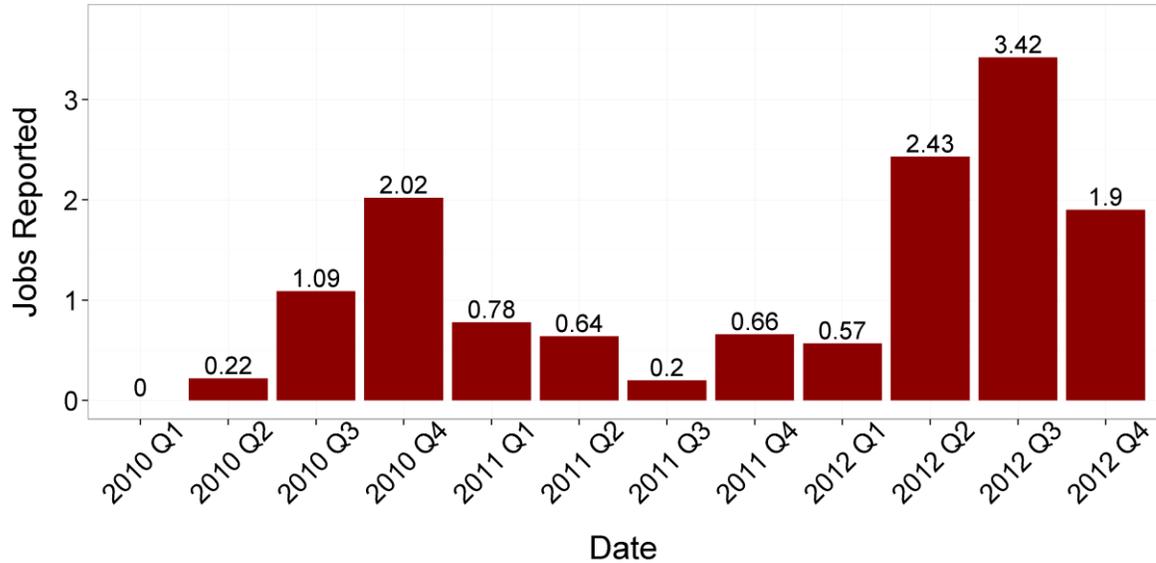
However, based on discussions with the grantee, the Demonstration Communities and the rest of rural Minnesota cannot be treated as pure treatment and control cases. MIRC funds assisted both the Demonstration Communities and other areas of rural Minnesota. For example, the project generated 6,672 new household broadband subscribers in the Demonstration Communities and 49,991 new subscribers throughout the rest of rural Minnesota. In terms of implementation of other project outcomes, including Digital Literacy and Workforce and Economic Development training, the separation of the Demonstration Communities from the rest of rural Minnesota is not clear. In addition, the goal of the project was not to narrow the gap between the Demonstration Communities and the rest of rural Minnesota, but to increase adoption in the Demonstration Communities over its statistically expected level. A comparison between the Demonstration Communities and the rest of rural Minnesota implicitly assumes the adoption rate in the rest of Minnesota is statistically expected for the Demonstration Communities. However, it is not clear that this should in fact be the level of adoption to be statistically expected in the Demonstration Communities. The material presented to ASR did not define what this statistically expected level of adoption should be.

As discussed in Section 2, the most prominent impacts of the MIRC project were in the area of Workforce and Economic Development. In addition to jobs created, the project also helped to spur economic growth in other ways. This includes training small businesses and alternative energy firms in the use of broadband technology to increase efficiency and marketing, increasing the skills and knowledge of the workforce, and encouraging residents to stay in rural communities by facilitating access to education, jobs, and healthcare using broadband.

As required by the Recovery Act, the C.K. Blandin Foundation reported the number of jobs created as a direct result of the project on a quarterly basis. As shown in Figure 14, this has resulted in up to 3.42 jobs created per quarter, with numbers in each quarter varying widely. In addition, the C.K.

Blandin Foundation and other statewide partners and Demonstration Communities provided staff hours as an in-kind match.

**Figure 14. Direct Jobs Created by Grantee**



It is important to note that the figure above displays only direct jobs created, and does not include indirect or induced job creation. As noted previously, the grantee conveyed success stories regarding indirect job creation, including local businesses and organizations that were able to expand and take on additional staff. It is clear that the grant indirectly created jobs in the Demonstration Communities and throughout rural Minnesota, but it is not possible to quantify this, as Demonstration Communities and statewide partners did not track this impact quantitatively.

## Section 4. Grant Implementation

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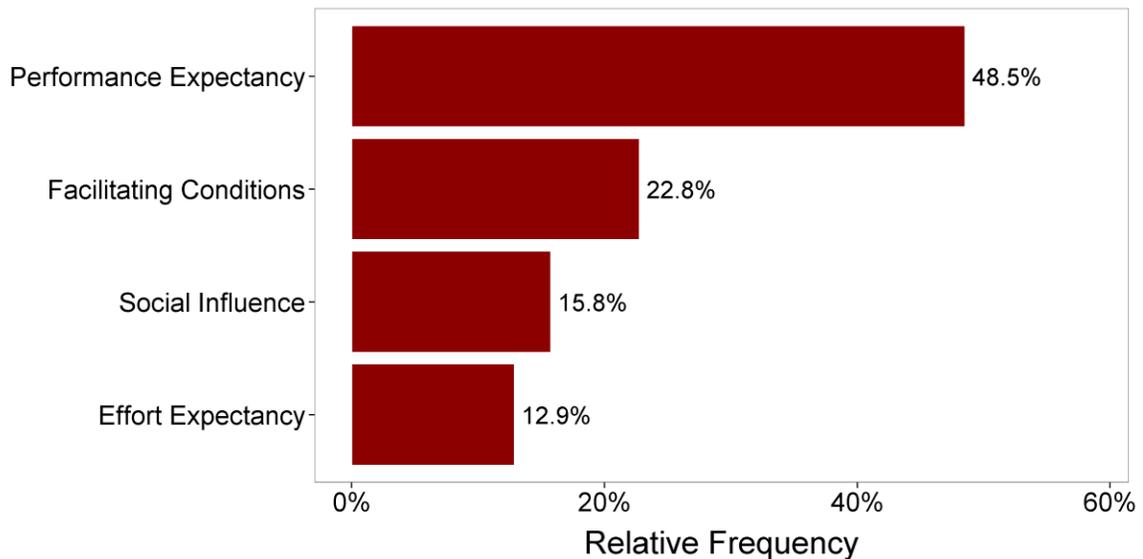
This section describes particular aspects of the implementation of the C.K. Blandin grant in order to understand the composition of activities and outcomes observed. The purpose of this categorization is twofold. First, defining a consistent set of categories for each of the grants in the study sample facilitates cross-case comparison and analysis. Second, presentation of the activities and outcomes for this case by category simplifies understanding of the focus of the grantee's work. This analysis is based on qualitative observations made during the site visit.

ASR is using a theory-based evaluation approach to examine the social and economic impacts of the BTOP program. This permits deeper understanding of grant features in terms of theory, which helps to explain how the grant activities produce impacts. For the PCC and SBA grants, ASR uses theories of technology adoption to examine factors that shape the demand-side of broadband services. The key theory ASR employs is the unified theory of the acceptance and use of technology (UTAUT), a technology adoption model proposed by Venkatesh et al. (2003).<sup>21</sup> The model is among the top three most frequently cited articles published in the information systems field and the preeminent article explaining the adoption of information systems. The UTAUT model traces its history from theoretical constructs found in literature that have a bearing on a user's intention of technology adoption and use. The UTAUT model is derived from the leading theories of technology adoption, including the theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory.

UTAUT explains technology acceptance by looking at a user's intention to use an information system and the user's long-term use of that technology. The UTAUT model combines concepts found in earlier models of technology use to posit a unified theory of information technology adoption and use. UTAUT includes four dimensions determining user intention and technology use: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Each of these dimensions is further classified into constructs constituting the dimension. The subsections below define and discuss each of these dimensions. Venkatesh empirically tested the model and reported that it was successful in explaining more variation in user adoption of technology than other adoption models tested.

Figure 15 presents the relative frequency of topics related to grant implementation as discussed during interviews and focus groups. These topics were placed in four categories, corresponding to the four UTAUT categories listed above. Performance expectancy appeared in grantee responses most often, highlighting the grantee's focus on increasing the "culture of use" of broadband-based services for its target population.

**Figure 15. Distribution of Grant Implementation Topics by UTAUT Dimension**



## 4.1 Performance Expectancy

*“We did see differences in some adoption rates. Some of the surveys asked participants after the fact, ‘Would you now have broadband at home?’ The answer was yes, because in order for them to seek employment or gainfully retain employment they saw a need for it.” – Project Lead, University of Minnesota Crookston MIRC Evaluation Study*

Performance Expectancy measures the degree to which a potential adopter believes that using broadband is beneficial for use in his or her daily life. Aspects of Performance Expectancy include the perceived usefulness of the new technology, outcome expectations, and the perceived relative advantage of the technology versus previously used technologies. The high frequency of grantee statements about Performance Expectancy illustrates the grantee’s focus on creating a “culture of use,” where rural Minnesotans understand the advantages of using broadband in their everyday lives. Examples include the following:

- The Digital Literacy training focused on skills related to job searching and job readiness, giving participants a reason to participate in the training beyond simply a perceived need for digital literacy. This focus helped nonusers to recognize the advantages of using broadband to gain job skills and to search and apply for jobs.
- Business trainings targeted businesses that could benefit from an enhanced online presence. These displayed the usefulness of broadband technologies to increase efficiency and marketing effectiveness through tools such as claiming Google Places, marketing through social media, and selling products online. These trainings included a wider economic development framework that influenced participants’ awareness of how broadband could help them achieve their business goals.
- Demonstration Communities’ partnerships with local service organizations serving users in diverse ways ensured that grant activities were meeting end-users at their point of need. For example, in Big Stone County, the grant introduced seniors who might have not embraced broadband to the possibility of using it to communicate with their families and their doctors. Seeing this potential made the participants more willing to learn about broadband technologies for use in their everyday lives. In another example, high school students in the Grand Rapids area discovered that they could use broadband to take courses they would not otherwise have

been able to attend. In Cook County, users who might otherwise have had no perceived benefit of using broadband could watch local high school basketball games, community meetings, and locally produced documentaries over the Internet. These examples highlight how diverse Demonstration Community projects served to expand rural Minnesotans' perception of the usefulness of broadband.

- Performance Expectancy also negatively affected some Demonstration Communities, as broadband availability and performance varied greatly. In some places, broadband was only available through satellite connections. On the other hand, some areas, such as Windom, had fiber to the home provided to all community residents before the MIRC grant began.

## 4.2 Facilitating Conditions

This category captures the degree to which the technical infrastructure available to the user supports potential broadband adoption, and the degree to which there are organizational supports to adoption. This includes access to broadband technology, the extent to which users can choose to use broadband, the compatibility of broadband with their lifestyle and activities, and the cost of using broadband. The broadband connection, computers, workspaces, safety, and cleanliness at Demonstration Community sites function as Facilitating Conditions, as does distributed equipment.

### 4.2.1 Access

The MIRC grant focused on Facilitating Conditions, especially in the delivery of PCs through the PCs for People program. As described in Section 3, the number of PCs delivered to participants exceeded expectations by a factor of over 100 percent.

The larger number of PCs delivered to local communities also led to an unintended benefit of the MIRC grant, expanding the number of PCs for People service and distribution locations. The result of this activity has been an increase in the service capacity of the organization. During the grant period, the main office moved from a 2,000 square foot facility to one with 11,000 square feet. They opened offices in Mankato, Grand Rapids, Brainerd, International Falls, Willmar, and affiliate sites across the state. Staff members expect this capacity to remain in place after the grant is over.

Partners in Demonstration Communities distributed computers to households identified by PCs for People's criteria of having household incomes below 150 percent of the poverty rate. Often the households selected participated in other grant activities such as the Digital Literacy training. In addition to individual households, PCs for People also distributed computers to PCCs. For example, at Cook County Higher Education, the partner donated computers for a computer lab. According to the Cook County Higher Education (CCHE) director, this provided the opportunity for larger training sessions using the desktops, increased testing services, and increased students' and residents' access to computers.

There were a few small issues noted in the expansion of PCs for People. Some equipment failed to function properly, although the number of defective units was small and not described as being out of the ordinary for the type of refurbished equipment provided. PCs for People replaced the defective units with functional units. In addition, some areas reported having fewer recipients that met the eligibility requirements of the PCs for People program than refurbished units to distribute. In these cases, the eligibility criteria were relaxed to allow distribution of equipment to applicants showing the greatest need. For example, in Stevens County, PCs for People distributed equipment to families with disabled children who had already obtained computers for home use before the MIRC grant. These families used the new computers as a backup for existing systems or as a second system in the household.

Access was an important aspect of the MIRC grant, considering the environment of rural Minnesota. The Benton County Demonstration Community pointed out that, before the project, there were not many public computer centers or training programs available to residents and no

capacity for the distribution of computers to low-income households. Project staff told the story of one man who had moved back to the area to take care of his elderly parents and was forced to drive ten miles and park outside of the library in order to access Wi-Fi to do consulting work. Grant funds helped to provide more access in the county in a variety of locations. For example, Foley Public Schools purchased and installed wireless routers throughout the school that provided not only access for students and teachers, but also free access for the public. People use the Wi-Fi when they come to the school for performances and athletic events, and to pick up their children. Grant funds also made Wi-Fi available in the Grand Rapids YMCA, which in the month preceding the site visit had an average use of forty-nine clients per day. Mobile devices including iPhones, Android phones, iPods, tablets, and eReaders accounted for 98 percent of clients and 83 percent of data usage on the Wi-Fi network, and the three top applications by data usage were Netflix, Pandora, and Tumblr.<sup>22</sup>

## 4.2.2 Supporting Activities

The grantee carried out other activities to support Facilitating Conditions, including the following:

- Local leaders' involvement in the grant structure facilitated providing services that were compatible with users' lifestyles and activities. For example, Worthington hired project staff to translate training materials in order to make them accessible to their ESOL target population. In Benton County, a local organization serving people with disabilities used grant funds to purchase accessibility equipment, including screen magnifiers and special keyboards. In the Leech Lake Boys and Girls Club, staff members rescinded their ban on accessing Facebook in the lab because they came to see it as opening up the possibility of teachable moments to their students.
- Some Demonstration Community partners worked with local ISPs to provide reduced-cost access to broadband services. In the Grand Rapids area, KOOTASCA worked with some ISPs to reduce their charges for a project connecting 119 households to broadband. In a small rural town in Benton County, Demonstration Community partners helped a school renegotiate its broadband service. The school was able to increase its broadband speed from 3 to 30 Mbps at a much lower price than originally quoted, which allowed the school to be able to offer Internet to more than one classroom at a time.
- The Sawtooth Mountain Clinic was working to introduce its patients to broadband technologies, including a patient portal that was at the time of the site visit only available at the clinic. Nurses are shifting their responsibilities toward helping patients use the new technologies in order to prepare them for more online technologies.
- Because local partners carried out Digital Literacy training, trainers were able to adapt to differing situations in different areas. For example, in Marshall, a partnership among a WorkForce Center, ABE, and Turkey Valley Farms, a large farm producer, facilitated on-site training opportunities for workers who were mostly Somali. According to the partner, meeting the participants where they were was a central focus of ABE. They were able to do this by adapting to a mobile situation using iPads, and participants were able to access the Digital Literacy training in lunchrooms and by checking them out for practice.
- One Demonstration Community requested a copy of the Digital Literacy modules on a CD so they could use it at a correctional facility. A number of detainees were working in a career transitions program but were not allowed to access the Internet. According to the project staff, "because the MIRC modules are self-paced and easy to use as independent study, a CD version will be really useful in this learning environment."

## 4.3 Social Influence

*“Two business owners in a very small town decided that they would learn from each other. They found that this was a good way to solidify the knowledge that they learned in class as well as take information to the community. And then they went and did their own mini-courses, mini-MIRC workshops. They took it to the people who had not attended our MIRC workshops, such as at the Veterans of Foreign Wars. And this group became known as the Akeley Area Breakfast Club.” – Program leader, Community Economics, University of Minnesota Extension*

This category measures the degree to which potential adopters perceive that others will view them favorably or interact with them in a positive way if they adopt broadband technology. This includes friends and family members who might already be using broadband technology. It also includes measures of whether the use of broadband is considered a social norm for the social group to which the potential adopter belongs. Components of Social Influence include subjective norms, social factors, and the image associated with broadband use.

The MIRC project included Social Influence as a factor in the adoption of broadband technology. The C.K. Blandin Foundation, through its ongoing work in rural Minnesota, has developed strong relationships with local leaders, and has worked to develop local leadership to work cooperatively with it in its rural development activities.

Social Influence worked both for and against the project. Longstanding social relationships between local leaders and their communities facilitated the implementation of grant activities. In part, it appears the dense network of social relationships present in the Demonstration Communities enabled the high level of organization and collaboration apparent in the structure of the delivery organization. Results of this included the development of at least two evaluations of the impacts of program activities.

The MIRC approach allowed Demonstration Communities to customize grant activities for the different characteristics of each community. The social and demographic groups served by the MIRC grant varied greatly from place to place, and the approach to the various communities changed as a result. Examples include the following:

- In Cook County, there is a strong sense of community that involves pride in local high school and college athletics. This Demonstration Community implemented a project to film and stream games over the Internet so that those who are not able to make it to a game are still able to watch. In addition, local community members often announce the events.
- The Sawtooth Mountain Clinic worked on a pilot project of home monitoring to allow seniors to stay in independent living situations. According to the grantee, “one of the very first seniors to participate was an elderly woman who said, ‘I’ll do this so I can tell my friends and they can know that it’s not scary’.” In this way, the project is using Social Influence to change norms.
- According to a staff member in the Leech Lake Band of Ojibwe Demonstration Community, “I laughed when I realized that my grandmother is on Facebook. And then you realize that it’s not only her, it’s all of her friends. And then you start to see that all of these elders have Facebook and they’re actually communicating on there. My grandma lives in Omaha, Nebraska, and it’s the only way she sees my daughters.” In this case, using broadband to access Facebook is becoming a social norm for elders in this community.

Social Influence also appeared to work against the goals of the project in some cases. In particular, interviewees cited traditional approaches to business, which do not include the use of broadband as a component of marketing or advertising, as one obstacle to rural businesses developing an online presence. One of the impacts of the grant has been to change the view of local businesses from a local focus based on existing social relationships to a model that includes Internet marketing

and communications in addition to traditional methods of doing business. The Workforce and Economic Development section above discusses this further.

## 4.4 Effort Expectancy

*“There was one participant that literally had a computer sitting right across the desk at home but would never touch it because she was just afraid something would happen. Well, now, talking to her, she does actually use her computer at home.” – Fitness Director, Grand Rapids YMCA*

This category measures the expectations of the potential adopter regarding the difficulty of using broadband to achieve benefits in one or more of the focus areas described above. It includes preconceived ideas about the difficulty of using broadband technology and computers in general, and anxiety or concerns about the risks of broadband use. For SBAs, it indicates how the services provided by the grant encouraged adoption by making access information and services on the Internet easier.

Effort Expectancy played a limited role in the MIRC grant. Few grantees mentioned that the level of effort required to use broadband resources played a significant part in the adoption decision of the communities that they served. The services provided by MIRC to address Effort Expectancy, such as training in Digital Literacy and the use of broadband technologies for business, were well attended and generated generally favorable comments on the part of participants.

The Digital Literacy training specifically addressed Effort Expectancy with an avatar named Olivia, introduced as a mentor to whom participants can relate on a personal level. According to the partner, “This is giving learners somebody to identify with and follow along with as she goes through her life change here, making it a little less frightening for them and giving them somebody comfortable to be with.”

One area in which training sessions were less successful was the Minnesota Learning Commons Knowledge Worker training module. This course had fewer participants than the grantee expected, and many said that the material presented in it was unrelated to their needs. In part, this could indicate a gap in Effort Expectancy, as community members perceived their needs would be met by broadband adoption on a scale smaller than that accompanying a career change. In other words, the community members saw the benefits of broadband, but also saw the effort they would need to expend to attain them as being even lower than that envisioned by the training modules. Examining the successful results of the grant lends support to this conclusion, in that the major drivers of successful adoption were home access, public Wi-Fi, portals for larger communities, and one-to-one connection efforts. All of these required less effort on the part of the participants than a career transformation would.

## Section 5. Techniques, Tools, and Strategies

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This section describes successful techniques, tools, and strategies identified by the grantee. The C.K. Blandin Foundation noted many successful techniques, tools, and strategies that it developed over the course of the grant. Many of these will serve as examples and best practices for future efforts within the state.

### 5.1 Techniques, Tools, and Strategies

- The C.K. Blandin Foundation has found the MIRC model to be successful, and will continue using it in the future with what the interviewees referred to as “MIRC 2.0.” This model included funding community projects developed and led by cross-sector leadership teams and developing baseline assessments and goals based around the ICF indicators of digital inclusion, broadband connectivity, digital skills of the workforce, innovation, and marketing and advertising. According to the grantee, allowing local communities to design and implement their own projects was one of the most successful strategies of grant implementation.
- The grantee believes that its holistic strategy incorporating many different partners on different levels of service delivery set the stage for continuing growth and sustainable use of broadband technology in rural Minnesota.
- A major strategy that came up repeatedly in interviews with representatives at many different levels of grant implementation was that the large number of partner organizations working together was unprecedented in Minnesota. The combination of statewide partners who could pool resources and reach many different areas and local leadership that knew the target population’s needs worked synergistically to produce impacts that no organization could have achieved on its own. An example is the Digital Literacy training curriculum, which began as a collaborative project among DEED, ABE, WorkForce Centers, community colleges, libraries, and community-based organizations.
- An additional benefit of agencies and organizations working together on the Digital Literacy curriculum was that participants gained access not just to the curriculum, but also to information about each of the organizations and other services they provide.
- The Digital Literacy training was employer-driven, so that participants were able to develop the skills that would most directly relate to obtaining a job or moving up in a position. In addition, its online availability ensured that the training was available both in classes held in computer centers as well as in individual homes.
- One of the major outcomes of the grant was the growth of the PCs for People model of securing, refurbishing, and distributing computers to low-income individuals. This statewide partner was able to expand its current office and open several new affiliate offices and depots throughout the state. The strategy of combining computer distribution with other local projects made it easier to find users for the computers and ensured that learners could continue to develop digital skills on their own after they received a refurbished computer.
- PCs for People collected surveys from each recipient that included information on household size, employment status, race, and whether they would use the computer for a job-related or education-related activity. These data helped the partner determine the types of hardware and software that would best serve their future recipients.
- Partnerships were equally important at the local level. In Demonstration Communities’ final narrative reports to the C.K. Blandin Foundation, each pointed out how new relationships and partnerships that they formed with other community organizations contributed to overcoming obstacles.

- In Grand Rapids, several different organizations including the public library, local television channel, senior center, YMCA, and community development agency worked together to provide integrated services at the same time that they conducted their own projects. For example, they decided to distribute the same type of laptop to all organizations so that users would have a seamless experience no matter where they were working.
- In addition to distributing computers to low-income individuals, the PCs for People program also raised awareness in businesses and government agencies about recycling their computers, and drew attention to environmental issues in the community.
- The Grand Rapids Demonstration Community facilitated broadband adoption by providing some clients with a coupon for part of their Internet service fee. This subsidized their Internet connection, let them choose which ISP they thought would be best, and eased the workload of local service agencies that were otherwise mediating between households and ISPs.
- Demonstration Communities learned that, for some projects, they needed to increase marketing and outreach in order to bring in their target population. For example, getting seniors to attend trainings often required phone calls.
- In the Thief River Falls Demonstration Community, the statewide partner offerings were particularly successful by virtue of creating connections between UME and the local Economic Development Association (EDA) and Chamber of Commerce. These organizations were then able to coordinate the classes, and because of the nature of the organizations were able to reach more people.
- Trainings provided to businesses focused on how digital tools can help sales and marketing efforts. According to one partner, focusing on business outcomes rather than the technology itself both increased the impact of the workshops and helped business owners to see how useful digital tools could be. According to surveys, the most successful sessions included Roadside Advertising in the Digital Age, Mobile e-Marketing, Doing Business Online, and Introduction to Selling Online.
- In addition to trainings and webinars, MNREM developed a strategy of inspiring local businesses in different rural areas to convene for “social media breakfasts” in which they could share tools and strategies for marketing online. These breakfasts helped to grow awareness and support for broadband in the business community.
- After analyzing their webinars, trainings, and social media breakfasts, MNREM learned that some participants wanted smaller lessons that they could access independently, based on need. They created an e-library website and developed one- to two-minute tutorials on social media and broadband policy in rural Minnesota.
- Through the initial implementation of the grant, staff discovered that there was a large and increasing demand for Digital Literacy training from non-native English speakers. The grantee used grant funds to commission a report on best practices for ESOL learners, mentioned above in Section 4.2. In addition, DEED was able to hire people to translate the Digital Literacy curriculum into at least three languages to help reach these target populations.
- In Cook County, the Demonstration Community designed projects with a strategy of funding a greater number of small projects from diverse organizations “in order to plant the seeds of innovation and experimentation more broadly within the community.” They also focused on building local leadership for project sustainability.
- Cook County also found live video to be an engagement tool for its community. Local school board meetings were very popular, in addition to local sporting events and other community meetings. They developed a group of skilled volunteers that could video record community events, which increased the capacity to provide this service to the county.
- The Demonstration Communities have found that it is easier to negotiate services and reduced prices for low-income populations with locally owned and co-op model broadband service providers. Rural Minnesota is distinct in the large number of these types of ISPs available in rural communities, and the grantee has found that they are more willing to collaborate with communities.

## 5.2 Challenges

- Many Demonstration Communities were not able to have much of an influence on ISPs to reduce their rates for the target population. Demonstration Communities found that providers, especially large companies, were less willing to work with them than they originally thought.
- Though the implementation structure worked well in many areas, some Demonstration Communities found it difficult to implement statewide partner activities because of a lack of customization of curricula or partnerships with local organizations. This was particularly the case with the MNREM training and Knowledge Worker course. In some areas, finding a location to hold a training event with adequate computers and broadband connectivity was also an issue.
- UME found that, though its grant implementation focused on nineteen communities, in order to reach the number of businesses they agreed to at the start of the grant they had to reach out beyond these communities.
- One of the biggest obstacles to broadband adoption in rural Minnesota remains lack of broadband availability in rural locations. Five Recovery Act infrastructure projects received funding throughout the state, but in some areas penetration and available speeds remain low.
- In other areas, such as Leech Lake, broadband is theoretically available, but most residents cannot afford a connection. Approximately 84 percent of this Demonstration Community's target population is unable to afford service in their homes or do not have sufficient credit to create accounts with ISPs. This continues to restrain broadband adoption and digital literacy.
- In some communities, PCs for People found that, because of data security concerns, companies and organizations were not willing to donate used computers. PCs for People holds a National Association for Information Destruction (NAID) certification ensuring they follow all protocols to delete all data on computers they receive, but this perception remains a challenge.
- Though the business trainings that took place were successful for participating businesses, they for the most part were not able to reach late adopters. Most of those participating in the trainings were already aware of the benefits of using broadband.
- Several Demonstration Community website projects took place in small towns with fewer than 500 residents. In towns this small, there is no full-time staff to take on the responsibility of keeping up a town website. These projects must be volunteer-run, and, as a result, sustainability is an issue.
- Some Demonstration Communities partnered with private companies to provide services to their target populations. In the case of partnering with HomeStream software to provide telemedicine services to seniors, this did not work to the satisfaction of the users. Seniors ended up using the hardware they received to connect to Skype in order to communicate with family instead of the HomeStream software.

## Section 6. Conclusions

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The MIRC grant mobilized eight statewide partners and eleven Demonstration Communities to further the social and economic viability of rural Minnesota through the adoption and use of broadband-based services. Each Demonstration Community designed and implemented a range of projects it thought would best serve its community, using a framework from ICF to identify strengths, weaknesses, and areas of improvement throughout the life of the grant.

The C.K. Blandin Foundation used grant funds to produce an evaluation study of the MIRC project designed and written by Dr. Jack Geller and Mr. Eddie Walker at the University of Minnesota Crookston. The study determined baseline broadband adoption rates for rural Minnesota and the Demonstration Communities, measured baseline ICF indicators for the Demonstration Communities, tracked statewide partner progress toward objectives, and contracted with a third-party vendor to track adoption rates throughout the grant. ASR did not have access to raw data from this study. As discussed in Section 3.2, the study found that the adoption rate in the Demonstration Communities increased faster than throughout the rest of rural Minnesota, over the grant award period.<sup>23</sup>

Different projects centered on different focus areas, including Workforce and Economic Development, Digital Literacy, Quality of Life/Civic Engagement, and Healthcare. Though it is difficult to generalize across the Demonstration Community projects, the first two focus areas show the greatest number of impacts, partly by virtue of statewide partner activities in these areas, which included Digital Literacy trainings and the distribution of refurbished computers to low-income households. Major impacts of the combined statewide and local community projects include Minnesotans' increased skills and knowledge regarding how to find and obtain jobs, more efficient marketing for small businesses, better access to education and local government services, and increased partnerships and networks in rural communities and across the state.

In line with the goals of the Recovery Act, MIRC enabled these impacts by providing broadband education and training, building awareness of the availability and benefits of broadband, increasing rural Minnesotans' access to broadband and broadband equipment, and supporting local businesses in the transition to digital marketing and services. Implementation of the project allowed individual communities to design the projects that fit the needs of their specific target populations. The grantee believes that this not only facilitated greater impacts in the communities, but also empowered communities by increasing the capacity for local organizations to produce change in the future.

The C.K. Blandin Foundation has found the MIRC model to be successful in effecting change in the Demonstration Communities and throughout rural Minnesota. This model included funding community projects developed and led by cross-sector leadership teams and developing baseline assessments and goals based around ICF indicators. Based on this framework, Demonstration Communities saw the biggest improvement in their capacity to market and advertise the programs and services they offered.

A major challenge faced in this grant was the ability to implement statewide partner trainings adequately at the level of the Demonstration Communities. Interviewees mentioned that the C.K. Blandin Foundation is embarking on a "MIRC 2.0" project using the lesson of the grant to develop outcomes and impacts further in rural Minnesota. This project will use the materials developed by the statewide partners as resources for Demonstration Communities, but will empower the communities themselves to promote and implement the trainings.

One of the biggest obstacles made visible by the MIRC project remains lack of broadband availability in rural locations. Five Recovery Act infrastructure projects are being implemented throughout the state, but in some areas, penetration and available speeds remain low. In addition to the social and economic impacts discussed, the MIRC project made these inequalities in broadband access and availability more visible to legislators, who are now developing a Broadband Development Office in the State of Minnesota. According to the grantee, the awareness that this project has facilitated in the state will lead to more impacts in the future.

## Section 7. Next Steps for the BTOP Evaluation Study

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In early 2014, ASR will deliver *Interim Report 2* to NTIA. This report will include a summary of the second round of case study visits to the fifteen PCC and SBA grants, allowing for an analysis of the impacts of the grants over time. *Interim Report 2* will also summarize the findings from case study visits to twelve Comprehensive Community Infrastructure grants. These visits will take place in the fall of 2013 and result in a set of twelve case study reports delivered to NTIA over several months.

For the PCC and SBA projects, *Interim Report 2* will provide an update to and refinement of the analysis presented in *Interim Report 1*. For the CCI projects, *Interim Report 2* will summarize the activities underway by twelve CCI grantees and the impacts these projects intend to have on broadband availability and adoption for community anchor institutions, communities, and individuals.

One of the impacts most often cited by interviewees was the effect the MIRC project had on the sustainability of projects influencing broadband adoption, for example:

- Resources built by state partners will continue to be available online for use by individuals as well as in training programs put on by PCCs.
- Because of capacity building during MIRC that included the opening of new offices in rural Minnesota and strengthening distribution networks, PCs for People is able to distribute computers more efficiently to low-income individuals throughout the state. A PCs for People internal assessment after the site visit found that the organization distributed 3,028 computers, including distributions in early 2013.<sup>24</sup>
- At the state level, the involvement of actors such as DEED and UME has created high visibility for the project. At the time of the site visit, state legislators were planning to develop a Broadband Development Office to further broadband penetration and adoption in Minnesota.
- The C.K. Blandin Foundation has been successful in developing a “culture of use” with a shared vocabulary in the Demonstration Communities. The ICF framework has given these communities an understanding of their strengths and weaknesses in technology-based economic development, and a strategy for approaching growth in the future. Several project staff members pointed out that long-term broadband adoption would continue to rise because of their holistic approach.

ASR will check in with the C.K. Blandin Foundation in the second quarter of 2014 to learn more about the sustainability of the project.

Finally, in September 2014, ASR will deliver a *Final Report* that quantitatively and qualitatively measures the economic and social impact of BTOP grants (including CCI, PCC, and SBA). The centerpiece of the *Final Report* will be an assessment of how and to what extent BTOP grant awards have achieved economic and social benefits in areas served by the grantees. To the extent that such information is available, results from studies performed by the grantees will be used to round out the conclusions presented.

# Notes

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<sup>1</sup> National Telecommunications and Information Administration, “Statement of Work for Broadband Technology Opportunities Program (BTOP) Evaluation Study”, July 26, 2010, 6.

<sup>2</sup> For more information, visit: <http://www.intelligentcommunity.org>.

<sup>3</sup> ASR Analytics, *Progress towards BTOP Goals: Interim Report on PCC and SBA Case Studies, Broadband Technology Opportunities Program Evaluation Study (Order Number D10PD18645)* (Potomac, MD, 2012).

National Telecommunications and Information Administration, “Post-Award Monitoring (PAM) Database 2013-03-11” (Washington, D.C.: Distributed by National Telecommunications and Information Administration, 2013).

<sup>4</sup> The Blandin Foundation, *MIRC Quarterly Report Data Quarter 3 2012*, 2012.

<sup>5</sup> Hans Muessig et al., *Minnesota Intelligent Rural Community Program 2010-2012 Final Report*, 2012.

<sup>6</sup> Federal Communications Commission, *Connecting America: The National Broadband Plan*, 2010, <http://www.broadband.gov/plan/>.

<sup>7</sup> Jack M. Geller and Eddie Walker, *Minnesota Intelligent Rural Communities Project Final Report* (Crookston, MN, January 2013). 33.

<sup>8</sup> Geller and Walker, *Minnesota Intelligent Rural Communities Project Final Report*.

<sup>9</sup> The Blandin Foundation, *MIRC Quarterly Report Data Quarter 3 2012*.

<sup>10</sup> For more information, visit [www.windom-mn.com](http://www.windom-mn.com).

<sup>11</sup> The Blandin Foundation, “Minnesota Intelligent Rural Communities Fact Sheet”, 2010.

<sup>12</sup> Robert Bell, *Partners In Progress: The final report on the MIRC Demonstration Communities 2010-2012*, 2013, [www.intelligentcommunity.org](http://www.intelligentcommunity.org).

<sup>13</sup> For more information, visit [www.blandinonbroadband.org](http://www.blandinonbroadband.org).

<sup>14</sup> Data gathered from PPRs and internal grantee quarterly reports.

<sup>15</sup> *Bridging the Gaps: Best practices and resources for building digital literacy with non-English speaking communities*, 2012.

<sup>16</sup> “Benton County Internet, Phone, and Cable Directory” (Benton County, August 2010).

<sup>17</sup> National Telecommunications and Information Administration, “Post-Award Monitoring (PAM) Database 2013-03-11.”

<sup>18</sup> National Telecommunications and Information Administration, “Post-Award Monitoring (PAM) Database 2013-03-11.”

<sup>19</sup> Geller and Walker, *Minnesota Intelligent Rural Communities Project Final Report*.

<sup>20</sup> Geller and Walker, *Minnesota Intelligent Rural Communities Project Final Report*.

<sup>21</sup> Viswanath Venkatesh et al., “User Acceptance of Information Technology: Toward a Unified View,” *MIS Quarterly* 27, no. 3 (September 2003): 425–478.

<sup>22</sup> “YMCAGuest Network Report”, February 2013.

<sup>23</sup> Geller and Walker, *Minnesota Intelligent Rural Communities Project Final Report*.

<sup>24</sup> E-mail to author, August 9, 2013.

# Glossary

| Acronym | Definition  |
|---------|---|
| ABE     | Adult Basic Education                                       |
| APR     | Annual Performance Progress Report                          |
| ASR     | ASR Analytics, LLC  |
| BTOP    | Broadband Technology Opportunities Program                  |
| CCHE    | Cook County Higher Education                                |
| CCI     | Comprehensive Community Infrastructure                      |
| DEED    | Minnesota Department of Employment and Economic Development |
| EDA     | Economic Development Association                            |
| EDC     | Economic Development Commission                             |
| ESOL    | English for Speakers of Other Languages                     |
| FCC     | Federal Communications Commission                           |
| GED     | General equivalency degree                                  |
| GIS     | Geographic Information System                               |
| GPS     | Global Positioning System                                   |
| ICF     | Intelligent Community Forum                                 |
| ISP     | Internet Service Provider                                   |
| MIRC    | Minnesota Intelligent Rural Communities                     |
| MNREM   | Minnesota Renewable Energy Marketplace                      |
| NAID    | National Association for Information Destruction            |
| NTIA    | National Telecommunications and Information Administration  |
| PCC     | Public Computer Center                                      |
| PPR     | Quarterly Performance Progress Report                       |
| RDC     | Regional Development Commission                             |
| SBA     | Sustainable Broadband Adoption                              |
| TEP     | Temporary Employment Program                                |
| UME     | University of Minnesota Extension                           |
| UTAUT   | Universal Theory of Acceptance and Use of Technology        |

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