

Special Project Award Nomination Information

Name of Community: Henderson Population: 986

Name of Project: Mainstay Communications Fiber to the Home Project

Name of Contact Person: Kelsey Bergen

Day Phone: (402) 723-4228 Eve Phone: (402) 723-5478 Email: hchamber@mainstaycomm.net

Category: Community Development

Subcategory: Technology, Infrastructure, and Planning

Date Project Started (mo./yr.) June/2008 Dated Completed: April 8, 2009

Is the Project Annual/Ongoing: Ongoing

Volunteer Hours: 10

Number of Volunteers: 1

1) Brief Description of the Project

Mainstay Communications was formed in 1968 when the people of Henderson needed to decide what should be done to continue telephone service to the community and surrounding area as the current equipment was in need of a major upgrade. The people decided to establish one organization – a cooperative, where the shareholders would work together to provide the community with the best telecommunications possible. The aged magneto crank equipment with an aerial plant was replaced by a modern, all buried cable system with touch tone phone. In 1982, the company diversified by burying cable TV services to the community. In 1996 internet services were brought to the local customers with the purchase of routing services, a web server and the formation of telcoweb.net. All of these services were available to the community through copper wire running to each home. Copper wire was able to provide each of these services, but it became limiting as technology progressed.

In 2008 Mainstay decided it was important to continue to upgrade the telephone, cable and internet services by expanding the amount of bandwidth available to residents. With more bandwidth, more information can be carried in a given amount of time. For example, when bandwidth is increased download time for internet files is decreases. In order to prepare for future technology Mainstay chose to install Fiber to the Home, which is the optimal solution for providing broadband to new and existing communities. Providing broadband to each home increases the amount of bandwidth available to customers.

2) Identify the planning and implementation of the project

a) Describe the methods used to plan and implement the project

With a copper cable system that was eighteen years old and needed to be replaced, it was obvious that installing Fiber to the Home (FTTH) was the logical next step for Mainstay Communications. Currently fiber material is cheaper than copper wire and fiber is capable of providing better services. Customers are looking for better connectivity and optics-based systems, such as fiber, can deliver a multitude of digital information for telephone, television, broadband data, and potentially any new technology that is developed more efficiently than traditional copper cable. For example, a single copper pair conductor can carry six phone calls. A single fiber pair can carry more than 2.5 million phone calls simultaneously. Experts at the FTTH Council say fiber-to-the-home connections are the only

technology with enough bandwidth to handle projected consumer demands during the next decade reliably and cost effectively. Fiber has a virtually unlimited bandwidth coupled with a long reach, making it "future safe," or a standard medium that will be in place for a long time to come.

Once the plan for FTTH was in place Mainstay Communications applied for a Broadband and Telecommunication Loan from the USDA Rural Utilities Service (RUS) Department. Mainstay Communication was approved for \$3,962,000 to provide new and improved service to subscribers through the deployment of 3 new route miles of fiber cable. With the RUS Loan in place, the project was let out for bids by area contractors. The low bid was awarded to J and R Underground from Blanchardville, WI for the installation of the fiber material to each home in the community.

b) Describe how the project relates to the community's overall goal

Adding Fiber to the Home will improve the community in many aspects. Economic Development will certainly be affected in the areas of property development, residential development, and business structures. No business wants to move to a town and use 120 year old copper that costs as much as (or more than) fiber and will be totally obsolete in just a few years. At the same time residents are not interested in moving to a town where they have to wait 20 minutes for a file to download on their dialup internet, when they know it would have been downloaded in 1 minute if more bandwidth was available. Having Fiber to the Home and business could easily cause a business or potential resident to choose one rural community over another.

With advances in technology we are starting to see more stay at home working families in Nebraska. From an economic development standpoint we can't bring every "big city" business to our rural community because we don't have the population base to support such a large business, but we can allow our residents to maintain these types of jobs and work from home in Henderson. In order to work from home by way of the internet, employees need bandwidth available through fiber to effectively log on to corporate LAN from home. More than 13 percent of FTTH subscribers say they are able to work from home more often, a monthly average of 7.3 more workdays at home. In addition, 59 percent of telecommuters said their employers were more favorable about telecommuting with a FTTH connection than with other broadband solutions due to the quality and ease of communicative ability between both sites. The same is true for residents choosing to start their own business from home. With the capabilities of FTTH they can do business across the world from their home. In a rough economy it is necessary to provide these opportunities to the residents of Henderson, so they can continue to live here no matter how far their career may take them.

It is no secret that technology will be very important in the future of rural America. We have gotten to a point where internet service is just as important as water or sewer service or even electricity and consumers want to use Internet applications at their peak performance. With people building their lives and their livelihoods around the internet they expect it to work and work easily. This will only continue in the future and Henderson is happy to offer this service as we head into the future of technology.

c) Describe how the project was identified as a priority for the community

Currently FTTH is the only technology that will meet the needs of the foreseeable future when 3D "holographic" high-definition television and games (products already in use in industry, and on the drawing boards at consumer electronic firms) will be in everyday use. In order to effectively recruit residents and businesses to the community of Henderson it is necessary to have these capabilities. To put it in a better perspective, 20 to 30 gigabits are used every second in every home. Copper does not even have 1/1000th of the bandwidth necessary to supply that amount for a few hundred yards let alone

every home in the community. We can not predict the new technology that will be created, but we can prepare to the best of our ability, so we can implement new technology easily. Henderson wants to provide the best quality of life possible to our residents and potential residents. Our quality of life now includes online entertainment, online education, culture and e-commerce.

3) Describe volunteer involvement in planning and implementing the project.

a) Describe how responsibilities were delegated among volunteers.

Due to the fact that Mainstay Communications is a cooperative, they did not need the help of volunteers in order to carry out this project through the physical labor of connecting fiber at each home. However, Mainstay felt it was necessary to use this opportunity in help the community learn about the internet. As a result Mainstay inquired if the Henderson Chamber of Commerce would volunteer to coordinate several educational programs to help the business community, residents and government agencies learn about how fortunate Henderson is to be one of the first communities in Nebraska to provide FTTH access to every resident. The Henderson Chamber has begun working with the Dennis Kahl, an Extension Educator with the University of Nebraska Extension, to coordinate these educational opportunities on an ongoing basis. Some of the anticipated topics included; Navigating the Net, which will introduce the uses of internet, e-mail and search engines as well as the use of the Windows or Mac operating systems to organize files; eBusiness, a series of classes to help local business owners/managers examine the potential of having online access for their business; eBusiness with eAuctions, will help entrepreneurs through the process of preparing and selling their items on the internet; Podcasting Across Nebraska, will take participants from learning how to create an audio or video podcast to publishing a podcast; Web 2.0 Technologies, which will give a sneak preview of some of the interactive web tools such as blog, social networking, webtv, Wiki's, Twitter and RSS feeds; Becoming an Internet Savvy Parent, will help parents teach their children to use the web safely; and Developing Websites for Growth, where the community will be able to develop a website to market to prospective residents and help businesses provide information to current residents. Since the Chamber works directly with local businesses and wants to provide opportunities for education in the community, this was a natural way for the Henderson Chamber to volunteer their services for the betterment of the community.

b) Describe how volunteers were recruited for the project.

The Henderson Chamber of Commerce has always had a great working relationship with Mainstay Communications. These organizations have worked together to apply for a REDLG Grant for the telecommunications provider two times. These funds were then loaned to Henderson Health Care Services, where their interest was donated back to the Chamber. Through previous projects such as this, collaborations between the Henderson Chamber and Mainstay Communications have become natural, so it was fitting for the Chamber to assist Mainstay in this way.

4) Identify Project Outcomes.

a) What did the community intend to change as a result of the project?

By adding FTTH in Henderson there were several areas that the community was able to change as a result of this project. First and foremost the internet speed and accessibility to each home and business was increased. This is very important as most families have a computer with internet in their homes, if not multiple computers. As this amount of internet access increases the amount of bandwidth needed will also continue to grow. With the FTTH project we are now able to provide the community

with the best internet connections possible. While each resident's personal internet needs have been met with this project, FTTH also allows Henderson businesses to use the internet to market their business and sell their items across the world. A study by the Massachusetts Institute of Technology has found that broadband enhances economic activity by helping to promote job creation both in terms of the total number of jobs and the number of establishments. Broadband is associated with growth in rents, total employment, number of business establishments, and share of establishments in IT intensive sectors. The City of Henderson anticipates seeing this change as more businesses use the internet as a way to advance their business into the future and as new businesses emerge in the community due to the availability of internet capabilities.

b) Describe community wide support of the project.

The community of Henderson has shown support for the FTTH project in many ways when the project was in the planning stages, while the fiber was being installed and as we realize the benefits the fiber system has to offer. In the planning stages of this project the community of Henderson, both the residential and business sectors, were excited about the investment that was being made in this community through FTTH. It is encouraging to everyone in the community to see a business investing in the community because it shows that we want to continue to progress into the future, opposed to trying to stay the same in an ever changing world. As the installation stage of the project began every single business and home in the community opened their doors for workers to install the new system. While Henderson has a smaller population than many communities in Nebraska, this was still a huge undertaking to go to every home and business. During this process individuals could have become upset with the various holes being dug around town or the inconvenience of people needing to work in their house or business, but the community members were helpful and understanding making installation very easy. Finally, as the installation was completed and the fiber connection became available in homes and at businesses, community members became excited about the new system and the idea that our small community was capable of providing this service, let alone being one of first communities in Nebraska to provide fiber to each home. While the residents of Henderson didn't need to show support for this project through monetary donations or volunteer hours, they still showed their support for the project in many ways.

c) Describe how the final project impacted the community, including measurable data. (Measurable data includes both qualitative and quantitative information).

Through the FTTH project Mainstay Communications can now offer more bandwidth to their customers for telephone, television and internet access. Now customers can choose a plan between 128K to 10 Meg, based on the amount of bandwidth they need or internet speed they desire. In addition they can adjust their plan at anytime to increase or decrease their amount of bandwidth. This impacts the community in several ways. First of all it creates a better quality of life for our residents. For example this fiber connection can handle the bandwidth needed for 3DTV and HD channels with ease, which will improve home life for our residents. In addition residents have the capability of working from home due to the access available through fiber. Some of our residents have already begun working from home, which saves them money and time in their day-to-day life. Finally, Henderson now has the ability to provide any amount of bandwidth to larger companies such as data centers. This is a huge asset when recruiting a new business to town.

5) Describe how resources were identified and used to successfully implement the project.

a) Monetary (grants, fund-raising, bonds, etc.)

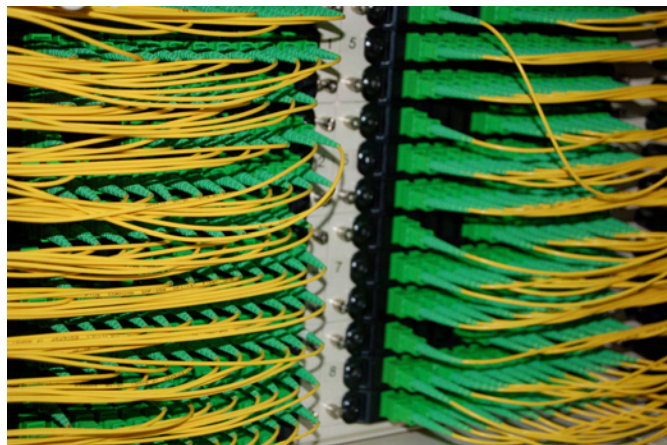
Mainstay Communications was approved for Rural Broadband and Telecommunications Loan through the USDA Rural Utilities Services Department to use \$3,962,000 to provide new and improved service to subscribers through the deployment of 3 new route miles of fiber cable.

b) Material and supplies (purchases and donated)

With the Rural Broadband, Telecommunications Loan, all materials for this project were purchased. Materials purchased for this project included the fiber cable and assembly units for buried plant fiber optic housing, buried hand holes, cable splicing, network interface devices, service entrance and underground conduit.



All of the housing unit and fiber connectors are located at Mainstay Communications in Henderson Nebraska. From this point of access it is easy to maintain, fix and improve the service that Mainstay Communications provides to customers. The entire housing unit is shown to the left and the actual fiber system, which is contained in the housing unit, is shown below.



c) Labor (volunteer, in-kind, and paid services)

The majority of the labor for installing the fiber cable to each home was paid service by Mainstay Communications. Workers for this project were J and S Underground employees in addition to Mainstay Communications employees. In-kind labor was provided by other local utility service providers such as the City of Henderson, Source Gas and Perennial Public Power District, for locating their utility lines at each property in Henderson.

6) What aspects (if any) of the project were especially unique or creative? Please Describe.

The Fiber to the Home Project is unique in the aspect that Henderson is one of the first communities in Nebraska to provide this service to each residence. For a community of almost 1,000 it is important to offer such technology in order to retain and recruit new residents to our community. There are many rural communities that are only able to offer dialup internet to their residents, and we are proud to not only offer the latest technology in Henderson, but to also be prepared to advance our broadband services in order to stay up-to-date with the ever changing world of technology.