

Case Study

Internet Connectivity: A Churchill, Manitoba Case Study

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Abstract

The Churchill Community Network (CCNet) was a community based Internet business in Churchill, Manitoba. The company was established in 1997, at a time when Internet connectivity was just gaining momentum, particularly in rural, remote and northern areas. CCNet members successfully established broadband connectivity in Churchill prior to nationwide initiatives to address bandwidth needs (Cameron, et al. 2005). This case study contributes to an understanding of connectivity barriers, decision-making processes, government involvement, and economic opportunities for a northern community through connectivity infrastructure. It demonstrates the way in which one community achieved connectivity on its own, illustrates the reasoning behind it, and shows why it is important. The research also provides a basis for comparison to other communities as they address Internet connectivity.

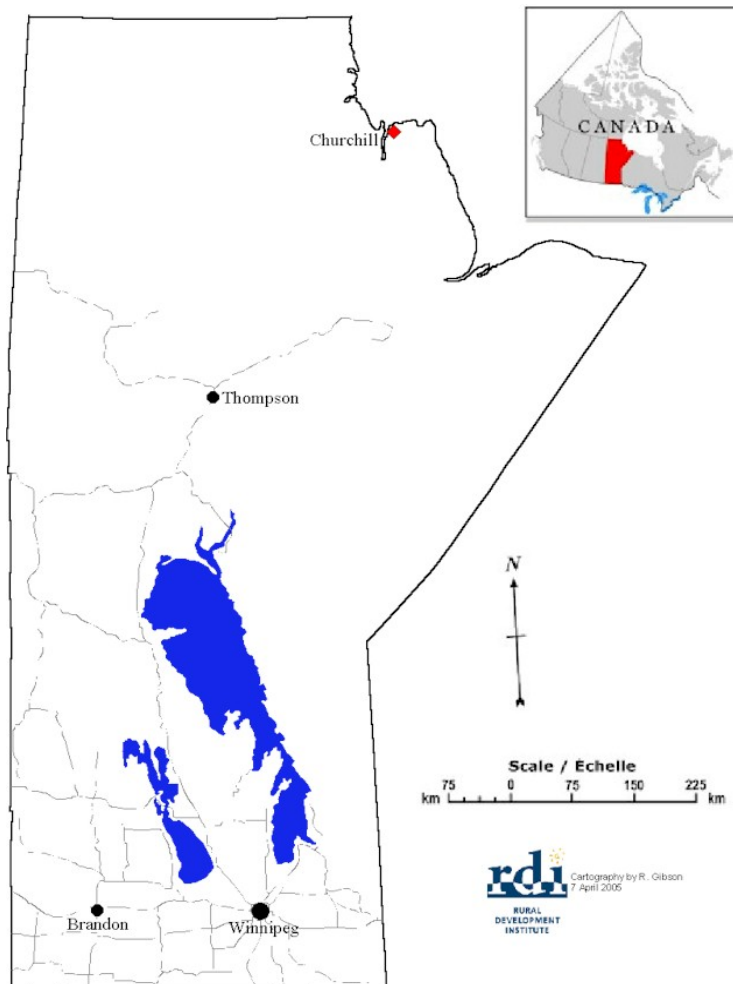
1.0 Connectivity in Churchill

Churchill is a town located in the northern part of the province of Manitoba in Canada. According to the Canadian Census, in 2001 Churchill had a population of approximately 963, a decline of 11.6 percent from 1,089 in 1996. The community is located on the southwestern shores of Hudson Bay at the mouth of the Churchill River. While there is no road access to Churchill, it is a hub for tourism, research, and transportation in Canada's north. The Town of Churchill has been described as:

As a transportation hub for the north, the town has a busy rail line and airport. Churchill also has the only inland saltwater port in Canada. Air or rail brings in goods from the south, which are then shipped by barge or sea going vessels to numerous points through the north. The area has a strong research presence. Many scientific professionals use The Churchill Northern Studies Centre and the Institute of Arctic Ecophysiology, as a home base for their studies. The Port of Churchill is a fully functioning seaport, capable of shipping most bulk commodities and many other

import and export products. (www.communityprofiles.mb.ca/cgi-bin/csd/index.cgi?id=4623056). Tourists come from all over the world to visit Churchill to see the Northern Lights, birds, whales and polar bears. Small businesses in Churchill include hotels, restaurants, bakeries and tour operators to serve the year round influx of tourists.

Figure 1. Map of Churchill, Manitoba



1.1 Research Methodology

The Manitoba Research Alliance on Community Economic Development in the New Economy funded a research team made up of Churchill community members and academics from Brandon University to conduct the case study. The team included Churchill's mayor, Mike Spence and a CCNet board member, Mike Iwanowsky. Both live and work in Churchill. From Brandon University, the team included Dr. Robert Annis, Dr. John Everitt, Ms. Deatra Walsh and Ms. Susannah Cameron.

The team conducted primary research consisting of tape-recorded interviews with each of the eight original Board members of the Churchill Community Network and Churchill Town Council members in June 2004. This research team also conducted secondary research by analyzing all background documents related to CCNet including meeting notes, contracts, media coverage and reports. Following preparation of a draft report on the project, all of the people interviewed received copies and were asked to send corrections and feedback. Their suggestions were incorporated into the final report (Cameron et al., 2005) to ensure the story of CCNet was told accurately.

1.2 The Gap in Broadband Internet Access in Canada

The report *Stronger Communities for a Stronger Canada: The Promise of Broadband* (2005: 15) identifies the need for broadband services in northern and remote areas to enhance these communities' abilities to:

compete in the new markets being opened up by electronic commerce, to enhance local education and health care through distance education and tele-health, to access the incredible range of public and private information resources now available on-line, and to strengthen the Canadian community by participating in e-government.

Access to the Internet is also a tool for individuals who use it to build networks with others with common interests and for keeping contact with friends and family.

According to Industry Canada (2005), 64% of Canadians, the percentage of the population that lives in or near major metropolitan areas, are able to access broadband through commercial network operators. Some citizens living in rural and remote parts of the country are also able to obtain access to broadband Internet via the federal government's Broadband for Rural and Northern Development Pilot Program. However, there are about 4,200 communities in Canada, with an average population 1,500, that do not have access to broadband (<http://broadband.gc.ca/pub/faqs/index.html>). Therefore, a gap still exists for Canadians in towns and rural areas that have not been served by the Broadband Program and are not served by the commercial broadband market.

1.3 The Churchill Community Network

The Churchill Community Network had its roots in a group of Churchill community members who met informally in the mid 1990s to discuss computer issues and Information Communications Technologies (ICT). Calling themselves the Churchill Computers Users Group, the ten members all had computers and used them to access the Internet through CompuServe, a service provider, using long distance phone lines. However the toll charges and long distance fees to access the Internet totaled averages of hundreds of dollars each month (Gagnon, personal communication, June 22, 2004).

This changed when the Churchill Computer Users Group applied for and received a grant from Industry Canada's Community Access Program (CAP) to allow Manitobans open access to the information highway. The mission of the Canadian Community Network(CCNet) as stated in their *Community ACCESS Program Application* (1995: 1) was "to provide the community of Churchill with free public access to the Churchill Community Network and to bring the Information Highway

to Churchill at a low cost” . In January 1996, 45 members attended a meeting to launch a community-based organization.

As Mike Iwanowsky, the President of the newly formed CCNet explained:

That’s when every one of us started realizing that this isn’t something that’s self-serving anymore, this is something that needs to happen if Churchill wants to grow... at that time it was a successful community in the tourism side of things with the polar bears and stuff like that but the port was going through very difficult times. The Health Centre had been struggling as well so this was the way to go and we realized that very early on that this really was an important project. (Iwanowsky, personal communication, June 21, 2004).

Another founding member of the CCNet Board of Directors, Jeff Gagnon, said that after an extensive process of examining options, CCNet chose to develop their network through a satellite link with CanCom Satellite Networks. CanCom offered Churchill an Internet backbone with email, web space hosting and domain name control with one limitation: these services would be administered through CanCom, thus taking away some of CCNet’s control over its own services (Gagnon, personal communication, June 22, 2004). However, CCNet owned the satellite and equipment in Churchill. Telephone services for the dial up service came through Manitoba Telecom Service Inc. (MTS) so users could connect to CanCom’s satellite in southern Ontario. The server was housed in the local high school.

Iwanowsky stated that in November 1997, CCNet started operating with a dial up Internet service with 15 access lines and a simple modem pool offering three different rates to members for three levels of service. By March 1998, CCNet had easily surpassed the goals set out in its business plan as it had attracted over 130 members who signed up for Internet services. As pointed out by Iwanowsky, “people had computers in this town that I didn’t even think knew how to turn on a TV or program a VCR or work on a computer. It blew me away” (Iwanowsky, personal communication, June 21, 2004).

By continuing to operate a financially viable community based business, CCNet managed to pay off their debt well ahead of schedule, making their final payments in November 1999 (Iwanowsky, personal communication , June 21, 2004).

Churchill businesses used the Internet connection to promote their products and services, to market tourism opportunities globally and to increase the potential for the export of goods. The federal, provincial, local government and social services agencies would be able to make their services available to Churchill’s citizens on-line. CCNet also expected that exposure to the Internet would enable Churchill residents to learn more about computer and information technologies and therefore make them more attractive on the job market.

Throughout 2000 and into 2001, the CCNet offered a dial up service to about 145 members. Several CCNet Board members interviewed indicated that members perceived themselves to be “customers” receiving Internet service from CCNet rather than as active members of a not for profit community based organization. Roxanne Chan, the treasurer of CCNet explained that CCNet did not operate like a “for profit” business as it had no staff, no fixed administrative office and no

dedicated equipment like filing cabinets, computers, printers or accounting software (Chan, personal communication, June 21, 2004). CCNet was administered by volunteer board members working evenings and weekends. Despite a taxing volunteer workload, the members of CCNet's Board of Directors remained in place with only a few replacements being required when board members moved away.

One of the major challenges CCNet faced operating in a rural and remote community was a lack of local computer technicians. CCNet members would call upon volunteer board members to fix their computer problems and tackle computer viruses, whether they were related to CCNet's Internet service or not. Through to 2001, CCNet maintained its network, but volunteers grew wearier and CCNet's technology became outdated. CCNet continued to operate profitably with its dial-up services. The community members behind CCNet felt justifiably proud of their achievements.

The feeling of empowerment at that time is well summed up by Iwanowsky who stated that:

I had a great job...and then I started doing CCNet and then, like I said, getting it paid off in two years, you know, a huge sense of pride there and then all of a sudden I'm talking to my dad on the phone and I realize my dad at one time thought I was going to be flipping burgers or being a bum my entire life (personal communication, June 21, 2004).

Iwanowsky went on to become a member of the Churchill town council in 2002.

1.4 Impacts of Dial Up Internet on Churchill

The impacts of CCNet providing dial up services to Churchill as articulated by CCNet Board members during the face-to-face interviews are summarized in Table 1.

Table 1. Impacts of Dial Up Internet on Churchill – Individuals, Business and Community		
Target	Positive Impacts	Negative Impacts
Individuals	<p>Empowerment - people running CCNet have a sense of pride in starting the business</p> <p>Skills development, job readiness – CCNet volunteers run free training sessions for the public so people learn how to use email applications and the Internet, CCNet Board upgrade ICT skills</p> <p>Education – Churchill’s 200 or so students have access to the Internet</p> <p>Expanding social networks – people running CCNet work as a team to manage the business</p>	<p>Lack of compensation - lots of unpaid work for the CCNet Board of Directors</p>
Business	<p>Strengthening local enterprise - Churchill businesses use the Internet to advertise, find clients, communicate cheaply despite distance</p> <p>Strengthening tourism sector – The Internet helps the tourism industry in Churchill reach new markets outside of Canada. Tourists in Churchill are able to use the Internet from their hotels</p>	<p>Time - Dial up is slow, inhibiting some forms of business</p>
Community	<p>Access– CCNet facilitated public Internet sites in schools and the library</p> <p>Promotion of community services – the Churchill town council, provincial, federal government, service clubs are able to promote their services and communicate with community members</p> <p>Facilitates Arctic research and education – Internet in the research centre</p> <p>Overcome remote location - connect residents and businesses to services and markets in other parts of Manitoba, Canada and the world so they can play games, download music, research, work</p>	

Source: Cameron *et al.* (2005:11)

1.5 The Quest for Broadband

As time went on and Information Community Technology changed rapidly, there was pressure from within CCNet's board, membership and from local businesses to keep pace with innovations in technology. The board of CCNet decided to investigate broadband Internet access. Industry Canada (2005) defined broadband on its *Broadband – High Capacity for All Canadian Communities* website:

Broadband allows large amounts of information, like real-time, audio-visual applications and advanced multimedia, to be shared between devices, such as computers. Because some multimedia applications require large amounts of data to be transmitted, high capacity communication channels need to be used... A broadband access infrastructure is needed to link the various institutions and dwellings to the communication network backbones carrying extremely high data capacities (multiple gigabytes per second) over optical fiber. This infrastructure can be developed by using optical fiber, co-axial cable, or terrestrial or satellite radio-frequency links (<http://broadband.gc.ca/pub/faqs/index.html>).

The report, *Stronger Communities for a Stronger Canada: The Promise of Broadband* (2005: 15)), found that broadband services in northern and remote areas enhance these communities' ability to:

compete in the new markets being opened up by electronic commerce, to enhance local education and health care through distance education and tele-health, to access the incredible range of public and private information resources now available on-line, and to strengthen the Canadian community by participating in e-government.

While CCNet was researching options for the development of a broadband connection, the Churchill Regional Health Authority was negotiating a contract with a company called Global Wireless Satellite Networks/Vancouver Teleport to better its medical services. This was as a result of the Manitoba government investment in infrastructure to facilitate high-speed telecommunications access in rural and remote areas of the province. The government's Provincial Data Network (PDN) was to be upgraded to improve broadband access for hospitals and provincial government buildings to facilitate Telehealth, Oncology Outpatient and a Drug Program Information Network. Manitoba Telecom Service Inc. (MTS) was awarded the contract for upgrading and expanding the capacity of the Provincial Data Network (www.gov.mb.ca/chc/press/top/2002/05/2002-05-14-01.html).

Unfortunately, CCNet could not act as an Internet provider to the Regional Health Authority due to strict patient privacy and security issues imposed on the RHA by the province of Manitoba. Thus, Global Wireless Satellite Networks received the contract with the Regional Health Authority to provide its network service and subsequently approached CCNet about assisting the community based Internet organization to offer broadband to its members.

CCNet signed a deal with Global Wireless Satellite Networks to offer Churchill broadband Internet through a new wireless technology. This technology would be made available to CCNet below market cost because Churchill would be a test site

for the technology in a live environment. The *Project Proposal for CCNet of Churchill, Manitoba* (2001:2) written by Global Wireless Networks explained that this new technology would make it possible for Churchill to expand into Voice Over IP telephony and video conferencing, something the board of CCNet anticipated would have useful applications for businesses, government and social services in Churchill in the future. The Voice Over IP based system combines communication mediums into a digital signal and transmits the signal via satellite dynamically using the bandwidth.

In 2002, a satellite/wireless solution was launched to provide CCNet members with a high speed Internet service. While the switch to broadband led to increased speed and uploading and downloading capacity, it has also proven to be more difficult than the dial up service to maintain. Members experienced periods when the server was down and they could not access the service. The CCNet volunteer board struggled to keep on top of maintaining and repairing the new network when it was too expensive to fly in computer and network technicians. Then competition to CCNet arrived when MTS, Canada's third largest communications provider, began offering dial-up Internet service. Due to competition from MTS and the interruptions in service that members were experiencing, CCNet did not reach its target number of new members as outlined in its business plan (Iwanowsky, personal communication, June 21, 2004). As a result the Board of CCNet did not feel revenues were sufficient to hire staff.

CCNet's membership continued to view themselves as users of the service rather than as members of an organization providing Internet service to the community. As a result of low member turnout at meetings and continued exhaustion at the board level, community meetings were held less and less frequently during this time period (Gagnon, personal communication, June 22, 2004). As Iwanowsky explained in a memorandum to CCNet's membership, CCNet's challenges were exacerbated on April 10, 2004, when the Up/Down converter crashed on its satellite communication equipment. The equipment provided a satellite connection to the Internet for both the Province of Manitoba and CCNet. This resulted in CCNet's members being without service for several weeks (Iwanowsky, 2004b).

As a result of the crash, the province of Manitoba, which was responsible for ensuring the operation of the Regional Health Authority, sped up the process of converting to MTS fibre optic network. The supplier of the satellite equipment, the Global Wireless Satellite Networks did not repair the system, as it was too expensive. In light of this, CCNet decided to change their Internet connection from the slower satellite connection over to the MTS land-based fibre optic link. The fibre optic link resulted in a faster broadband connection.

President Mike Iwanowsky researched and wrote a report called *Churchill Community Network Inc.: Options Analysis* (2004a) to present to CCNet's Board of Directors. CCNet's executive made the decision to eliminate its dial-up service by the end of May 2004 and switch over completely to a wireless service rather than maintain a dial up service that had to compete with MTS. CCNet held a public meeting in April 2004 to let members know about the move to wireless. New rates were developed for members.

1.6 Opportunities for Churchill

Despite the difficulties for those volunteers operating CCNet and concerns about its financial viability, the broadband access was important to the town. Churchill's

mayor summed it up when responding to the question, "How important is the Internet?" Spence replied, "I don't know how we'd survive without it whether it is promoting the community or attracting other businesses to the community, it is a must" (personal communication, July 6, 2004).

Businesses operating in the tourism sector used Internet sites to attract people from all over the world to visit Churchill, book transportation and tours to see wildlife and experience Canada's north. Hotels in Churchill offer Internet connections to their guests to stay in touch with their friends and families. The Churchill Northern Studies Centre offered researchers, students and eco-tourists email access and Internet research stations.

Like other businesses around the world, enterprises in Churchill use the Internet to interact with customers, to attract new customers, to make information available about products and services, to email, and to complete business transactions online. As the tourism industry is particularly important in Churchill, restaurants, guest shops and hotels have websites with photos and virtual tours of their facilities. Hotels advertise to attract tourists from all over the globe who come to experience Canada's north, whales, polar bears, birds, historic sights and parks.

2.0 Impacts of Broadband Internet Access on Churchill

CCNet's provision of broadband service was not economically viable. The social impact of CCNet's broadband service was mixed (Table 2). The most negative consequences were for the volunteers running the business, who were exhausted and discouraged (Chan, personal communication, June 21, 2004). While there was potential for Internet applications that could be very beneficial to Churchill, CCNet was lacking the capacity to develop new products.

Table 2. Impacts of Broadband Internet on Churchill – Individuals, Business and Community and Local Government		
Target	Positive Impacts	Negative Impacts
Individuals and business	Speed – fast transmission, ability to send or view large amounts of information over the Internet including live video and audio	Community-based business not understood – members view themselves as customers rather than members - very few volunteer to assist - some members are not loyal to a community business and switch over to competitor Disempowered community leaders - Board members are discouraged and burned out.
Community, local government	Online information about Churchill- Town council has website, where it can share council meeting minutes, services and advertise upcoming events. Community newspaper is also online. Support for education - Community access stations make it possible for members of the public to use the Internet at the library and for students to use it at school for research and learning. Support for arctic research - The Churchill Northern Studies Centre (CSNC) is an arctic research and educational centre that hosts researchers from all over the world, eco-tourists and students; it has been a strong supporter for CCNet since the beginning.	Lack of consistent support from government agencies – no partnerships with CCNet formed to explore new CED opportunities Not sufficient promotion of economic linkages – no effort to teach local business to use the Internet to improve their business
Source: Cameron <i>et al.</i> (2005:16) Note: These impacts were described by CCNet Board members during interviews.		

2.1 Summary of challenges faced by CCNet

The monthly payments CCNet needed to make included digital bandwidth, MTS phone line charges, and loan payments to cover capital outlay. These expenses were barely covered by revenues. CCNet could not continue to operate in this mode. Under its final structure, even if a marketing campaign had been launched and new members were attracted, CCNet’s board did not have time on a volunteer basis to manage the technical and administrative side of servicing new users.

It is important to contextualize the troubles CCNet faced as an Internet provider. Worldwide, the “dotcom” boom became known as “dot bomb” when the market bottomed out in October 2000. The Internet sector faced a downturn that devastated many Internet companies (*National Post*, March 8, 2005). While the dotcom sector was characterized by many small players in the late 1990s, by the early 2000s, the market had consolidated and become dominated by fewer, larger entities. In early 2005, MTS announced that it had made Digital Subscriber Line (DSL) service available to 83% of Manitoba (www.mts.ca/portal/site/mts). Obviously, a company as large as MTS has many competitive advantages over a small community-based business. These advantages are exacerbated in the ICT field where technology changes rapidly and capital costs are enormous. In addition to facing challenges typical to start up ICT initiatives, CCNet operates as a business and many of the obstacles experienced by CCNet are no different from any other social enterprises or businesses competing in the New Economy (Table 3).

Table 3.
Table of the Challenges Faced by CCNet

Obstacles	Description
Social enterprise	No office space nor dedicated equipment such as filing cabinets, computers, accounting software, printers
	Run solely by volunteers; no dedicated bookkeeper, sales or computer technician
	Lacking a well administered collections procedure when members do not make timely payments
	Managing debt and maintaining payment schedules
	Outdated marketing materials
	Competition from a large company that can offer services more cheaply and efficiently
	Large capital cost and constant need to upgrade equipment
	Not generating sufficient profit to finance upgrades or improvements
New Economy/ ICT Industry	Rapidly changing technology – as technical complexity gets higher, costs get higher too
	Very demanding to keep up to date with latest technologies
Remote location	Limited local market in Churchill with little opportunity for market share increase or market growth
	Long distance to larger markets for goods and services
	Shortage of people with specific technical skills in Churchill (only one person in town who does computer support)
	Expensive to fly experts into the community
Source: Cameron <i>et al.</i> (2005:17)	

3.0 Conclusion

Community based organizations such as CCNet create community control and empower individuals. Unquestionably, CCNet has been a leader in bringing Internet access to a remote part of Canada years before government programs or for profit Internet providers were able to. However, communications technologies are advancing rapidly and the costs and technical knowledge associated with continuously upgrading a telecommunications organization like CCNet are overwhelming for a community-based, volunteer organization. In its final structure, CCNet operated without subsidy except that provided by volunteer labour.

Through 2004 and 2005, the town of Churchill had two high-speed telecommunications systems; CCNet and the Provincial Data Network (PDN). In June 2005, the PDN could only be used by the Regional Health Authority and Manitoba Conservation. Thus, CCNet was only used by businesses and individual community members. It seemed both inefficient and unsustainable to have parallel sets of infrastructure for Churchill, a town of slightly less than 1,000 people.

The authors recommended that Churchill should undergo a process of developing an Information Communication Technology strategy that would benefit the entire community. CCNet, a community based business, was a tremendous asset. The skills, energy and experiences gained by the hard working people who managed CCNET for eight years could be incorporated into any new strategies.

A comprehensive strategy would help many sectors of the community in Churchill explore how they might benefit from using broadband applications such as Voice over Internet Protocol technology and teleconferencing. The Report of the National Selection Committee Broadband for Rural and Northern Development Pilot Project (2004:9) found that "Experience has shown that one of the principal obstacles to the development of information networks and services is lack of awareness among key stakeholder groups of the benefits that can result in terms of socio-economic development and public services". Building on CCNet's assets, Churchill needed to develop an ICT strategy that would ultimately result in one sustainable Internet infrastructure serving the entire community.

3.1 Post-Script

After the original submission of this case study, CCNet ceased operations in June 2005. Businesses and organizations in Churchill immediately felt the effects of losing broadband. The Hudson Bay Port Authority, the Churchill Northern Research Centre, and the Town of Churchill had MTS install private cable lines to deliver high-speed service because broadband Internet service was critical to their day-to-day operations.

In an August 2005 interview, Churchill's mayor, Mike Spence expressed the frustration of losing broadband because it had helped to overcome the physical distance between Churchill and the rest of Manitoba. As he commented, "In a sense, the community is going backwards. As the rest of the communities in southern Manitoba switch from dial-up to broadband, we are going from broadband to dial-up" (Spence, personal communications, August 22, 2005).

Recognizing the importance of high speed Internet to the town, Churchill's Town Council organized meetings with MTS, the provincial government, and local

businesses to discuss how to reinstate broadband services to Churchill. In November 2005, MTS announced it would partner with Manitoba Hydro and use its fibre optic cable to bring broadband Internet to Churchill.

In early 2006, Darren Ottaway, the Chief Executive Officer of the Town of Churchill, said the initial uptake of the new high speed service "has been swift and MTS seems pleased with the amount of new customers." Ottaway (personal communications, January 9, 2006). Thus, once again, Churchill's local government, businesses and residents have access to broad band services.

4.0 Acknowledgements

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<http://www.manitobaresearchalliancecd.ca>.

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