BROADBAND CONNECTIVITY IN RURAL CANADA

Submission to the House of Commons Standing Committee on Industry, Science and Technology

Submission on behalf of the Canadian Rural Revitalization Foundation, the Rural Development Institute (Brandon University) and the Rural Policy Learning Commons

About the Contributing Organizations

Canadian Rural Revitalization Foundation

The Canadian Rural Revitalization Foundation (www.crrf.ca) is a national charity that contributes to the revitalization and sustainability of rural Canada through collaborative research for rural leaders in the community, private sector, and in all levels of government. CRRF works to create credible insights and to improve our understanding of issues and opportunities that are of common interest to rural residents across Canada. Knowledge and better understanding are the fundamental pillars for the welfare of rural communities and environments.

Rural Development Institute, Brandon University

The Rural Development Institute (RDI), Brandon University (www.brandonu.ca/rdi) is a not-for-profit research and development organization designed to promote, facilitate, coordinate, initiate, and conduct multi-disciplinary academic and applied research on rural issues. The RDI fosters community development and resiliency through research and information sharing on issues and opportunities unique to rural, remote and northern communities. The RDI provides an interface between academic research efforts and the community by acting as a conduit of rural research information and by facilitating community involvement in rural development. Projects are characterized by cooperative and collaborative efforts of multi-stakeholders.

Rural Policy Learning Commons

The Rural Policy Learning Commons (www.rplc-capr.ca) is a $2.5M partnership grant funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), based at the Rural Development Institute, Brandon University. The partnership currently involves 30 academic, policy, and practitioner partners across 7 OECD countries in North America and Europe. Major objectives of the RPLC are to build rural capacity and strengthen relationships to inform rural research and policy.

Contributors

Bill Ashton (Rural Development Institute, Brandon University, CRRF, RPLC); Sarah-Patricia Breen (Selkirk College, CRRF, RPLC); Valencia Gaspard (University of Guelph, CRRF), Ryan Gibson (University of Guelph, CRRF, RPLC), Lars Hallstrom (University of Alberta, RPLC), Wayne Kelly (Rural Development Institute, Brandon University, CRRF, RPLC); Ruth Mealy (Government of Manitoba, CRRF), Sarah Minnes (Memorial University of Newfoundland, CRRF, RPLC), and Angela Pollak (University of Alberta, CRRF).

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Mr. Dan Ruimy, MP for Pitt Meadows-Maple Ridge
Chair, Standing Committee on Industry, Science and Technology
House of Commons
Room 565
180 Wellington
Ottawa, Ontario
Canada K1A 0A6

Subject: Study on Broadband Connectivity in Rural Canada

Dear Mr. Ruimy:

The Canadian Rural Revitization Foundation, the Rural Development Insitute (Brandon University) and the Rural Policy Learning Commons would like to thank you for the opportunity to present you with this collaborative submission to the Standing Committee on Industry, Science and Technology's call for briefs on broadband connectivity in rural[1] Canada. Member organizations and individuals who make up these three organizations have found through research and practical experience in rural communities that reliable, fast and affordable broadband infrastructure is essential. Broadband is critical infrastructure, and a basic service, similar to water or transportation (CRTC, 2016, p. 496) as identified by the Canadian Radio-Television and Telecommunications Commission (CRTC). As such, access to broadband should be seen as vital to the resilience of rural communities as roads, electricity, telephone and water. A lack of broadband connectivity compromises overall quality of life in rural communities and the ability of rural communities to contribute to local, provincial and national economies.

The United Nations have gone beyond the CRTC and has established access to knowledge and communications through broadband as a human right (United Nations, 2016). Furthermore, the most recent mandate letter to the Minister of Innovation, Science and Economic Development states the following priority: "increase high-speed broadband coverage and work to support competition, choice and availability of services, and foster a strong investment environment for telecommunications services to keep Canada at the leading edge of the digital economy" (Trudeau, 2015, paragraph 27). This is a goal to be met in both rural and urban communities, to ensure Canada achieves leadership in the digital economy. Research across North America and Europe demonstrates that broadband is needed for rural communities to be economically competitive (Conley and Whitacre, 2015; Gallardo, 2016a; Kuttner, 2016; Rajabiun & Middleton, 2013; Townsend, Wallace, Smart & Norman, 2016) and to benefit from social and quality of life benefits of online access (Roberts, Anderson, Skerrat & Farrington, 2017). Rural broadband needs to keep pace with urban centers to ensure that rural communities, residents and individuals are able to effectively participate in our digital economy and knowledge society. Below we argue that in order to deliver reliable, scalable broadband internet, the unique geographies and challenges of rural areas in Canada must be taken into account. We respond to your three questions and conclude with specific recommendations regarding rural broadband in Canada.

[1] For the purposes of this brief rural includes all rural, remote and northern communities.

1) What constitutes acceptable high-speed service?

Acceptable high-speed service requires connectivity to facilitate a competitive economy, the ability to participate socially and enjoy quality of life (Roberts, Anderson, Skerratt & Farrington, 2017. This connection needs to be fast, reliable and affordable so that individuals, businesses, services and local governments are able to meaningfully participate in today's digital economy and knowledge society. Conversely, the lack of access to fast, reliable and affordable Internet puts individuals, businesses and communities at an economic and social disadvantage in today's society (Warren, 2007).

To adequately access high-speed service, connection must not have limits or interruptions. There is a wide range of applications that particularly apply to rural digital technologies and require broadband connectivity. These include but are not limited to: e-commerce, 3D printing, Netflix, email, telehealth, online education and precision agriculture. None of these activities that could or are contributing to rural prosperity should be prevented due to infrastructure limitations. Magnifying the importance of broadband in rural areas is the fact that rural communities stand to benefit the most from being connected, as high-speed Internet access can address the geographic and service challenges found in rural communities that are often barriers to economic and social participation (Ashton & Girard, 2013). For example, with reliable high speed Internet rural residents are able to participate in educational opportunities they are historically excluded from because of distance. Rural communities cannot be hampered by the lack of speed or broadband quality if they are to compete and thrive and to remain stewards of our food, environment, natural resources and recreation.

The CRTC's standard of 50 Mbps download and 10 Mbps upload is set as a minimum speed and it needs to be considered as the minimum standard and not the ultimate target. CRTC also asserts that this minimum standard of 50 and 10 Mbps will need to be scaleable and that Canada's rural broadband "network infrastructures must be able to respond to future needs"(CRTC, 2016, paragraph 78). The current state of rural broadband in Canada is documented in the recent CRTC 2017 Communications Monitoring Report. There are several important points regarding rural broadband that emerge from this report. The first key point is that demand for broadband continues to grow, including in rural areas. The second key point is that the digital divide between urban and rural communities also continues to grow (CRTC, 2017). The CRTC 2017 Communications Monitoring Report illustrates that Canadian households continue to want higher speeds and more data. For example, the growth in subscriptions to high-speed services, those that are 25 Mbps or higher, has continued on pace over the last few years. In 2013, 31% of Canadian households subscribed to services with 25 Mbps, while by the end of 2016 that figure had increased to 54%. Of those subscriptions, 26% of households have subscribed to services with 50 Mbps download speeds or higher. This is more than a 5-fold increase from 2013 when only 5% of Canadian households subscribed to services that fast. Data use is another area of rapid and consistent growth. Canadian households are using 128.3 Gbs a month in data on average, a 23% increase from data use last year. Over the last 5 years data use has grown by 40% on average. Canadians are using more data and are subscribing to faster Internet services every year (Ibid).

The second key issue that emerges from the CRTC 2017 Communications Monitoring Report is that rural communities continue to lag behind urban centers in regard to access and speed of Internet, and are falling even further behind in some regards. This divide negatively and disproportionately affects rural access to government services, education, healthcare and leisure opportunities (Haight, Quan-Haase & Corbett, 2014). It is important to note that the availability and pricing of Internet varies in rural Canada, with a wide range of Internet services

and costs. The costs for basic Internet service,[2] range from $25 in Ontario at the low end to $111 per month in North West Territories. This variance also occurs within provinces. For example, New Brunswick had a $55 variance in pricing for Internet service (CRTC, 2017). When examining the new CRTC standards for Internet (50/10 Mbps and unlimited data), 96% of Canadians in urban centres had access to this new, minimum standard, while only 39% of of rural Canadians had the same access. When comparing rural areas with urban centres however, the digital divide becomes apparent once speeds exceed 10 Mbps with a 25% availability gap emerging. When examining 50 Mbps services, only 41% of Canadians in rural areas have access, a gap of 59% compared to urban centres. This divide is further illustrated by the fact that only 7 provinces even offered these services in rural locations (Ibid). This means that the CRTC's new minimum broadband standard is not available in rural locations in nearly half of Canada's provinces and territories.

With this availability gap taken into consideration, it means that the 5-fold growth in Internet services of 50 Mbps or more in Canada has occurred predominantly in urban areas. The result is that rural Canada is falling increasingly behind in both availability and adoption of Internet that meets CRTC's basic standards. In comparison, the European Union's Digital Agenda (Eurpoean Commission, 2017) has set gigabit society targets for 2025:

- Access to 1 Gbps for all schools, transport hubs and main providers of public services and digitally intensive enterprises,
- Access to download speeds of at least 100 Mbps to be upgraded to 1 Gbps for all European households.

Furthermore, Post-Brexit, United Kingdom, has current targets of 24 Mbps for 95% of residents by end of 2017. After 2017, the next stage of investing in gigabits fibre development will begin with 200 million pounds as an initial investment in local fibre development (Government of the United Kingdom, 2017).

**** The Government of Canada should establish a minimum of 1 Gbps for all rural communities by 2025.***

**** The Government of Canada should establish a rural broadband advisory committee consisting of community and Indigneous leaders, businesses leaders, and nonprofit organizations to guide future minimum requirements, identify gaps in service availability, and assist in building strategies to overcome the digital divide. The minimum download and upload speeds should be reviewed by this committee every three years to ensure the levels are appropriate given technological advancements.***

2) The financial challenges of implementing high-speed services

Private delivery of all basic services and utilities is a challenge in rural areas, broadband is no different. Market failure is a major reason why much of rural areas lack optimal broadband. The private sector delivery of high-speed broadband (Internet Service Providers – ISPs) is not profitable when density of customers are too low and distance between customers are too far. This can be a barrier to delivering high-speed internet in these areas, which in turn alienates these rural communities from economic opportunities. Stimulus funding can help with the upfront costs associated with providing high speed services in rural. However, the prospect of

[2] CRTC used 5 Mbps download and 1 Mbps upload as their standard for basic Internet access.

future technology and infrastructure commitments to those markets can still make it prohibitive for ISPs even with large upfront government investments.

The opportunity cost of not implementing high-speed Internet in rural communities is substantial and increases in cost every year that rural Internet service is not optimal. Research in the United States indicates that adoption of rural broadband correlates with higher productivity, income rates and decreased unemployment (Conley & Whitacre, 2016). In the United Kingdom, evidence shows that broadband improves rural business retention, services and client engagement (Carnegie UK Trust & Plunkett Foundation, 2012; Townsend et al. 2016). Here in Canada, rural broadband has been connected with businesses attraction and productivity improvements (Rajabiun & Middleton, 2013). Overall, not having adequate infrastructure, especially broadband infrastructure, will drive away businesses and investment in rural communities (Markey, Breen, Gibson, Lauzon & Mealy, 2015) as the ability to interact with clients and conduct electronic transactions has become indispensable for businesses (Kutcher, 2016). Not investing in rural high-speed services is costing Canada substantially economically in missed opportunities as the urban-rural digital divide becomes further entrenched.

The Government of Canada needs to eliminate the rural-urban digital divide by providing financial resources and incentives to ensure high-speed Internet services are available in rural communities.

3) The regulatory changes to encourage the implementation of high-speed service

The goal of adequate, reliable, affordable Internet needs to be a goal and a timeline should be set by the federal government on how to achieve this goal. Ongoing operation, maintenance and improvements also needs to be part of this timeline and framework. The CRTC has established standards for minimum connectivity in Canada; now the federal government needs to lead all levels of government in adopting these standards and establishing a National broadband strategy that ensures all Canadians, especially rural Canadians, have Internet access that will enable innovative and effective use (Gurstein, 2003).

In rural Canada, market-failure is preventing the private-sector delivery of broadband to all rural areas. Therefore a multi-modal approach, will be needed to effectively deliver quality broadband to all of rural Canada. This multi-modal approach will need to support private sector delivery in areas where it has successfully deployed broadband to date and support alternative options such as community broadband initiatives in areas where market-failure is not providing adequate broadband service based on CRTC's minimum standards.

This multi-modal approach requires a coordinated initiative to provide financial incentives, leadership and community capacity-building support across Canada by government. Recognizing that the new CRTC standards sets ambitious targets for much of rural Canada, expansion and enhancement of private sector broadband to meet those new standards will need to be supported in regions where private sector deployment has been successful previously. In the areas that have been continuously without competitive broadband options, community-based initiatives will need to be encouraged and supported with both financial and other human and technical capacity resources from government. Finally, there will be some rural regions that are not served adequately by the private sector and do not have the capacity or desire to develop community broadband initiatives. Solutions will need to be developed for these regions, most likely on a case by case basis, to create partnerships with private sector ISPs, to build capacity and opportunity for community initiatives locally or to explore other options. While neccssary broadband infrastructure is being instituted, to meet the needs of rural

communities, one partnership option is to provide increased funding to rural public libraries to buy computer technology and pay the higher prices for broadband internet to make sure that basic uninterrupted community-wide access is available at a publicly accessible location for a minimum number of hours per week, or through hotspot lending programs (Enis, 2017).

This multi-modal approach for rural broadband delivery is evident in recent reports and recommendations for rural broadband. The State of Rural Information and Communication Technologies (ICTs) in Manitoba report includes policy recommendations for incentivizing rural broadband provision by ISPs, alongside providing government funds and resources for community-based broadband initiatives where market failure/community demand occurs (Kelly & McCullough, 2016).

Another important resource to consider is the Alberta Broadband Toolkit (McNally, McMahon, Rathi, Pearce, Evaniew & Prevatt, 2017). Recognizing that one broadband solution does not fit all rural communities, this document describes a range of options for rural broadband and lays out key knowledge and steps that communities can use to develop local broadband solutions based on their specific context and needs. One such example is the Columbia Basin Broadband Corporation initiative from the Columbia Basin Trust that offers support in developing, activiating and maintaining highspeed internet in their region (Columbia Basin Trust, 2017).

Finally, it is important to realize that infrastructure is only the first step in realizing the benefits of implementing high-speed Internet access in rural areas. The supply side of rural broadband is only part of the challenge. Rural residents, governments and businesses need to develop skills and a motivation to use that broadband as well. Research shows that access alone does not guarantee use or benefits of broadband (Whiteacre, Gallardo, & Stover, 2014b). It is only once Internet is being used effectively that the socio-economic opportunities of the Internet will be realized. Canadian governments have tended to have a “build it, they will come” approach to broadband, hoping or assuming that once a rural community is connected they will immediately be able to use the Internet effectively and in the same fashion as their peers who may have had the Internet for decades already. The reality is that effective use of the Internet is based on utilizing it to successfully accomplish the goals of individuals and groups within communities (Gurstein, 2003). Access to high-speed Internet services is a critical step but only the first step.

To realize the benefits of CRTC’s Internet standards 50 Mbps/10 download and 10 Mbps upload with unlimited data in rural communities, it will be essential that those rural communities have access to that service affordably and have support in building digital literacy and awareness of the opportunities and manners in which these opportunities can be used. The government of Canada needs to support the improvement of broadband infrastructure in rural Canada. To realize the potential of this infrastructure, the government also needs to accompany infrastructure support with digital literacy training along with incentives for adoption of digital technologies.

The Government of Canada needs to provide leadership, financial and community-capacity resources to support a multi-modal approach to deliver acceptable high-speed service to all rural Canadians.

**** The Government of Canada needs to provide financial resources and incentives to help build digital literacy and adoption in rural Canada.***

In conclusion our main position statements are:

- The Government of Canada should establish a minimum of 1 Gbps for all rural communities by 2025.
- The Government of Canada should establish a rural broadband advisory committee consisting of community and Indigneous leaders, businesses leaders, and nonprofit organizations to guide future minimum requirements, identify gaps in service availability, and assist in building strategies to overcome the digital divide. The minimum download and upload speeds should be reviewed by this committee every three years to ensure the levels are appropriate given technological advancements.
- The Government of Canada needs to eliminate the rural-urban digital divide by providing financial resources and incentives to ensure high-speed Internet services are available in rural communities.
- The Government of Canada needs to provide leadership, financial and community-capacity resources to support a multi-modal approach to deliver acceptable high-speed service to all rural Canadians.
- The Government of Canada needs to provide financial resources and incentives to help build digital literacy and adoption in rural Canada.

Thank you again for the opportunity to present this brief. If you have any questions please contact Wayne Kelly (kellyw@brandonu.ca).

Sincerely,

Sarah-Patricia Breen	Bill Ashton	Wayne Kelly
President, Canadian Rural Revitalization Foundation	Director, Rural Development Institute, Brandon University	Project Coordinator, Rural Policy Learning Commons

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