

**Comments on the “Broadband Connectivity in Rural Regions” study to be conducted by the House of Commons Standing Committee on Industry, Science and Technology**

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**Comments by the First Mile Connectivity Consortium**

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## **The First Mile Connectivity Consortium**

1. The First Mile Connectivity Consortium (FMCC) is an incorporated independent not-for-profit national association. Our members are First Nations Internet service providers – what we call “community/regional intermediary organizations.” Each of our members represent First Nation communities in their region, and are responsible to community leadership. In total, our members represent the telecommunications and broadband interests of more than 200 First Nation communities in rural and remote areas. From east to west, our members are:
  - Mi'kmaw-Kina'matnewey, Atlantic Canada's First Nation Help Desk, Membertou, NS
  - First Nations Education Council, Wendake, QC
  - Western James Bay Telecom Network, Moose Factory, ON
  - Keewaytinook Okimakanak, K-net Services, Sioux Lookout, ON
  - First Nations Health and Social Services Secretarial of Manitoba, Winnipeg, MB
  - First Nations Technical Services Advisory Group Inc., Edmonton, AB
  - First Nations Technology Council, Vancouver, BC
  - The Native Communications Society of NWT, Yellowknife, NT
2. Our associate members are university and private sector researchers and others interested in Indigenous and community communications and telecommunication services for the public good. Our work focuses on innovative solutions to digital infrastructure and services with and in rural and remote regions and communities across Canada. Since our formation, our organization has made numerous submissions to the CRTC and to Industry, Science and Economic Development Canada. More details about our members and activities are available at: <http://firstmile.ca>

## **Despite Challenges, Remote and Rural First Nations are Digital Innovators**

3. Our organization, the FMCC, is seeking means to ensure access to reliable, affordable and scalable broadband in rural, remote, northern and Indigenous communities, in ways that involve residents of these communities in the provision of digital services. This emphasis reflects our position on the need for “first mile” solutions in the design, development and operations of telecommunication infrastructure and services – that is, those which actively engage with affected communities and regions to build and sustain connections and organizations based in those locations. This is contrasted against “last mile” initiatives that focus on upgrades to urban-based infrastructures in the belief that they will eventually serve the remote and rural regions; an approach that has not worked for these communities, despite years and billions of public dollars invested in corporate telecom “last mile” solutions. Importantly, our FMCC member organizations provide and support the delivery of broadband-enabled public services such as online education and telehealth, as well as entertainment services for household consumers.
4. The FMCC has testified in CRTC hearings concerning broadband for rural, remote, and Indigenous regions, and has conducted research on broadband uses and requirements in remote Indigenous communities.<sup>1</sup>
5. The FMCC welcomes the opportunity to contribute to what we see as deliberations leading to a national broadband strategy for Canada. We see the Standing Committee's work as a complement to other government initiatives in this area, including the CRTC hearings on the 'basic service objective' (CRTC 2015-134), ISED's Innovation Agenda, and funding

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<sup>1</sup> A list of our team's publications is available here: <http://firstmile.ca/resources/publications/>. We refer to specific reports and interventions in this document.

opportunities provided through ISED and other departments. These activities are a chance to get things right through an open, public consultation process to shape broadband development in Canada. In its recommendations from this study, and in partnership with federal departments and agencies, the Standing Committee can contribute to shaping a policy and regulatory framework that supports the aspirations of residents of rural, remote, Northern, and Indigenous communities and regions, including all levels of government and public organizations offering services in these regions, as well as industry.

### **The Need for Broadband in Rural, Remote, Northern and Indigenous Regions**

6. Numerous studies, research reports, and testimony in regulatory proceedings have pointed out the importance of broadband for individuals, families, organizations and businesses as an essential service. Although their needs are sometimes misunderstood, we emphasize that these findings and comments strongly apply to Indigenous peoples, and others in rural and isolated regions. During the early stages of the CRTC Basic Service Objective consultation (CRTC 2015-134), some commissioners repeatedly attempted to distinguish between “needs” and “wants” in regards of users of broadband. While they did not specify how they would make that distinction, it appeared that they were contrasting the use of broadband for entertainment such as streaming movies and playing interactive video games with applications that they considered “needs”.
7. Indigenous organizations responded that such a characterization is a false dichotomy and unrealistic; broadband is a cross-sector enabler, required for many applications such as health services, educational videos, webinars, personal and organizational videoconferencing, cloud-based applications and software, and other bandwidth-intensive services. For example, FMCC’s testimony focused on uses for economic, cultural and community development, rather than entertainment uses such as unlimited video downloading and online gaming. Others noted “the homework gap,” referring to students who do not have access to the Internet to complete and submit assignments.
8. Intervenors also pointed out that because of the large sizes of many northern households, there are often many users sharing a single connection and limited bandwidth – a growing challenge giving the demographic composition of the North (a very young population with high growth rates). They also emphasized the importance of considering not only household usage, but also the requirements of institutional users, including public sector agencies, non-profit organizations and private sector users such as retail stores, lodges and tourism operators, and small businesses.
9. It has been 20 years since the release of the final report of the Royal Commission on Aboriginal Peoples (RCAP). Among other recommendations, the report focused on the need for policies to recognize Indigenous peoples as distinct peoples driving their own self-determined initiatives.<sup>2</sup> Two decades later, the continuing challenges faced by Indigenous communities in Canada were highlighted in the recent report by James Anaya, the United Nations Special Rapporteur on the Rights of Indigenous Peoples. His report documented ongoing challenges in particular to remote and rural communities: housing shortages, and the high cost of transportation, food, and maintenance and operation of community facilities and local connectivity infrastructure.<sup>3</sup>

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<sup>2</sup> See: *Highlights from the Report of the Royal Commission on Aboriginal Peoples, People to People, Nation to Nation*. Available at: <http://www.aadnc-aandc.gc.ca/eng/1100100014597/1100100014637>

<sup>3</sup> Anaya, J. (2014). *Report of the special rapporteur on the rights of Indigenous peoples, James Anaya, on the situation of Indigenous peoples in Canada. United Nations, Human Rights Council, 27th session, May*. New York:

10. Indigenous communities, including those located in northern, remote and rural regions of the country, continue to face many economic and social challenges. News reports illustrate how people living in communities like Attawapiskat and Natuashish face the same disparities in services and infrastructures that they did 20 years ago. The situation in some of these regions is so dire that Indigenous leaders are calling for a state of health and public health emergency.<sup>4</sup> During the ‘basic service objective’ hearings held by the CRTC (CRTC 2015-134), interveners from these regions raised these issues on the public record. For example, in FMCC’s testimony, Penny Carpenter, manager of K-Net Services, an Indigenous owned and operated regional broadband provider in Ontario, referred to the health emergency in the Nishnawbe Aski Nation, and the role that K-Net played to help that crisis by delivering telemedicine services and other E-health services.<sup>5</sup> Also, Manitoba Keewatinowi Okimakinak Inc. stated that:

“Increasing social isolation and economic exclusion has profound effects in communities that are already experiencing high rates of poverty, unemployment, and high indicators for poor health” (Transcript, April 15, 2016, lines 6804-6805).<sup>6</sup>

11. Yet these conditions remain invisible to most Canadians, particularly those living in urban and southern regions of the country.<sup>7</sup> The evidence submitted to various CRTC regulatory hearings on broadband development by Indigenous intervenors has clearly demonstrated the interconnections between economic, social, cultural, and political challenges and the availability of affordable, adequate telecommunications infrastructures and services.<sup>8</sup>

12. Most Indigenous communities require unique programs and services to properly operate, maintain, sustain, and upgrade the infrastructures required to support their residents. At the same time, as discussed in numerous regulatory submissions, digital infrastructure costs are much higher in northern and remote communities than in other regions of the country. Various intervenors to the CRTC hearings noted that many of these people are struggling to pay the high costs of accessing and using digital technologies – though our research also illustrates they are eager adopters of digital technologies if they are affordable, reliable and meet their needs.<sup>9</sup>

13. We also point out that broadband is essential in these regions for the delivery of education, health care, social and other public services, other government services, and private sector services ranging from banking to small business, tourism, transportation, and resource activities.

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United Nations. Available at: <http://unsr.jamesanaya.org/country-reports/the-situation-of-indigenous-peoples-in-canada>

<sup>4</sup> See: <http://www.nan.on.ca/article/health-and-public-health-emergency--2222.asp>

<sup>5</sup> See *Transcript, Hearing April 11, 2016 (CRTC 2015-134)*, Volume 1, lines 626-640. Available at: <http://www.crtc.gc.ca/eng/transcripts/2016/tt0411.htm>

<sup>6</sup> See *Transcript, Hearing April 15, 2016 (CRTC 2015-134)*, Volume 5, lines 6804-6805. Available at: <http://www.crtc.gc.ca/eng/transcripts/2016/tt0415.htm>

<sup>7</sup> See: <http://www.cbc.ca/news/aboriginal/canadians-not-racist-but-aboriginal-issue-invisible-to-many-says-paul-martin-1.3579731>

<sup>8</sup> Other parties representing Indigenous populations who commented on these issues at the CRTC hearings include the Kativik Regional Government, Eeyou Communication Network, and Nunavut Broadband Development Corporation. We can provide these interventions to the Committee if requested.

<sup>9</sup> Beaton, B., McMahon, R., O’Donnell, S., Hudson, H., Whiteduck, T. & Williams, D. (2016). *Digital Technology Adoption in Northern and Remote Indigenous Communities: First Interim Report*. Prepared for Industry Canada (contract 5027687) January. 165 pages. Available at: <http://firstmile.ca/report-digital-technology-adoption-in-northern-and-remote-indigenous-communities-in-canada/>

## The Need for Consultation and Engagement in Broadband Development

14. Across Canada, community-based organizations are engaged in building, operating and maintaining infrastructure and services that contribute to long-term economic and community development benefits for residents of rural, remote, Northern and Indigenous regions. However, the lack of a national broadband plan has left Canada with no overall framework or common set of goals to guide government initiatives to support work in this area. We endorse the Standing Committee's work in helping take up this challenge.
15. Many OECD countries, including Canada, have already agreed to incorporate several areas of government policy in national broadband policies (NBPs), as developed in the 2004 *Council Recommendation on Broadband* and the 2008 *Declaration of the Seoul Ministerial for the Future of the Internet Economy*.<sup>10</sup> Specifically, the OECD notes that NBPs link to policy areas including: crime and justice; economy and finance; education and training; environment; health; industry; regional and rural development; science, technology & innovation; and transport. In Canada, any NBP will therefore necessarily have to involve the federal agencies responsible for these sectors, as well as other key stakeholders.<sup>11</sup>
16. For years, our FMCC members have advocated for the need to include Indigenous peoples in decision-making about broadband development taking place in their territories and communities.<sup>12</sup> In terms of these stakeholders, our position is that any national broadband strategy for Canada should be driven by partnerships that include the regional community-based providers that FMCC refers to as intermediary organizations, overseen by effective regulation, and guided by a multi-stakeholder advisory council that involves representatives from rural, remote, Northern, Indigenous areas of the country.
17. We commend the federal government's broad efforts to acknowledge and support Indigenous peoples and communities in its decision-making. The CRTC has made notable efforts in this regard, including recognizing the traditional territories on which its deliberations take place, traveling to northern communities to conduct in-person public hearings involving residents of these regions,<sup>13</sup> and extending access to video- and teleconferencing options during hearings. This approach is critical to implementing an NBM to enable all Canadians to participate in the digital economy.
18. However welcome, this engagement must extend beyond symbolic recognition to include substantive outcomes – including through enabling policy and regulation – that will encourage and sustain the innovation and self-determined community and economic development initiatives taking place in Indigenous communities across Canada. Members of these communities must be provided with opportunities to build their digital futures. We want

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<sup>10</sup> OECD. *National Broadband Plans*. Directorate for Science, Technology and Industry Committee for Information, Computer and Communications Policy, Working Party on Communication Infrastructures and Services Policy Report JT03303792. June 15, 2011.

<sup>11</sup> We note that the preparation of the U.S. national broadband plan led by the Federal Communications Commission (FCC) included 36 public workshops, 31 public notices, and nine public hearings. Federal Communications Commission. *Connecting America: The National Broadband Plan*. Washington, DC, 2011. The plan emphasizes the need for adoption as well as infrastructure.

<sup>12</sup> See Report of the National Broadband Task Force (2001); and comments submitted to Industry Canada's 2010 'Digital Economy 150' consultation (2010). This includes two papers submitted by FMCC members: "Ensuring Aboriginal Involvement in Canada's National Digital Strategy"

(<https://www.ic.gc.ca/eic/site/028.nsf/eng/00448.html>) and "Aboriginal Connectivity Strategy"

(<https://www.ic.gc.ca/eic/site/028.nsf/eng/00397.html>).

<sup>13</sup> As in CRTC 2012-669, *Review of Northwestel Inc.'s Regulatory Framework, Modernization Plan, and related matters*, which included hearings held in Inuvik and Whitehorse.

to ensure that the aspirations of rural, remote, Northern and Indigenous communities that have put in place broadband initiatives can move forward unrestricted by barriers and supported by an appropriate policy and regulatory framework. This framework must recognize Indigenous communities as providers as well as consumers of broadband facilities and services.

19. Statements made by some parties to broadband regulatory proceedings acknowledge the development of telecommunications in rural, remote and Northern regions as a means to support reconciliation with Indigenous peoples. These acknowledgements include calls to prioritize the extension of infrastructure and services to these communities, as a means to achieving the objectives of reconciliation. We stress that the implications of such statements, and the use of words like “partnership”, must be clearly defined because this rationale may be used to support different development paths: 1) as a means for companies to enable community-driven efforts to build and operate infrastructures that support self-determined economic and community development initiatives; or 2) primarily as a means for commercial companies to use funding and policy frameworks to secure access to new customers and revenues.
20. Therefore, we want to be very clear about this language: in particular, what do statements of reconciliation tell us about the provision, ownership, and control of broadband infrastructure and services? We note that the primary fiduciary obligations of private corporations are to shareholders typically located in southern and urban centres, not to residents of rural, remote, Northern and Indigenous communities. We, and other intervenors in CRTC proceedings, have expressed reservations about the long-term commitment of private corporations to these communities, and about the pricing and quality of service they provide. For example, in its submission to the CRTC 2017-112, which concerned the development of the CRTC’s new broadband fund, the All Nations Trust asks: “How do we ensure this fund does not become an ‘in and out’ vehicle, in which the telcos fund the program at the front end and then draw down those same funds at the back end via complex and sophisticated proposals that overstate the nature of their ‘partnerships’ with First Nations?”<sup>14</sup>

### **Toward a National Broadband Strategy for Canada**

21. Evidence on the record from public hearings and policy interventions submitted by Indigenous and public interest groups also points to the important role that Indigenous peoples are playing in addressing connectivity challenges. As pointed out in the RCAP report, by generations of Indigenous leaders, and in the many stories and research findings illustrating Indigenous successes from across the country, solutions are coming from the communities themselves. In past interventions before the CRTC and elsewhere, members of the FMCC and many other Indigenous organizations have demonstrated success stories of digital innovation emerging in regions of ‘market failure’. Despite challenges of geography and cost, members of Indigenous communities have innovated to build, operate and maintain broadband infrastructure and services. We have pointed out many examples in our past interventions - these community stories are available on the First Mile website ([www.firstmile.ca](http://www.firstmile.ca)).
22. Too often, these efforts have been constrained rather than supported by policy and regulatory frameworks that are designed to support private-sector business cases in regions where such opportunities simply do not exist. Private sector-driven innovation has proven successful across approximately 5% of Canada’s territory, where billion-dollar investments

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<sup>14</sup> All Nations Trust (2017). *Pathways to Technology Position Paper Re: Telecom Notice of Consultation CRTC 2017-112* (June 27, 2017).

are connecting whole cities to fibre-to-the-home infrastructure, serving 95% of Canada's urban and southern populations. But this approach simply does not work across the remaining 95% of the country. Fifteen years out from the completion of the National Broadband Task Force, remote and rural communities have yet to receive access to the standards of service proposed at that time. At the same time standards and technologies continue to evolve, leaving many communities across this region of Canada underserved.

23. Now is the time for reform – and action. Several recent actions taken by the Government of Canada point to a new approach to partnering with Indigenous peoples. In May 2016, the Government officially adopted the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP).<sup>15</sup> This endorsement came from Canada as a full supporter of the declaration - without qualification. Minister Bennett stated that: “We intend nothing less than to adopt and implement the declaration in accordance with the Canadian Constitution”.<sup>16</sup>
24. The basic service objective hearings held by the CRTC clearly illustrated the essential role that telecommunications infrastructures and services play in supporting the principles of the UNDRIP. In today's digital society, broadband is a key requirement for access to public services and economic development - in particular in rural, remote, Northern and Indigenous communities. It is through the ownership and control of the development and ongoing operations of these infrastructures and services that members of these communities and the self-governing institutions they have set up can shape these tools to support their own needs and requirements, rather than the needs and requirements envisioned by far-off government or corporate offices.
25. We agree with the Standing Committee's recognition of community engagement as a key component of broadband development policy. Community engagement must not be treated as an early-stage opportunity to comment on decisions, but rather an ongoing relationship between equal stakeholders. To this end, our position is that government should establish a permanent multi-stakeholder advisory council to oversee the implementation of broadband policy, and that this council should bring together government, industry, consumers and non-governmental organizations, including Indigenous organizations and their representatives, as well as members of the academic community.
26. The Government of Canada uses the following definition of consultation, as outlined in “Guiding Principle No. 4” in *Aboriginal Consultation and Accommodation - Updated Guidelines for Federal Officials to Fulfill the Duty to Consult* (March 2011):

“Consultation and accommodation will be carried out in a manner that seeks to balance Aboriginal interests with other societal interests, relationships and positive outcomes for all partners. A meaningful consultation process is one which is:

- carried out in a timely, efficient and responsive manner;
- transparent and predictable;
- accessible, reasonable, flexible and fair;
- founded in the principles of good faith, respect and reciprocal responsibility;
- respectful of the uniqueness of First Nation, Métis and Inuit communities; and,
- includes accommodation (e.g. changing of timelines, project parameters), where appropriate.”

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<sup>15</sup> See: [http://www.un.org/esa/socdev/unpfi/documents/DRIPS\\_en.pdf](http://www.un.org/esa/socdev/unpfi/documents/DRIPS_en.pdf) and

<http://www.cbc.ca/news/indigenous/canada-adopting-implementing-un-rights-declaration-1.3575272>

<sup>16</sup> See: <http://www.cbc.ca/news/aboriginal/canada-adopting-implementing-un-rights-declaration-1.3575272>

We encourage the Committee to adopt this language in the context of broadband development initiatives.

27. A National Broadband Strategy must also recognize the calls to action issued by the Truth and Reconciliation Commission of Canada (TRC) with endorsement. Concerning telecommunications, we highlight in particular 92, on “Business and Reconciliation”:

“92. We call upon the corporate sector in Canada to adopt the United Nations Declaration on the Rights of Indigenous Peoples as a reconciliation framework and to apply its principles, norms, and standards to corporate policy and core operational activities involving Indigenous peoples and their lands and resources. This would include, but not be limited to, the following:

i. Commit to **meaningful consultation**, building respectful relationships, and obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects.

ii. Ensure that Aboriginal peoples have **equitable access to jobs, training, and education opportunities** in the corporate sector, and that Aboriginal communities **gain long-term sustainable benefits** from economic development projects (**Emphasis added**).<sup>17</sup>

28. These principles must apply to telecommunications, including broadband. The TRC calls to action provides a framework that telecommunications companies can use to partner with Indigenous communities to develop and operate telecommunications systems that enable them to achieve their economic and community development goals. For example, any entities that intend to extend or upgrade communications services in Indigenous communities must consult with and obtain consent from the communities. Funding for broadband projects must include support for job training and digital literacy.<sup>18</sup>

29. We also note that Indigenous organizations face specific financial challenges when implementing their broadband development projects. Commercial providers have access to various sources of financing, whereas non-profits can face roadblocks to acquire financing from chartered banks and the Business Development Bank of Canada (BDC). Chartered banks do not consider capital assets located on reserve land as collateral for a bank loan. To address this challenge, any consideration of costs and financial challenges must extend beyond those incurred by end users/consumers, to include providers, such as the Indigenous organizations working to develop and deliver services to people living in these regions. Community initiatives with demonstrated financial capacity and experience will likely need assistance to secure needed financing, such as through a loan guarantor.

30. Finally, we refer to the *Guiding Principles, Definitions and Recommendations* of the National Broadband Task Force (2001). FMCC Treasurer, Brian Beaton, was a member of that Task Force in his role as the Coordinator of K-Net Services, Keewatinook Okimakanak. As an early draft of a National Broadband Strategy for Canada, that report made several points specific to people living in Indigenous communities. Its guiding principles noted that:

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<sup>17</sup> See: [http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Calls\\_to\\_Action\\_English2.pdf](http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Calls_to_Action_English2.pdf), p.9.

<sup>18</sup> We discuss this issue in detail our intervention to *Telecom Notice of Consultation CRTC 2017-112: “Development of the Commission’s broadband funding regime”*. To read our submissions, please visit: <http://firstmile.ca/fmcc-post-intervention-and-reply-comments-on-crtc-broadband-fund/>

“Our main order of business was to identify communities that are unlikely to obtain broadband access as a result of market forces alone by 2004, and to recommend strategies involving collaborative action among all stakeholders to ensure that businesses and residents in these communities have an opportunity to participate in, and benefit from, the broadband revolution.” (p.1).

These goals are still relevant today.

31. FMCC supports the principles of OCAP (Ownership, Control, Access and Possession) in broadband development initiatives so that communities can build, own and manage the telecom infrastructure they desire and require, to deliver the services addressing their needs and priorities. We believe that reconciliation is supported through enabling the self-determined development goals of Indigenous communities, including through their ownership and control of telecommunications infrastructure and services. For example, reciprocal partnerships between telecommunications service providers (TSPs) and Indigenous groups can be designed to enable TSPs to lease Indigenous-owned infrastructure to deliver connectivity services. Such partnerships can support long-term economic and community development in these regions.
32. Therefore, we stress the need for a national broadband strategy that not only ensures access to affordable broadband for all, including Indigenous peoples in Canada, but supports substantive reconciliation by providing opportunities for self-determination in the ownership and control of telecommunications infrastructures and services.
33. To support these goals, we encourage the Standing Committee to ensure that members of these communities are included in all requirements and implementation strategies for a national broadband policy. To this point, we note that in 2001, the National Broadband Task Force report<sup>19</sup> prioritized the importance of connecting all First Nation, Inuit, rural and remote communities through affordable access to services. As the report notes:

“The priority of the broadband deployment strategy should be to link all First Nation, Inuit, rural and remote communities to national broadband networks using appropriate technology. Further, access to broadband connectivity in First Nation, Inuit, rural and remote communities should be available at a price reasonably comparable to that for more densely populated areas” (p.5).

As noted above, these goals are still relevant today, more than 15 years later.

### **Broadband for All: Using the Right Metrics to Measure Success**

34. While speed (high-speed service) is indeed an important measure of rural broadband, it is not the only metric that can be used to determine success. Key elements that must be included in any strategy are:
  - Availability of broadband
  - Affordability of broadband services
  - High quality of service (QoS)

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<sup>19</sup> Industry Canada. *The New National Dream: Networking the Nation for Broadband Access: Report of the National Broadband Task Force*. Ottawa, 2001. Available at: <http://publications.gc.ca/collections/Collection/C2-574-2001E.pdf>

These factors are essential if Indigenous peoples, particularly in rural and remote regions of Canada are to be able to access and use broadband technologies and services. To these we add:

- Adoption of broadband services
- Local engagement (consultation, training, jobs, and local ownership where feasible)
- Specific indicators that address these elements are outlined below.

35. Adoption and effective use must be key goals of any national strategy for rural broadband. Access to broadband requires availability, reliability, affordability, and the necessary skills to effectively use broadband technologies and services. It also involves considerations of consultation, ownership, and competition. Thus, a national broadband strategy must include consideration of the following points:

36. **Whole Community Metrics:** Any study of requirements for broadband in rural, remote, Northern and Indigenous regions must extend beyond considerations of individual household use. In some regions, households can include up to a dozen users, while community services such as schools and nursing stations play a key role in everyday life.

“Use” in this context recognizes the diversity of users in a community – household users focused on consumption may desire asymmetrical bandwidth, while organizational and business users focused on production or interaction may desire symmetrical bandwidth that enables faster upload speeds.

37. **Speed: A Moving Target.** Requirements for high speed connectivity are evolving rapidly as applications, services and demands of users evolve. We are concerned with any prioritization of speed as a primary measure of adequate broadband. Our position is that any specific speed targets must include parameters necessary for online activities currently conducted by individuals, families, and institutions today, but must also be regularly updated to meet changing requirements.<sup>20</sup> For example, cloud-based applications and streaming content (for education and training as well as entertainment) are resulting in more bandwidth and more uploading capability than were envisioned a few years ago. We therefore believe any benchmarks should be reviewed every three years.

38. **Adequate Quality of Service.** Applicants must propose speed and reliability targets and demonstrate how they would monitor reliability of networks, including data collected at the community level.

39. **Affordability.** Infrastructure upgrades are of limited value if customers (households, organizations and businesses) cannot afford to use them, or to use them to their full potential. Extensive evidence from many participants on the unaffordability of broadband (where available) in rural and remote areas was provided in CRTC 2015-134. The Fund should require applicants to specify wholesale prices for transport access and retail services (and associated fees) for each community for 5 years following the completion of the project, and a cost structure that will be used for any increases in prices afterwards.

40. **Network Scalability.** Networks should be built so that they can scale to accommodate more users and/or more bandwidth-intensive uses. To address these needs, this requirement for scalability must include the installation of new infrastructure technologies – fibre optics

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<sup>20</sup> For example, the U.S. Telecommunications Act of 1996 referred to “advanced services”. While some criticized its use of that term, it offered the flexibility required to encompass changing services and bandwidth requirements over the following decades.

where feasible. In some northern regions, populations are increasing rapidly (although absolute numbers remain small); also, more individuals within households may become subscribers.

41. **Sustainable Community and Economic Development Benefits.** These include: the extent of community ownership and control of local broadband infrastructure; local employment and jobs created; environmentally-friendly practices and local materials used to build the infrastructure where possible.
42. **Sustainable Local Employment and Training.** Broadband deployment projects should employ local people in both construction and operation/maintenance of facilities and services, and provide training where necessary. These details should be included in any funding proposals, and confirmed in support letters provided by the community leadership. The details include: the number of community members to be employed, the titles of the positions to be hired for, the minimum duration of employment for each position, the salary scale for each position, and the training to be offered, if required.
43. **Sustainability: The Need for Operational Subsidies.** In addition to one-time funding for infrastructure expansion or upgrades, operating subsidies may also be required in some regions to ensure that the broadband services resulting from this investment are sustainable and can be priced affordably.
44. **Opportunities for Providers.** Any national broadband policy must include and enable the development of multiple service providers. In too many cases, residents of rural, remote, Northern and Indigenous communities face little choice in their selection of broadband services. A lack of competition in rural areas is not an inherent characteristic of the technology: in fact, open access to infrastructure by multiple providers is a viable solution. We submit the following points:
  - Competition should be encouraged if a business case for multiple providers is feasible.
  - Subsidies and other mechanisms designed to expand or upgrade infrastructure should be open to all providers that can demonstrate the necessary technical and business skills, including Indigenous regional community providers.
  - Backbone or transport infrastructure constructed with public subsidies should be required to be open access, so that any provider can obtain access at wholesale rates.
45. We thank the Standing Committee for the opportunity to submit these comments, and would be pleased to contribute further to its forthcoming deliberations.

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