Q1a: *Identify the specific economic, education, health and other community development opportunities FMCC considers that Nataushish is not receiving due to the current level of Internet services.*

Response:

1. Since our initial submission, we have learned of even worse service on the Labrador coast. In a CBC story published on September 16, 2015, residents of coastal Labrador said “We’re going back into the past.” They described their Internet services as slow and unreliable, saying that web pages took a very long time to load, searches were very slow, and they could not use Skype or Facetime to stay in touch with distant family members. The CBC story stated that Bell Aliant has reduced download speeds from up to 1.5 Mbps to up to 256 Kbps, to allow for the telecommunications company to "manage our network and provide a more consistent Internet service." Bell Aliant subscribers in coastal Labrador are now stuck with speeds comparable to last century’s dial-up – at best. After numerous complaints, Bell Aliant provided a credit of $10 per month to its customers in this region due to the slow Internet speeds.[1]

2. We heard about these challenges in Labrador directly from Daniel Pottle, the Minister of Finance, Human Resources and Information Technology of the Nunatsiavut Government[2] who pointed us to a press release by his department on September 18, 2015, that challenged Bell Aliant to address the basic requirements laid out by the CRTC, due to their failure to provide adequate broadband services to communities in the region.[3] Far from the Commission’s target speeds (5 Mbps download; 1 Mbps upload by 2015), as noted above, Bell Aliant’s service to communities in northern Labrador has been reduced to 256 Kbps. The press release also notes that at the time the CRTC’s target was announced, Bell Aliant was already one year into an embargo on new broadband accounts in northern Labrador, due to network congestion. Nunatsiavut Government President Sarah Leo states that:

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[1] “'We're going back into the past': Coastal Labrador stuck with slow internet.” *CBC News*, September 16, 2015. See: http://www.cbc.ca/1.3230174

[2] See: http://www.nunatsiavut.com.

[3] The press release is available at: http://www.nunatsiavut.com/article/nunatsiavut-government-questions-bell-aliants-commitment-to-improving-broadband-service/

> *"Instead of trying to improve and upgrade services to our communities, Bell Aliant has opted to take a backwards approach by downgrading what was already a poor service at best…As a result of the reduction in service, people in our communities will have difficulty doing what most people in this country take for granted, such as online banking and purchases….Bell Aliant indicates in its notice to residential customers that it is again looking for federal or provincial funding to upgrade its network…The Nunatsiavut Government is challenging Bell Aliant to be a true member of the community in northern Labrador, and make an investment in Nunatsiavut."*[4]

3. Because of the very limited and poor quality of Internet and broadband services in the community, residents of Nataushish face significant challenges in accessing economic, education, health and other community development opportunities available to others in Canada. The following is evidence from telephone interviews we conducted during the week of 14-18 September 2015 with several residents of Nataushish.

4. At the school in Nataushish, new teachers are trained in Smart Board technology, especially for science, but it is very difficult to use those tools. The school has not subscribed to any interactive science-based websites because the principal knows that teachers and students will not be able to use them due to slow download speeds. Students in Nataushish cannot access digital resources like Tumblebooks, a cloud-based library paid for by the school board, because the Internet connectivity is not fast enough to support the application. Educators waste time on reporting simple matters like attendance because it takes much longer to manage online records due to slow connection speeds.

5. With no way to access digital patient health records located in Goose Bay, nurses in Nataushish must spend time debriefing with colleagues located outside of the community, resulting in duplicate sets of health records and wasted time. If there is an outbreak of disease in the community, nurses are limited in their ability to research current medical information, best practices, and treatments. From a workflow perspective, nurses often work overtime because the Internet connection is so slow that it takes them much more time to complete routine tasks like checking email or reading digital records.

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[4] Quotes taken from: http://www.nunatsiavut.com/article/nunatsiavut-government-questions-bell-aliants-commitment-to-improving-broadband-service/

6. Poor quality of service is another challenge for health professionals. For example, just after Easter 2015, the health centre lost its Internet connection for two months. As a result, community nurses had to use their home Internet connection (if they had one) to send and receive emails.

7. School and health administrators state it is difficult to recruit and retain teachers and nurses in part because they will lack a reliable home Internet connection, which many see as important to their quality of life. The inability to Skype with family and friends leads to feelings of isolation. Nurses described the "excruciating" time it takes to access distance education because the connection is so slow. One nurse said it took her four hours to download a 20-minute video that she needed to watch for her studies.

8. Lack of adequate connectivity also stifles local entrepreneurship in Nataushish. There is talk of launching an ecotourism business, but without the ability to advertise online or answer client emails, this plan is unlikely to get off the ground. Furthermore, community members are not able to pursue distance-learning opportunities to access training to secure better jobs.

9. We also requested several residents of Nataushish to test their Internet speeds using a free tool developed by the Canadian Internet Registration Authority (CIRA).[5] On September 18, 2015 we received the following test results from the community. The first results are from a resident who tested speeds:

   During school hours:

   2:30pm (Mac) : 0.2 Mbps Upload / 573ms ping / 0.0 Mbps Download
   2:45pm (Lenovo) : 0.4 Mbps Upload / 373ms ping / 0.0 Mbps Download

   After school hours:

   8:10pm (Lenovo) : 0.5 Mbps Upload / 347ms ping / 0.1 Mbps Download
   8:11pm (Mac) : 0.3 Mbps Upload / 189ms ping / 0.1 Mbps Download
   8:50pm : 0.3 Mbps Upload / 280ms ping / 0.0 Mbps Download

On September 16, 2015 we received the following test result from the nursing station:

[5] Information about this tool is available on CIRA's website (see: http://performance.cira.ca/).

(Time unrecorded): 0.3 Mbps Upload / 280ms ping / 0.0 Mbps Download

10. In four of the six tests, there was no detectable download at all, and in the other two cases the download speed was just 100 kbps.

11. A September 18, 2015 article in *Maclean's* describes "statistical dead zones" which represent approximately one-fifth of Canada's communities — and unfortunately, Nataushish falls amongst those communities.[6] In the article, Anne Kingston refers to a "systematic erosion of government records far deeper than most realize, with the data and data-gathering capability we do have severely compromised as a result." This situation highlights the importance of working directly with rural, remote, Northern and Indigenous communities to gather information related to their access to affordable, adequate broadband. We encourage the Commission to work with people in communities like Nataushish to monitor their access to basic telecommunications services. In our initial intervention we describe the need to support digital analysis such as community-based Internet performance monitoring, and illustrate one approach above, through the use of the CIRA tool.

12. Along with these specific challenges faced by people living in Nataushish, we refer generally to economic and community opportunities missed by residents of remote and Northern regions of Canada due to the lack of affordable and reliable broadband. Note that we refer to "broadband" rather than "Internet" services, given our focus on data- and bandwidth-intensive applications.

13. Residents of remote and northern communities miss out on the knowledge and data management opportunities made possible through broadband. In 2010, Judy Whiteduck, Director of Economic Development initiatives at the Assembly of First Nations, wrote:

> "Relatively few of the 633 First Nations governments have sophisticated information management (IM) tools, competencies, and capacities. Good data is required for planning and decision making, to improve accountability, and to measure success. IM and ICT successfully implemented together can be tools of transformative change in First Nations communities."[7]

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[6] See: http://www.macleans.ca/news/canada/vanishing-canada-why-were-all-losers-in-ottawas-war-on-data

[7] Whiteduck, J. (2010). Building the First Nation e-community. In J.P. White, J. Peters, D. Beavon, & P. Dinsdale (Eds), *Aboriginal policy research VI: Learning, technology and traditions* (pp.95-103). Toronto: Thompson Educational Publishing, p. 95.

14. Unfortunately, due to inadequate broadband infrastructure and services, these conditions remain today. As O'Connor pointed out in 2013: "There has never been a more crucial time to provide a mode of training and knowledge management so as to support Aboriginal employability and community-based economic opportunities".[8]

15. Broadband access is critical to support local and regional economies, and to provide opportunities for business. Lack of connectivity is a major barrier to organizations and entrepreneurs in remote communities. Access to online content, administrative and data management systems, remote monitoring of construction sites and security cameras, and many other business applications are driving demands for increased network capacity.

16. Students of all ages also lack access to courses and other educational resources widely available in the South. The isolated geographic locations of many First Nation and Inuit schools means that students and educational professionals lack on-site pedagogical and learning resources, courses, and opportunities for professional development (O'Connor, 2013). Broadband-enabled online education can assist students in accessing learning tools equivalent to those available in urban or less isolated school environments.

17. Residents of remote and Northern communities also lack access to many e-Health applications that are widespread in southern and urban regions. These include the ability to transfer health data to and from communities in the form of locally-administered digital electronic medical health records, ultrasound images, and retinal scans to support diabetes management – to give a few examples. Adequate connectivity allows health care professionals to consult with specialists via telehealth and participate in remote training sessions without the need to travel. Clients in rural and remote areas can gain access to sophisticated remote medical diagnosis and care, regardless of the location or population size of their community. We provide specific examples of these applications in our response to question 1b below.

[8] O'Connor, K. (2013). "The use of ICTs and E-learning in Indigenous Education", published in Barbour, M.K. (2013). *State of the Nation: Online K-12 Learning in Canada*, Canadian eLearning Network, p. 91. See: http://www.openschool.bc.ca/pdfs/state_of_nation-2013.pdf

Q1b: *Explain in more detail why and how telehealth, tele-justice, distance education and online government services benefit isolated communities.*

Response:

1. In our response to this question, we point to specific examples that demonstrate why and how telehealth, tele-justice, distance education, and online government services benefit isolated communities. These examples illustrate only a few of the many innovative community-based initiatives taking place across Canada. For more information and further examples, please visit: www.firstmile.ca.

Telehealth

2. The many benefits of telehealth for remote and Indigenous communities are summarized in Health Canada's 2008 *Interim National Directive for the FNIHB e-Health Program – e-Health Solutions*:

> "Health Infostructure is seen as an enabler for improving the health of First Nation/Inuit by supporting the following: human resources development; holistic health care; transfer & nation building; retention/recruitment of health professionals; integration of service delivery; improved health administration, management and governance; and finally, improved public health surveillance and primary health care access to services" (p.7).

3. A comprehensive 2010 literature review by the National Research Council similarly describes these benefits.[9] It cites a Telehealth Consultation conducted by the Assembly of First Nations that identified three key benefits:

> 1) Improvement in health services (essential to delivery of health services in remote and isolated communities, improved access and enhanced quality of service);

[9] O'Donnell, S., Molyneaux, H., Gorman, E., Milliken, M., Chong, C., Gibson, K., Oakley, P., Maitland, J. (2010) *Information and Communication Technologies to Support Health and Wellness in Remote and Rural First Nations Communities: Literature Review.* Fredericton: National Research Council, May, 136 pages.

2) Enhanced human resource capacity (professional development for remote staff, reduced feeling of isolation, improvement in recruitment, retention and productivity, increased capacity and employment within community); and

3) Increased patient comfort (reduced travel time and dislocation, less time away from work and family, visits at a distance, and Elders are better served).[10]

4. Specific benefits are illustrated in the following telehealth examples from Ontario, Quebec and Manitoba.

Keewaytinook Okimakanak e-Health (http://telemedicine.knet.ca/)

5. Keewaytinook Okimakanak eHealth (KOeHealth) in Ontario, which consists of KO Telehealth (KOTH) and KO Telemedicine (KOTM), services approximately 16,000 First Nations people through a network of 10 northern off-reserve points-of-care and 26 First Nations (see Map 1).[11] This organization is supported by KNET, which provides broadband infrastructure and services, as well as toll-free helpdesk support, a 24/7 network monitoring system, assistance in installing and maintaining infrastructure and equipment, and bandwidth management. KNET also developed locally-managed online tools to support KOeHealth, such as a videoconferencing booking system, a bandwidth management tool, and a cable network management tool for local technicians.

[10] Gideon, V., Nicholas, E., Rowlandson, J., Woolner, F. (2009). “Enabling and Accelerating First Nations Telehealth Development in Canada,” *Journal of Community Informatics* 5(2).

[11] From: JR Associates (2012). *Accessibility, Acceptance & Financial Impact, An evaluation of KOeHealth Telemedicine Services Performance Metrics: 2007-08 to 2011-12*, Prepared for the First Nations & Inuit Health Branch, Ontario Region (December).

Map 1: KOeHealth-affiliated First Nations

6. An evaluation of KOeHealth published in 2012 assessed the impact of telemedicine activities delivered between 2007-2012.[12] Highlights of its key findings include:

   - On average, KOeHealth provides access to 72 therapeutic areas of care each year, almost half of which (48.7%) are deemed non−medical and oriented towards health promotion and disease prevention.
   - Over the past five years, KOeHealth managed and enabled 26,661 telemedicine events.

[12] JR Associates (2012). *Accessibility, Acceptance & Financial Impact, an evaluation of KOeHealth Telemedicine Services Performance Metrics: 2007−08 to 2011-12*. Prepared for the First Nations & Inuit Health Branch, Ontario Region (December 2012), pp. iii-v.

- In the past five years, 75% of the 18,580 clinical events managed and enabled through KOeHealth resulted in the delivery of a patient service in a remote and isolated First Nation.
- Slightly more than 30% of all telemedicine events facilitated learning and knowledge exchange among health professionals and staff.
- First Nations patients receive timely access to services. KOeHealth wait times (the number of days from the appointment being scheduled to the delivery of the service) compare favourably to national and provincial standards.
- In the past five years, more than 400 unique health professionals have engaged patients at KOeHealth-affiliated points-of-care.
- In 2011-2012 one in every 13 persons living in KOeHealth-affiliated First Nations used telemedicine.
- Few events are cancelled because of technical problems. Most technical cancellations were the result of power outages in the community or technical failure of telemedicine workstations or peripherals. The majority of such events were cancelled in advance of the encounter.
- First Nations are highly aware and satisfied with KOeHealth's telemedicine services. Among those who have used KOeHealth's telemedicine service, 84% said that it was a good alternative to face-to-face services and 93% said it was useful to them personally.

7. KO e-Health's annual reports note that Health Canada's Non-Insured Health Benefits (NIHB analysis) of 2012-2013 data shows an estimated medical transportation cost avoidance of $1.96 Million on 770 eligible medical transports in 2013/14.[13] The following year, NIHB's analysis of 2013-2014 data shows an estimated medical transportation cost avoidance of $2.23 Million for 1,217 telemedicine events deemed medically necessary and thus eligible to claim non-insured medical transport benefits.[14]

Health Canada: First Nations and Inuit Health Branch (Manitoba Region)

8. In an email exchange, Mark Sagan, Director of the First Nations and Inuit Health Branch eHealth Program (Manitoba Region), noted that in Manitoba alone, there

[13] Mackenzie, O. (2014). *Annual Report by KOeHealth Telemedicine Services (KOeTS): 2013-2014*. Compiled for: First Nation and Inuit Health, Ontario Region (June 2014), p. 13.

[14] Mackenzie, O. (2015). *Annual Report by KOeHealth Telemedicine Services (KOeTS)*. Compiled for: First Nation and Inuit Health, Ontario Region (June 2015), p. 19.

were over 5,000 clinical, education, administration and tele-visitation Telehealth sessions between April 1, 2014 and March 31, 2015. Patients, especially children and seniors, can now access health care services which otherwise involve long flights or bus rides. Furthermore, through telehealth, teens in local communities can access mental health services from the Manitoba Adolescent Treatment Centre in Winnipeg. Health care providers in connected communities also access professional education more often, and patients have the opportunity to receive information to help them better manage conditions such as diabetes. Doctors and nurses use telehealth applications to check lab results, dispense medication, and examine diagnostic imaging reports in eCharts.[15]

9. In Sagan's view, telehealth services do not result in any direct cost savings for the region since any savings from reduced travel are roughly equal to outlay costs for connectivity, equipment and program support. Since there is a large volume of medical travel undertaken each year, the number of clinical appointments (3,556 in 2014) is still only a very small percentage of costs when compared to all travel. In part this is due to the high costs of connectivity in remote locations (up to $2,000 per month in some locations).

10. However, he noted that telehealth clearly improves access to health services for patients and practitioners in these regions.[16] Health Canada stresses that having telehealth infrastructure and services in place allows practitioners to use those tools to provide services otherwise ineligible for NIHB funding, such as AA meetings and speech therapy. The agency can also provide patient and staff education otherwise unaffordable due to the high costs of travel.

Eeyou Communication Network and Cree Regional Health Board
(http://www.creehealth.org/)

11. The Eeyou Communication Network (ECN) provides broadband to support the Cree Regional Health Board in delivering telehealth to the nine First Nations communities of Eeyou Istchee. Before ECN began providing broadband, nursing stations in these communities had limited bandwidth: for example the clinic in Chisasibi lacked enough connectivity to support telehealth applications like telemedicine, videoconferencing, and electronic health records transfer. When ECN deployed its infrastructure and services, it connected all clinics in the James Bay region (a total

[15] Personal communication, September 2015.

of 13 First Nation and non-Aboriginal communities) through a fibre optic connection – at the same rates they used to pay for much slower, limited service.

12. These upgrades have enabled the Cree Regional Health Board to introduce a variety of telehealth applications. For example, staff in community nursing stations can now conduct local ultrasounds with the assistance of urban-located physicians, so that at-risk pregnancies can be monitored within the community and eliminating the need for travel for periodic examinations. As of September 1, the staff had more than 400 cases so far in 2015 – each of which would have cost over $7,000 per visit in travel costs to Montreal. Staff at the nursing stations can also now conduct local retinal imaging, another procedure that previously had to be done in Montreal.

Kativik Regional Government – Tamaani Internet Services (http://tamaani.ca/)

13. Similar telehealth benefits are evident further north in Quebec, in the Nunavik region. Thanks to improved satellite-based infrastructure and services provided through Tamaani Internet, telehealth is a rapidly growing application in that region. A report by Télésanté McGill shows that there were 374.4 telehealth videoconferences per 10,000 inhabitants in the Nunavik region in 2014-15, compared to an average of 27.4 videoconferences in the entire region served by McGill's network. Major applications were for training, administration, and clinical consultations. There were a total of 1,084 hours of telehealth videoconferencing in the Nunavik region in the first three quarters of 2014-15.[17]

Online Education

14. First Nations and Inuit people living in rural and remote communities face daunting challenges in educational attainment. The 2011 National Household Survey carried out by StatsCan found that:

- 29 percent of Aboriginal peoples (age 25 to 64) had not completed high school, compared with 12 percent of non-Aboriginal peoples;
- 48 percent of Aboriginal peoples had attained a postsecondary credential (certificate, diploma or degree), compared with 65 percent of non-Aboriginal peoples;

[17] Source: http://telesantemcgill.ca/tswp/wp-content/uploads/2015/05/IndPerf_Q3_2014_2015.pdf

- 10 percent of Aboriginal peoples had attained a university degree, compared with 27 percent of non- Aboriginal peoples.[18]

15. Educational divides are also evident among Aboriginal peoples living in different regions of Canada, which suggests that geographic location – such as remote and isolated communities – may be a contributing factor. For example, the proportion of college and university graduates among First Nations people with registered Indian status was higher for those living off reserve than on reserve. Among the former, 21.2% had a college diploma and 10.9% had a university degree, compared with only 14.8% and 4.7% for those living on reserve, predominantly in rural areas. Among Inuit peoples, only 28.2% of Inuit living within Inuit Nunangat (Inuit regions of Canada) reported a postsecondary qualification compared with 53.3% of those living outside Inuit Nunangat[19].[20]

16. Lack of educational credentials restricts the ability of Aboriginal people to quality for jobs and to access additional training and education opportunities. In Canada's labour market, post-secondary education attainment is critical for gainful employment. Unemployment rates drop with each increasing level of higher education. Among the Indigenous population, the unemployment rate was a high 23.3% for those who did not complete high school but it fell to 11.4% for those with high school, and dropped even more to 9.3% for those with post-secondary education.[21]

17. Online education can help address these challenges for people in remote communities by increasing their educational opportunities. O'Connor (2013) notes that: "the use of ICTs and e-learning in Aboriginal education has shown positive results in addressing many of the aforementioned barriers to success for Aboriginal

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[18] Statistics Canada. (2011). "The educational attainment of Aboriginal peoples in Canada," *National Household Survey (NHS)*. Available at http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-012-x/99-012-x2011003_3-eng.cfm

[19] Inuit Nunangat includes the communities located in the four Inuit regions: Nunatsiavut (Northern coastal Labrador), Nunavik (Northern Quebec), the territory of Nunavut and the Inuvialuit region of the Northwest Territories. These regions collectively encompass the area traditionally occupied by Inuit in Canada.

[20] Statistics Canada. (2011). "The educational attainment of Aboriginal peoples in Canada," *National Household Survey (NHS)*. Available at http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-012-x/99-012-x2011003_3-eng.cfm

[21] Gordon, Catherine E. and Jerry P. White. "Indigenous Educational Attainment in Canada." The International Indigenous Policy Journal Volume 5, Issue 3, June 2014.

students." Based on his research with four Aboriginal e-learning organizations in Canada, O'Connor found that through broadband-enabled online learning:

- Retention rates have increased from 30–40% to 70–80%.
- Student success rates are 50–60%, which is much higher than most local Band schools.[22]

18. Below, we provide further details about how Keewaytinook Internet High School and the Cree School Board utilize broadband-enabled applications to support education in remote and First Nation communities.[23]

Keewaytinook Internet High School (http://kihs.knet.ca/)

19. Widely considered a national leader in online and distance education in remote First Nations, Keewaytinook Internet High School (KiHS) is located in Northern Ontario and utilizes broadband infrastructure and services provided by K-NET. As of 2014 KiHS was partnered with 13 First Nations communities (10 of which are fly-in) with an average population of 300. In all but one of these communities, KiHS is the only option that students have to attend high school at home - their alternatives are to attend boarding or residential schools. KiHS provides blended (online/offline) high school courses. Local on-site teachers support students through both 'bricks and mortar' classrooms and online applications and videoconferencing tools. The school provides a local option for secondary schooling in First Nations communities, and enables students to complete high school with the direct support of their family and community.

20. KiHS provides significant social and educational benefits for involved students. Student success rates have improved every year since the initiative started. As of 2013, KiHS had graduated more than 70 Grade 12 students since 2006. A 2014 presentation from KiHS to Aboriginal Affairs and Northern Development Canada's National e-Learning Strategy showed that retention rates for KiHS students remain high: about 70% on average and above 80% in some communities. [24]

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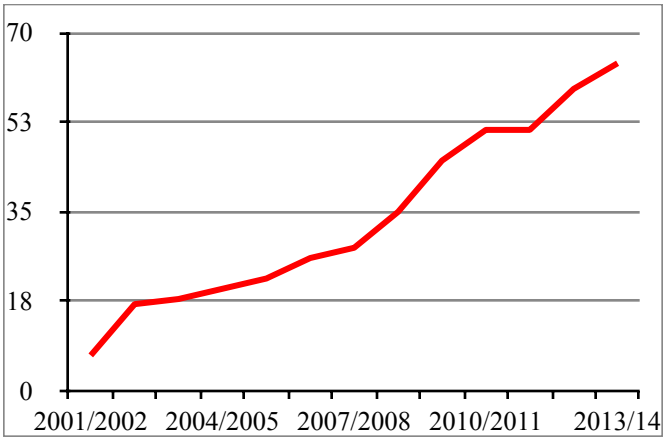
[22] O'Connor, K. (2013). "The use of ICTs and E-learning in Indigenous Education", published in Barbour, M.K. (2013). *State of the Nation: Online K-12 Learning in Canada*, Canadian eLearning Network, p. 89. See: http://www.openschool.bc.ca/pdfs/state_of_nation-2013.pdf

[23] Barbour, M.K. (2013). *State of the Nation: Online K-12 Learning in Canada*, Canadian eLearning Network. See: http://www.openschool.bc.ca/pdfs/state_of_nation-2013.pdf

[24] Keewaytinook Internet High School (2014). *National e-Learning Strategy: Presentation Portion by Keewaytinook Internet High School*, slide 6.

21. As demand for classes has grown, KiHS has expanded to offer 65 secondary courses as of 2014, which provide increased opportunities for students to achieve qualifications necessary to secure jobs. The chart below illustrates the growth of KiHS course offerings over the years:

Number of courses offered per year at KiHS[25]



22. KiHS also provides cost-savings to the education system in these regions. According to the 2014 presentation from KiHS to AANDC, costs per fly-out student are $22,647 per year, while KiHS costs $7,714 per student – a savings of almost $15,000 per student per year.[26]

Eeyou Communication Network and the Cree School Board
(https://www.cscree.qc.ca/en/)

23. The Cree School Board, which provides educational services to the nine Cree communities in the Eeyou Istchee region, accesses data transport and Internet services from the Eeyou Communication Network (ECN). Through the ECN, the Cree School Board provides e-learning, web services, centralized data storage, virtualization and data backup. Since broadband has become available, the School

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[25] Keewaytinook Internet High School (2014). *National e-Learning Strategy: Presentation Portion by Keewaytinook Internet High School*, Slide 4.

[26] KiHS determined these costs from an analysis of projected funding from both programs. KiHS projected funding for 225 on-reserve students at $1,735,675, and projected funding for 155 fly-out students at $3,510,359.

Board has deployed almost 200 tablet computers connected to Wi-Fi networks in the region's schools. The ECN's services and infrastructure also support the School Board's administration (streamlining electronic requisitions and purchase orders, web-based travel expense claim software, direct deposit of payments and so on). Schools and departments across the region can also now communicate better with each other through videoconferencing applications and more secure email.

Tele-Justice

24. Tele-Justice refers to applications of telecommunications including broadband to delivery of legal services. For example, the ECN recently connected all courthouses in James Bay region with high-capacity broadband networks and videoconferencing links. With these tools in place, various activities – including bail hearings, court appearances, and meetings with lawyers – can be conducted through videoconferencing. This reduces the need for travel, which may result in cost-savings and also supports culturally appropriate justice. Such Tele-Justice initiatives are also being established in Ontario through the efforts of KOeHealth, K-NET and other organizations. KOeHealth supported nine Tele-Justice events in 2014.[27]

25. In 2014, the Nunavut Court of Justice introduced a monthly remand court in Iqaluit for citizens detained in the Kivalliq region. Video or telephone appearances are used for citizens held at the Rankin Healing Facility in Rankin Inlet. The Court's 2014 annual report states: "The remand court has reduced the time necessary to process charges from this region, the time accused citizens are held in remand custody, and the public expense associated with the court circuit and transportation to and from the community for these appearances. The Court is working toward implementing video court for the Kitikmeot docket (which appears once a month in Iqaluit as well). In early 2015, the Nunavut Court of Justice started testing the video conferencing system in the North Slave Correctional Centre to assess the feasibility of video conferencing between Yellowknife and Iqaluit."[28] The report also notes that there have been previous attempts to conduct videoconferencing with North Slave Correctional Centre, but due to technical issues the system did not work well.

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[27] Mackenzie, O. (2015). *Annual Report by KOeHealth Telemedicine Services (KOeTS)*. Compiled for: First Nation and Inuit Health, Ontario Region (June 2015).

[28] Nunavut Court of Justice. "*Sivumuaqpallianiq* The Way Forward: A Statistical and Comparative Review of Court Operations in Nunavut 2014." Iqaluit, June 26, 2015, pp. 17, 22, 79.

Public Safety

26. There are many examples of how community-based providers are supporting public safety initiatives in remote and northern communities. For example, through the ECN's infrastructure and services, the Cree Police Force integrated formerly local offices into a coordinated regional organization. The organization is now starting to share access to connectivity, data, and so on through a regional private network. The ECN is also working with the Cree Police Force to set up 2-way mobile radios that are consolidated access across the region. Before this system was established, first responders relied on local antennas in each community.

Economic Development

27. Broadband infrastructure and services provide economic development benefits to people in remote and northern communities. We discussed these benefits in our testimony in the Northwestel hearing[29], and there have been several reports on northern connectivity that also make this point (for example, see Fiser, 2013).[30]

28. It is important to distinguish between two types of economic development initiatives that broadband infrastructure and services make available in remote communities:

    - Activities associated with the construction, operations and maintenance of broadband infrastructure and services.
    - Activities associated with applications made possible through broadband infrastructure and service.

29. Concerning activities associated with the construction, operations and maintenance of broadband infrastructure and services, there are numerous examples from remote and northern communities across Canada. K'atl'odeeche First Nation in the Northwest Territories built and operates a community network that is owned by the Band. This project used First Nation labour to construct the network and also involves a local IT manager in charge of operations.[31] This community-owned and

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[29] Testimony of the First Mile Connectivity Consortium in CRTC Consultation CRTC 2012-669-1: *Review of Northwestel Inc.'s Regulatory Framework,* Modernization Plan, and related matters.

[30] Fiser, A. (2013). *Mapping the Long-Term Options for Canada's North: Telecommunications and Broadband Connectivity*. Ottawa: Conference Board of Canada (July, 2013). Available at: http://www.conferenceboard.ca/e-library/abstract.aspx?did=5654

[31] Testimony of the First Mile Connectivity Consortium in CRTC Consultation CRTC 2012-669-1: *Review of Northwestel Inc.'s Regulatory Framework,* Modernization Plan, and related matters.

operated model for local networks is also in place in many other communities, including those connected through KNET services in Ontario. Other economic development opportunities enabled by broadband infrastructure include voice-over-IP services (as in Slate Falls, Ontario) and Internet Service Providers (as in Cross Lake Band in Manitoba).

30. An example of employment opportunities made possible through broadband applications is the jobs created through KOeHealth in Ontario. KOeHealth currently provides 12 positions in core operations, as well as full-time Community Telemedicine Coordinators in each of the 26 partner First Nations. In addition, in 2014-15, KOeHealth created three full-time positions: two Community eHealth Assistants and one KO eHealth Community Elder.[32]

31. Local business opportunities made possible through broadband applications also include website and graphic design, online training, and business administration. For example, Pirnoma Technologies Inc., an Inuit-owned and operated local business in the remote fly-in community of Ivujivik in Nunavik (Quebec) provides graphic design, IT support, web design and app development services – and also sells special keyboard covers to facilitate typing in Inuktitut syllabics.[33]

END OF DOCUMENT

[32] Mackenzie, O. (2015). *Annual Report by KOeHealth Telemedicine Services (KOeTS)*. Compiled for: First Nation and Inuit Health, Ontario Region (June 2015).

[33] For more information on Pirnoma Technologies, see http://www.pirnoma.com/ .