Telecom Notice of Consultation CRTC 2022-147

Call for comments – Telecommunications in the Far North, Phase II

Submission of the First Mile Connectivity Consortium

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Introduction

1. The First Mile Connectivity Consortium (FMCC) is an incorporated independent not-for-profit national association. Our members are First Nations Internet service providers known as "community/regional intermediary organizations." 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. More details about our members and activities are available at: http://firstmile.ca

2. In this intervention the FMCC is joined by several organizations that are based in the Far North, and specifically in the Northwest Territories. These Northern partners include the following organizations:

- **KatloTech Communications Ltd.** (KTC). KTC is a Northern Indigenous-owned business, located in the City of Yellowknife. The long-term vision of KTC is to provide world-class telecommunication solutions through the use of wireless and fiber optic technologies.

- **DigitalNWT.** DigitalNWT involves several organizations that are dedicated to improving digital equity and digital literacy in the Northwest Territories. The DigitalNWT project (www.DigitalNWT.ca) is led by a Steering Committee composed of the Gwich'in Tribal Council (GTC), the Inuvialuit Regional Corporation (IRC), the Sahtú Renewable Resources Board (SRRB), and the Tłı̨chǫ Government. These organizations are partnering with the University of Alberta, the Smart Communities Society (NWT), Hands On Media Education, and Aurora College. DigitalNWT was supported by funding from Innovation, Science and Economic Development (ISED) Canada's Digital Literacy Exchange Program (20119-2022), and is hosted on MakeWay's Shared Platform.

- The following DigitalNWT partners endorse this intervention:

    - **Gwich'in Tribal Council**
    - **Inuvialuit Regional Corporation**
    - **Sahtú Renewable Resources Board**
    - **Dene Nation**
    - **Smart Communities Society NWT**

- Our intervention is also supported by the **Native Women's Association of the NWT**.

3. Our comments present the perspectives of both consumers and service providers. FMCC believes Northern populations must have opportunities to utilize digital communications infrastructure and services not just as a facilitator of economic development in other industries and services, but also as a locally owned and managed resource in and of itself. As both providers and consumers of telecommunications infrastructures and services in rural, remote, Northern and Indigenous regions – including in communities located in the Far North – we have extensive experience and expertise concerning issues raised in these proceedings.

4. Under the *Telecommunications Act*, Canada's telecommunication policy includes the objective "to render reliable and affordable telecommunications services of high quality accessible to Canadians."[1] This goal is critical for Northern **consumers,** because digital services are essential for the social, cultural, and economic development of rural, remote and Northern Indigenous communities and their residents.

5. We note that as far back as in 2001, the National Broadband Task Force report prioritized the importance of connecting all First Nation, Inuit, rural and remote communities through affordable access to services.[2] 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).

6. However, the communities located in rural/remote, Northern and Indigenous regions with the worst transportation links and greatest need often have the worst access, lowest quality of service, and most expensive communications services.[3] Our research demonstrates how consumers based in rural/remote communities in the NWT are using digital infrastructure and services to access essential public services and participate in economic activities.

7. Unfortunately, the Northern rural/remote communities primarily populated by Indigenous peoples are the ones most affected by digital inequities, but also the least researched areas regarding these issues.

8. The Government of the NWT has conducted household surveys in all NWT communities regarding the numbers of Internet subscriptions (2019).[4] However, these surveys have not included information about why people do or do not subscribe to household Internet, or about the total prices that they pay. Northwestel may have information about these issues, but it has not been made publicly available. Therefore, our research presents unique data on these important issues that to our knowledge are not otherwise publicly accessible.

9. As COVID-19 public safety requirements closed public access learning centres, many NWT residents faced access, affordability, and reliability barriers in accessing online DigitalNWT courses and workshops from home. For these reasons, and to support the preparation and delivery of digital literacy curriculum, the DigitalNWT project team is researching Internet

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[1] *Telecommunications Act*, Section 7(b).

[2] 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

[3] See: http://www.northernpublicaffairs.ca/index/volume-6-special-issue-2-connectivity-in-northern-indigenous-communities/a-whole-community-approach-for-sustainable-digital-infrastructure-in-remote-and-northern-first-nations/

[4] NWT Bureau of Statistics (2019). 2019 NWT Community Survey: Home Internet Access. Available at: https://www.statsnwt.ca/recent_surveys/2019NWTCommSurvey/2019%20Home%20Internet%20Access.xlsx

services in the NWT. These activities are supervised by researchers at the University of Alberta. In our responses below we include information from this research that is relevant to this proceeding, including results from interviews and community surveys conducted with residents of rural/remote NWT communities.[5]

10. We also present data and analysis about the experiences of **service providers** operating in rural/remote Indigenous communities, including those in the far North. We demonstrate how these providers, including Katlotech and FMCC partner organizations, position sustainable local and regional enterprise development at the forefront of broadband infrastructure and have innovated to develop and implement digital infrastructure and services in rural and remote regions.[6]

General Comments

11. We welcome the Commission's increasing recognition of and regulatory support for telecommunications infrastructure and services in rural, remote, Northern and Indigenous regions, including the outcomes of proceedings we have participated in over the past decade. These include CRTC 2012-699 (Review of Northwestel Inc.'s Regulatory Framework, Modernization Plan, and related matters), CRTC 2015-135 (Review of Basic Telecommunications Services) and CRTC 2017-112 (Development of the Commission's Broadband Funding Regime).

12. In CRTC 2019-406, CRTC 2020-366, and CRTC 2020-367, the FMCC filed extensive comments to highlight the barriers that FMCC members and other small ISPs face as service providers attempting to build new facilities to interconnect with or access existing facilities. At that time, we also provided recommendations for regulatory measures that aim to address these issues.

13. At time of writing (late September 2022), the Commission has not yet released the outcomes of the CRTC 2019-406 and CRTC 2020-366 proceedings. It is challenging to provide fulsome contributions on some issues raised in this proceeding without knowledge of the Commission's decisions on these matters. Therefore, we refer to key points we raised in those proceedings that are relevant here. We emphasize that the Commission must take into

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[5] Further details of our research and methodology are available in the following peer-reviewed publications:

McMahon, R., Akcayir, M., McNally, M.B. & Okheena, S. (2021). Making sense of digital inequalities in remote contexts: Conceptions of and responses to connectivity challenges in the Northwest Territories, Canada. *International Journal of Communication, 15*(1): 5229-5251.

McMahon, R., & Akcayir, M. (2022). Investigating concentrated exclusion in telecommunications development: Engaging rural voices from Northern Canada. *Journal of Rural Studies.*

McMahon, R. & Akcayir, M. (2022). Voices from Northern Canada: Integrating stakeholder expectations in telecommunications policy for rural, remote and Northern regions. *Telecommunications Policy.*

[6] For an overview of projects, see: http://firstmile.ca/wp-content/uploads/Stories-from-the-First-MIle-2018.pdf

consideration the submissions to those associated proceedings because many of the barriers identified are also found in the territories serviced by Northwestel.

14. We also present an analysis of submissions from individual respondents and Intermediary Organizations[7] to Phase 1 of these proceedings (CRTC 2020-367). We recognize that the Commission is also reviewing those submissions but believe our analysis can contribute to a better overall understanding of the expectations of Northerners, and areas where the existing regulatory framework falls short.

15. Our comments are intended to contribute to the CRTC's efforts to explores solutions to:

- "improve the affordability, quality and reliability of Internet and home phone services provided to individuals and small businesses in the Far North (retail Internet access and home phone services);
- enhance competition and telecommunications services provided to competitive service providers in the Far North (wholesale services);
- increase access to educational and economic opportunities in the Far North that rely upon affordable, high-quality Internet services; and
- contribute to the preservation, restoration and dissemination of Indigenous languages and culture by improving access to affordable, reliable, high-quality Internet services…" (CRTC NoC 2022-147, para 3).

16. We also note the Commission's statement concerning the relevance of the Truth and Reconciliation's Calls to Action in this proceeding:

> "As an outcome of the Truth and Reconciliation Commission of Canada, several calls to action were made. In response to Call to Action #7, the Government of Canada stated that it wants to improve access to educational and economic opportunities that rely upon affordable, high-quality Internet services. The Government of Canada also stated that it wants to contribute to the preservation, restoration and dissemination of Indigenous languages and culture in response to Call to Action #13. Both objectives can be supported by access to affordable, reliable, high-quality Internet services" (para 20).

17. **Request to Appear at Public Hearing in Whitehorse:** We have firsthand knowledge of issues key to this consultation, including the needs of communities, community-based models for providing telecommunications, subsidy models, and practical issues that must be addressed in providing communications services including broadband in these regions. Further, we can explain the results of research and answer any questions from the Commissioners. Some participants may wish to participate by telephone or videoconference.

[7] We define Intermediary Organizations as non-operator entities that connect members of the public with federal government institutions like the CRTC. They can include public and consumer interest groups, Indigenous technology organizations, or municipal, provincial or territorial governments.

Responses to Selected Questions in Appendix 1

Q1: What actions should CRTC take to ensure principles of equity and substantive equality are addressed in its evaluation of possible regulatory outcomes proceeding?

18. We welcome the Commission's adoption of principles of equity and substantive equality as guidelines for evaluating possible regulatory outcomes of these proceedings. Below we suggest potential actions the CRTC can take to ensure these principles are addressed.

19. Equality refers to having the same resources or opportunities, while equity refers to fairness. For example, substantive equality could refer to Northerners having access to the same broadband services and pricing as other Canadians. The Commission's establishment of 50/10 Mbps as a basic service for all Canadians is an example of an attempt at equality in broadband access for all. However, to achieve that target (and others such as affordability) equitably or fairly, the regulators and policymakers may need to provide pre-exemptive access (for example to spectrum), subsidies to Indigenous residents, and subsidies to providers serving remote and other high-cost regions. As well, an equitable definition of "basic service" should be established on the basis of the services available and accessible to consumers in more densely populated areas. Equity could also refer to fairness in terms of access to consumer support and services by providers in Indigenous languages.

20. Unfortunately, the history and current experiences of residents of the Far North indicates that principles of substantive equality and equity are not in place – despite efforts to draw attention to them for decades.

21. We refer first to the *Guiding Principles, Definitions and Recommendations* of the National Broadband Task Force from 2001. FMCC Co-founder, Brian Beaton, was a member of that Task Force in his role as the Coordinator of K-Net Services (K-Net). As an early draft of what evolved into a National Broadband Strategy for Canada, that report made several points specific to people living in Indigenous communities:

> "Our main order of business was to identify communities that are unlikely to obtain broadband access as a result of market forces alone … 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.
>
> To carry out this task, we found that we had to cast our net more widely and begin our work by developing a shared vision and a common understanding of what broadband is and why it is important for all Canadians, particularly for those living in First Nation, Inuit, rural and remote Communities" (p.1).[8]

22. We also note that the report states: "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" (pp.10-11).

[8] The report is available here: https://publications.gc.ca/collections/Collection/C2-574-2001E.pdf

23. In 2013, the FMCC participated in the CRTC's previous review of Northwestel's Regulatory Framework (CRTC 2012-669). At that proceeding, we presented testimony from Indigenous Internet providers from the NWT and other Northern and remote Canadian regions. We also summarized the experience in Alaska, which has remote Indigenous villages similar to communities in the Canadian North. We highlighted significant digital inequalities between Northern and Southern regions of Canada/North America, as well as divides within Northern regions and communities.

24. Today, broadband has truly become an essential service for residents of the Far North – particularly in rural/remote communities whose residents rely on adequate, affordable, reliable telecommunications infrastructure and services to access services otherwise unavailable in their communities. For example, a 2021 Bank of Canada report confirms the impacts of limited access to banking/financial services and cash sources in rural/remote areas both due to the long travel distances to bank branches and to unreliable broadband for online banking.[9]

25. Household surveys we conducted in rural/remote NWT communities in 2021/22 found that of the total number of respondents to this question (n=273) more than one-third accessed education and helath services both in-person and online, and 45 percent accessed other government services both in-person and online. A further 17 percent accessed educational and government services primarily online. Concerning telework, 38 percent stated they worked both online and in-person, while an additional 13 percent worked primarily online.

26. The importance of connectivity in remote communities to access public services is also reflected in the response to a question we asked about how often people travel outside of their community to an urban centre to access public services (response n=262). One-third of respondents to this question stated that they "Never" or Rarely" do so.

27. This research illustrates how digital inequalities are leading some Northern residents to experience social and economic exclusion. The COVID-19 pandemic exacerbated these disadvantages, as we discuss in response to Q6 below.

28. Over the past decade, technologies have changed. Fibre backbone has been built in some regions, although many communities are still dependent on satellite services or microwave backhaul. Several government funding programs have helped to extend or upgrade broadband services. Consumer demand for Internet and other broadband services has increased dramatically. Regulatory goals have also changed. The Universal Service Objective set by the CRTC is now 50 mbps down and 10 mbps upload speed as opposed to only 5/1 mbps in 2013.

29. Nonetheless, as in 2013, most Northern residents still cannot access what is considered basic service. It is now more important than ever that the CRTC require the provision of 50/10 mbps broadband service as mandated in its Basic Service decision in ALL communities and that infrastructure in northern regions is capable of providing it.

[9] Chen, H., Engert, W., Huynh, K.P., O'Habib, D., (2021). An Exploration of First Nations Reserves and Access to Cash. Bank of Canada, Ontario, Canada.

Conceptualizing Equity and Substantial Equality in the Far North

30. Digital equity and substantive equality should be understood within three geographical contexts:

    - Nationally – such as between the Far North and the rest of Canada
    - Regions – such as rural/urban divides within the Far North
    - Locally – such as among households inside communities

31. **Recommendation: Efforts to achieve substantive equality and equity must reflect the distinct contexts of the involved areas, regions, and communities impacted.**

32. Second, equity and substantive equality must also be considered from the perspectives of both **consumers** (e.g., end-users of telecommunications services) and **service providers** (e.g., organizations that provide those services).

33. **Recommendation: Efforts to achieve substantive equality and equity must reflect the distinct social, economic, and cultural contexts of both consumers and providers of telecommunications.**

Equity and Substantive Equality for Consumers

34. We examined individual submissions during Phase 1 of these proceedings (CRTC 2020-367). Consistent with recent and previous research, these intervenors pointed out concerns regarding the availability, access, affordability and reliability of telecommunications services in the Far North. The most frequently reported expectation among individual Northerners is for policymakers to find a way to close the digital gap between Northern and Southern Canada. More than one-third (n=89; 36%) of individual respondents highlighted significant North/South differences.[10]

35. Individual Northerners also pointed to regional divides within the Far North between urban/central communities and rural/remote communities. Respondents from both regions complain about affordability, slow speeds and unreliability, while rural/remote customers also rate highly poor customer support and specific examples of service cutting out, poor Internet affecting online work, and speed variations. Our analysis of differences between respondents in urban/central communities (e.g., Yellowknife, Whitehorse) and rural/remote communities are summarized in the Figure below. [11]

[10] For more details on this issue, see McMahon, R., & Akcayir, A. (2020). Voices from Northern Canada: Integrating stakeholder expectations in telecommunications policy for rural, remote and Northern regions. *Telecommunications Policy*.

[11] This Table is from p.190 of McMahon, R., & Akcayir, M. (2022). Investigating concentrated exclusion in telecommunications development: Engaging rural voices from Northern Canada. *Journal of Rural Studies.*

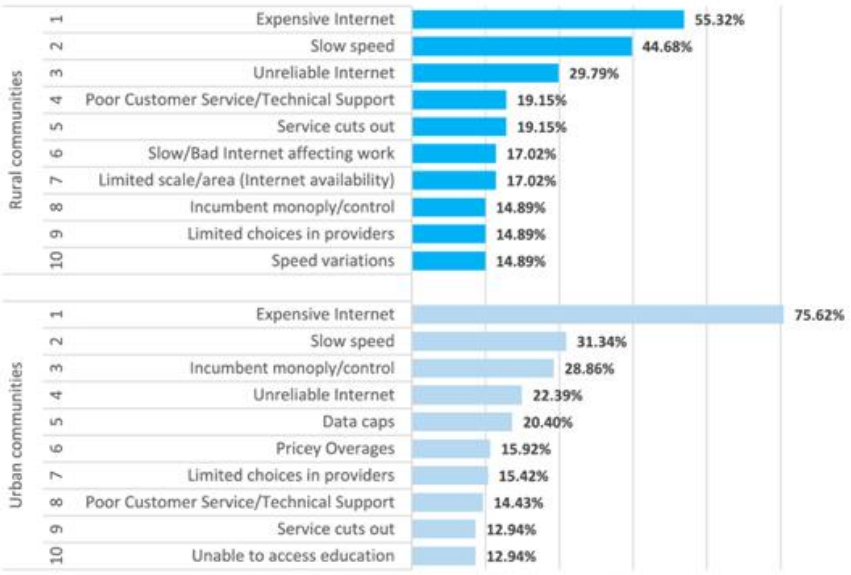

Fig. 3. Distribution of the most reported challenges in rural and urban communities.

36. Compared to urban/central residents, rural/remote residents submitted more comments regarding certain challenges:

    - Inability to access banking/financial services (including Point of Sale (POS) machines);
    - Challenges related to running small and medium size enterprises (SMEs), online businesses, and working from home;
    - Challenges with poor customer/technical service, including long wait times for technicians when their services need to be installed or fixed; and
    - Limited broadband availability and speed variations (compared to urban/central communities).

37. **Rural/remote residents also reported availability challenges.** These communities have not always been included in connectivity projects. For example, the NWT Legislative Assembly submitted that: "there is no clear plan for connecting outlying communities". Another Northern organization reported that: "a community of 50 households was not included in the company's proposal, and in fact, Northwestel was apparently unaware of the community's existence."[12]

38. **Northern consumers also experience inequities regarding services within their local communities.** For example, residents interviewed in Inuvik in Fall 2020 stated that households and buildings located on the outskirts of their community lacked the level of communications infrastructure and services available in the core.[13]

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[12] More analysis of these expectations is reported in: McMahon, R. & Akcayir, M. (2022). Voices from Northern Canada: Integrating stakeholder expectations in telecommunications policy for rural, remote and Northern regions. *Telecommunications Policy*.

[13] McMahon, R., Akcayir, M., McNally, M.B. & Okheena, S. (2021). Making sense of digital inequalities in remote contexts: Conceptions of and responses to connectivity challenges in the Northwest Territories, Canada. *International Journal of Communication*, *15*(1): 5229-5251.

39. **Affordability is also impacted by income inequalities present within local communities.** For example, in several rural/remote NWT communities, such as Aklavik, Tuktoyaktuk, and Ulukhaktok, one-fifth (20%) or more of households are low-income.[14] We discuss affordability for low-income households in more detail in responses to Q8 to Q15 below.

40. **Recommendation: Efforts to achieve substantive equality and equity must reflect the unique challenges experienced by low-income people living in Northern communities, including the specific contexts of rural/remote and small-population communities.**

41. In its deliberations the Commission should consider existing measures designed to support equity and substantive equality in the provision of services. For example, Jordan's Principle was established in 2016 after the Canadian Human Rights Tribunal determined that the Government of Canada's existing approach to services for First Nations children was discriminatory. It includes considerations of "substantive equality" and "makes sure all First Nations children living in Canada can access the products, services and supports they need, when they need them".[15]

42. Jordan's Principle includes consideration of access to digital technology; for example, during the COVID-19 pandemic, it was invoked to enable First Nations children to access equipment and services including laptops, tablets or other e-learning tools, if they met an identified health, education or social need.

43. **Recommendation: Consider existing approaches that are designed to support equity and substantive equality in the provision of services, such as *Jordan's Principle*.** Such approaches may provide a means to formally recognize the importance of access to affordable Internet.

Equity and Substantive Equality for Service Providers

44. We have submitted evidence on the barriers that Indigenous service providers face in our interventions in CRTC 2020-366 and 2020-367. Many of these barriers apply in Northwestel's service territory. For example, it is very difficult to obtain information on Northwestel's plans for upgrades and extensions of services in order to plan community and regional networks.

45. It is also difficult to access Northwestel's backbone and other network facilities to provide backhaul and interconnection for Indigenous and other network services. We discuss these issues in more detail in responses below.

46. Recommendation: The Commission should address barriers to deployment so that Indigenous and other providers have equitable access to the information and facilities they require from Northwestel.

[14] See: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=9810010601&pickMembers%5B0%5D=1.5392
[15] See: https://www.sac-isc.gc.ca/eng/1568396042341/1568396159824

Q2: What action should CRTC take to apply UNDRIP principles?

47. When the Government of Canada officially adopted the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) in May 2016, this endorsement came from Canada as a full supporter of the declaration – without qualification. UNRIP requires every level of the federal government to align Canadian laws with the standards set forth in the declaration. More than ever, Canada must now cooperate and collaborate with Indigenous Peoples on any laws, policies, regulations or administrative measures that affect them.

48. In its deliberations in these and other proceedings, the Commission must recognize the First Nations government-to-government relationship supported by UNDRIP. This stresses that Indigenous peoples are **rights holders** not **stakeholders**. This means that First Nations and other Indigenous governments must guide and participate in policy/regulatory discussions and exercise their rights in a substantive way.

49. UNDRIP and related developments reflect increasing formal recognition of Indigenous land claims, self-government rights, laws, and customs. They recognize the laws and practices of Indigenous peoples and reflect forms of self-determination that emerge from place-based laws, beliefs, and practices. This is seen, for example, in support for the development of the Indigenous institutions best equipped to engage with the lived realities of members of Indigenous citizens and communities. Indigenous institutions exist to shape the state laws and policies that impact the lives of their constituent members.

50. UNDRIP affirms Indigenous peoples' inherent right to self-determination, and "is the framework for reconciliation at all levels and across all sectors of society".[16] In an address to the Senate Committee on Aboriginal Peoples Considering Bill C-15 in May, 2021, on behalf of the Cree Nation of Eeyou Istchee, Grand Chief Abel Bosum identified **"free, prior, and informed consent"** as at the heart of Indigenous peoples' right to self-determination.[17] As we discuss below, this concept is important in the context of telecommunications.[18] Indigenous communities have the right to make their own decisions about their land and territories, traditional knowledge and languages, and telecommunications infrastructure and services.

51. On these matters, the Commission should consider the work of the First Nations Technology Council (FNTC) in B.C. As the mandated sector council for technology and innovation working in service of the 204 First Nations in B.C., the Technology Council has a formal working relationship with the BC Assembly of First Nations, the Union of BC Indian Chiefs, and the First Nations through protocol entered into in 2012, as directed by the Chiefs. The Technology Council, as directed by the Chiefs in BC (UBCIC Resolution No. 2022-17, BCAFN Resolution No. 10/2022 and FNS Resolution No. 1021.07), is in the process of developing an Indigenous Digital Equity Strategy.

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[16] Assembly of First Nations, https://www.afn.ca/implementing-the-united-nations-declaration-on-the-rights-of-indigenous-peoples/

[17] See: https://www.cngov.ca/wp-content/uploads/2021/02/speaking-notes-presentation-to-senate-committee-on-aboriginal-peoples-bill-c-15-may-14-2021-english.pdf

[18] See also: https://waccglobal.org/creating-an-enabling-environment-for-digital-self-determination/ and https://policyreview.info/articles/analysis/co-developing-digital-inclusion-policy-and-programming-indigenous-partners

52. As inherent right holders, Indigenous Peoples have the right to own, control, access, influence, and steward digital technology; to influence and benefit from participation the technology sector and all sectors that are impacted by, or that rely on, digital technology; and to provide leadership in the reformation and/or development of laws, policies and regulations concerning digital technologies where they impact, or have the potential to impact, First Nations Title, Rights and/or Treaty Rights. (UNDRIP Articles 3, 5, 20(1), 21(1), 23, 34).

53. Also, in B.C. the *Declaration on the Rights of Indigenous Peoples Act* (DRIPA)[19] provides a legislative framework that can be used to develop an Indigenous rights holder approach to telecommunications policy and regulation. In September 2020, the First Nations Technology Council developed a document making this argument: *Technology Underpins UNDRIP*. These and other resources may be helpful for the Commission to consult when considering the important role that First Nations play in determining digital equity policy.

54. The current approach adopted by both the CRTC, and industry treats Indigenous peoples as one of many stakeholders in projects impacting their communities and territories. For example, in its Final Report, the Broadcasting and Telecommunications Act Review Panel (2020)[20] proposed establishing a Public Interest Committee to represent the interests of consumers, with inclusion of public interest representatives from diverse perspectives including Indigenous Peoples. Specifically, the Panel recommended:

> "We recommend that the CRTC Act be amended to require the creation of a Public Interest Committee funded by the CRTC and composed of not more than 25 individuals with a wide range of backgrounds, skills, and experience representing the diversity of public, civic, consumer, and small business interests, **and including Indigenous Peoples**. **The CRTC should be encouraged to meet with representatives of Indigenous Peoples and communities** outside of the Committee structure" (p.59; **emphasis added**).

55. Such an approach appears to treat Indigenous Peoples as one stakeholder among many – rather than as distinct rights-holders exercising a government-to-government relationship. Any Public Interest Committee must reflect the unique status of Indigenous Peoples.

56. Recommendation: Consult with the First Nations Technology Council regarding their work to support the implementation of UNDRIP in technology and innovation, and other resources for recommendations on adopting UNDRIP in the context of Indigenous digital equity. This includes recognition of nation-to-nation relationships, rights-holders' approaches, and free, prior and informed consent.

57. The CRTC can play an important role in institutionalizing substantial Indigenous participation in telecommunications policy and regulation. For many years our FMCC members have advocated for the need to include Indigenous peoples in decision-making about the broadband development requirements and activities taking place in their territories and

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[19] See: https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/ministries/indigenous-relations-reconciliation/declaration_act_action_plan.pdf

[20] Available at: https://ised-isde.canada.ca/site/broadcasting-telecommunications-legislative-review/sites/default/files/attachments/BTLR_Eng-V3.pdf

communities, starting with our intervention in the previous review of Northwestel's Modernization Plan in 2012-699. Indigenous providers in Canada, including FMCC member organizations, have also noted the importance of regional representatives in government departments and agencies like FedNor (Northwestern Ontario) and CanNor (Northern Canada).

58. However, there is currently no specific office at the CRTC or ISED dedicated to Indigenous connectivity issues, although the CRTC appointed its first Indigenous commissioner in 2019 (for B.C. and Yukon).[21]

59. The CRTC should establish an Office within the Commission with expertise on Indigenous and Northern issues. In past interventions – including in our response to the 2012 hearings on Northwestel's Modernization Plan (2012-699) – we recommended that the CRTC establish such an Office to advise the Commission on Indigenous and Northern issues, conduct outreach to Indigenous organizations, and take the lead in establishing a coordinating mechanism for federal Indigenous and communications programs and policies.

60. Such an Office could address issues across the remote and Indigenous North, including the northern regions of the provinces as well as the territories. As we note throughout this intervention, these regions have much in common including Indigenous populations, small communities, lack of year-round road access, and challenging climate and geography.

61. A potential model is the U.S. Federal Communications Commission's (FCC) Office of Native Affairs and Policy (ONAP), established in 2010.[22] ONAP was founded to assist the Commission in developing policies and programs to address the lack of adequate services on Tribal lands: "ONAP plans and leads the Commission's outreach to Tribal governments and organizations, with the objective of increasing their awareness of, and participation in, Commission programs and proceedings."[23]

62. ONAP has provided outreach to Native and Tribal organizations and has acted as a resource on Indigenous issues within the FCC. It is mandated to work with federally recognized Tribal governments, Native organizations and Native Hawaiian Organizations through regulatory action, consumer information, and community outreach. Among other responsibilities, ONAP:

- "Ensures robust government-to-government consultation with federally recognized Tribes, Alaska Native Villages, and Native Hawaiian Organizations.
- Works with Commissioners, Bureaus, and Offices, as well as with other government agencies and private organizations, to develop and implement policies for assisting Native communities.
- Conducts regional and national Tribal consultation and Tribal training workshops to help build understanding and knowledge of FCC policies and programs that can spur

[21] See: https://crtc.gc.ca/eng/acrtc/organ.htm#coBritishColumbiaYukonBio
[22] See: "Order 10-141: Establishment of the Office of Native Affairs and Policy in the Consumer and Governmental Affairs Bureau." 2020. Accessed October 3, 2022. https://docs.fcc.gov/public/attachments/FCC-10-141A1.pdf .
[23] See: https://www.fcc.gov/office-native-affairs-and-policy

deployment of communications infrastructure and services in historically unserved or underserved Native communities."[24]

63. **Recommendation: Drawing from the example of ONAP in the U.S. the Commission should set up a dedicated office and hire more staff with experience and focus on issues related to Indigenous contexts both concerning the Far North and in other rural/remote and Northern regions of Canada. Any such office should reflect the rights-holders relationship between the Government of Canada and Indigenous Peoples.**

[24] See: https://www.fcc.gov/office-native-affairs-and-policy

Q3: What action should CRTC take to apply OCAP™ principles to its evaluation of possible regulatory outcomes in this proceeding?

64. The principles of OCAP™, Ownership, Control, Access and Possession, provide a set of guidelines to support the development of Indigenous owned- and operated telecom networks and the digital applications serving the desires and needs of the partner First Nations.

65. In 2013, the First Nations Innovation project (a sister research project to the FMCC) developed a First Nations Data Governance Policy. This policy can be viewed here: http://firstmile.ca/wp-content/uploads/2015/04/2013-FNI-Data-Governance-Policy.pdf

66. As the National Inuit Strategy on Research (2018) notes, access, ownership, and control over data and information that is gathered on Inuit lands, and in Inuit communities are key components of Indigenous self-determination and that Indigenous organizations are best positioned to determine how knowledge and information are used and shared to minimize harm and maximize benefits.[25] Indigenous self-determination requires fulsome partnerships between Indigenous representational organizations, government agencies and research institutions.

67. The Commission can support OCAP™ principles through enabling Indigenous and community participation in regulatory proceedings. As currently structured, regulatory consultations undertaken by the Commission face limitations in sourcing actionable feedback from organizations and individuals based in Indigenous and Northern contexts. In particular, consumers living in small-population, rural, Indigenous and Northern communities face significant challenges in contributing to CRTC proceedings.

68. While public participation may be encouraged, proceedings tend to be formal, legalistic, and complex, and participants may not present evidence and data in ways that address the needs of Commission staff. Members of the public who lack access to timely, detailed information and hold limited experience in formulating policy documents are expected to propose and advocate for solutions. Formal consultations also require intervenors to take initiative to present their perspectives to the Commission, rather than the CRTC engaging individuals and organizations directly.

69. Our analysis of Phase 1 of these proceedings (CRTC 2020-367) identified 266 submissions posted on the CRTC's website – 248 of which appear to be from individual Northerners. The length of these 248 individual submissions varies from two words ("very expensive") to 7616 words, with a mean of 175 words. The overwhelming majority of individual submissions (76%) are less than 200 words.

70. These individual submissions are concentrated in central/urban communities, and specifically the three capital cities in the Far North.[26] The majority (81%) are from urban

[25] See Inuit Tapiriit Kanatami (2018). Available at: https://www.itk.ca/wp-content/uploads/2020/10/ITK-National-Inuit-Strategy-on-Research.pdf

[26] We determined the locations of submissions from addresses provided by respondents in the CRTC comment form.

areas, as defined by Statistics Canada's rural-urban classification (Statistics Canada, 2018).[27] Thus, the representation of submissions from the rural/remote Northern communities most impacted by the outcomes of these proceedings was low. Greater efforts are required to connect with people located in rural/remote, Northern and Indigenous communities.[28]

71. Canada has an extensive history of policy engagement in geographically remote contexts. Successful examples from Northern Canada include public hearings held on the Mackenzie Valley Pipeline (1974–7) and the Mary River mine expansion in the early 2000s.[29] In these two examples, geographically remote Northern Indigenous communities utilized communications technologies to participate in consultations about environmental stewardship and resource extraction. Participants contributed through the effective use of media tools such as online videos, social media, radio call-in shows and cable television.

72. The DigitalNWT research included household surveys conducted by residents of rural/remote communities in the Far North, in collaboration with university-based researchers.[30] Such methods can engage Northern residents in the monitoring and evaluation of telecommunications infrastructure and services funded by the CRTC and other governmental entities. They can provide consumer-side data that can be interpreted alongside supply-side data typically collected and reported by service providers. Researchers, policy makers and regulators can partner with affected communities to find ways to gather more accurate information about availability, access, quality, and affordability in rural/remote regions.

73. In the U.S. the Broadband DATA Act[31] mandates a process through which state, local, and Tribal governments or entities may submit their own verified primary broadband-availability data and may challenge existing FCC data. The FCC has also stated that it intends to increase Tribal outreach, including through Tribal training workshops on data collection.[32] This work is supported through the ONAP Office (discussed in our response to Q2).

74. In Q23, we note that the FCC now allows Tribal governments access to the most recent filings submitted by telecommunications carriers that serve their lands with support from the Universal Service Fund (USF) High-Cost program, through FCC's Form 481, which collects financial and operations information used to validate carrier support.

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[27] Statistics Canada, 2018. Population and Dwelling Count Highlight Tables, 2016 Census. Retrieved from. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hl t-fst/pd-pl/Table.cfm?Lang=Eng&T=801&SR=1&S=47&O=A&RPP=25.

[28] For a more detailed discussion of these issues, see: McMahon, R. & Akcayir, M. (2022). Voices from Northern Canada: Integrating stakeholder expectations in telecommunications policy for rural, remote and Northern regions. *Telecommunications Policy*.

[29] Dalseg, S. K., & Abele, F. (2015). Language, distance, democracy: Development decision making and northern communications. *Northern Review, 41*, 207–240. https:// doi.org/10.22584/nr41.2015.009

[30] For details on this methodology, see: McMahon, R., Akcayir, M., McNally, M.B. & Okheena, S. (2021). Making sense of digital inequalities in remote contexts: Conceptions of and responses to connectivity challenges in the Northwest Territories, Canada. *International Journal of Communication, 15*(1): 5229-5251.

[31] See: United States Congress. "Broadband Deployment Accuracy and Technological Availability (DATA) Act. Public Law 116–130, 116th Congress." March 23, 2020. Accessed October 3, 2022. https://www.congress.gov/116/plaws/publ130/PLAW-116publ130.pdf

[32] See: https://www.fcc.gov/office-native-affairs-and-policy

75. Recommendation: The Commission should work with Indigenous governments, organizations and communities to engage community members in efforts to monitor and evaluate the outcomes of publicly funded telecommunications infrastructure and services, particularly in rural/remote, Northern and Indigenous regions that otherwise lack publicly available primary data. Such activities can be guided by principles of OCAP™.

76. We note that in the current phase of these proceedings the CRTC modified its methods of participation to include an "online engagement platform" encouraging participants to take a survey or contribute their stories. Registered parties also have the opportunity to present in-person or remotely during a public hearing. We also noted the inclusion of Indigenous-language translations of information regarding the consultations. We appreciate these efforts and expect more Indigenous-language content from providers such as Northwestel as well.

77. We are concerned that lack of participation may result from lack of awareness. We recommend that the CRTC's outreach strategies be evaluated after this hearing to determine whether Northerners knew about this consultation, knew how to submit their views, and used the materials in Indigenous languages.

78. **Recommendation: The CRTC should do more direct outreach to people living in rural/remote, Northern and Indigenous communities in proceedings focused on issues that affect them. Structured use of community-based data collection, as well as media channels such as social media and community TV/radio, the CBC and Northern newspapers, can provide multiple pathways to participation. We encourage the Commission to continue providing multiple avenues of participation and offering information in Indigenous languages.**

79. Recommendation: The Commission should continue to encourage and support the participation of IOs that act as crucial mediators between local residents and government agencies.

80. The CRTC should require Northwestel to provide similar information for its services on Indigenous lands. OCAP™ principles could support a similar arrangement in Canada.

81. The Commission should also ensure that there are opportunities for Indigenous and other small and regional ISPs to provide services in Northwestel's territory. (We outlined some of the barriers they face in our submissions in CRTC-366 and CRTC-367).

82. The Commission should also require that Northwestel provide training and jobs in Northern communities, and report annually on the number and location of Indigenous people hired and trained.

83. **Recommendation: We urge providers like Northwestel to provide similar sources and avenues of engagement to support principles of free, prior and informed consent during consultations.**

Q4: What action should CRTC to ensure Indigenous rights, treaties, agreements and negotiations in Far North are addressed in evaluation of possible regulatory outcomes in this proceeding?

84. As noted in our response to Q2, as inherent rights holders, Indigenous rights holders hold influence and decision-making control in the shaping of policies, regulations and associated initiatives regarding telecommunications on their lands.

85. Indigenous connectivity advocates point out that some rights-of-way and other agreements regarding Indigenous territories were negotiated decades ago, before increased legal recognition of Indigenous rights.

86. In 2013, the Chief of K'atlodeeche First Nation (KFN) met with the CRTC regarding Northwestel's access to a highway right-of-way that ran through the KFN territories without any consultation with the Nation. At that time, Northwestel did not consult with KFN to put the infrastructure in place. Despite the fibre backbone running along this right-of-way in KFN traditional territories, the First Nation was prevented from accessing the infrastructure. This prevented the Band from utilizing it to provide healthcare, education, and other services to its citizens. Northwestel did not provide opportunities to the community for gainful employment or to partner on the infrastructure project.

87. In 2019, participants at the Indigenous Connectivity Summit raised issues regarding the placement of infrastructure on Indigenous lands without consent and without benefit to the occupants of the land. In several cases, participants noted examples of when fibre backhaul has run through Indigenous territories, but occupants had no access to it or benefit from it.

88. There do not appear to be any formal standards or requirements regarding "free, prior and informed consent" in the context of telecommunications policy and regulation. More clarity would provide a helpful basis for consultation and engagement.

89. Recommendation: Require Northwestel and other commercial providers to obtain formal consent from Indigenous governments before installing facilities on their land.

90. Recommendation: Facilities on Indigenous lands, such as conduit and towers that have been built using public funds, should be accessible to Indigenous providers.

Q5: What action should CRTC take to apply principles of economic reconciliation?

91. There is a long history of recommendations from Indigenous organizations and governments regarding economic reconciliation. From the earliest days of the Internet – and even before that, in contexts related to telephone and broadcasting – Indigenous peoples have advocated for their right to share in the ownership and control of these resources and the economic benefits derived from their development and use. These recommendations extend from initial planning and construction to ongoing management, operations and maintenance.

92. We refer to the Calls to Action issued by the Truth and Reconciliation Commission of Canada for guidance on economic reconciliation, and 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**).[33]

93. We urge the telecommunications industry to join the Commission in acting on these recommendations, in the spirit of corporate social responsibility and reconciliation. The call to action provides a framework these companies can use to partner with Indigenous governments, organizations and communities to develop and operate telecommunications systems that enable them to achieve their economic and community development goals.

94. We fully endorse the 2021 Indigenous Connectivity Summit (ICS) Policy Recommendations cited by the Commission. FMCC member organizations are involved in the annual ICS and contributed to the formation of these recommendations.

95. An important framework for economic reconciliation is the **First Nations "e-Community" model**, which presents a vision of a community network that interconnects local organizations and households to the world through backhaul transport infrastructure via a local point of presence. This model was introduced in Assembly of First Nations(AFN) Resolution 16/2008 and expanded upon in 16/2011 and 99/2016.

[33] See: http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Calls_to_Action_English2.pdf, p.9.

96. There are several other AFN resolutions associated with connectivity issues. For example, AFN Resolution 19/2020: “Supporting First Nations with Connecting to the Internet” focuses on First Nations-led and identified solutions, First Nations specific funding and criteria, investments in connectivity initiatives and training, increased data and market information, spectrum access, appropriate policy, and a network of professionals to enable affordable Internet access.

97. Over the years we have made many recommendations relevant to economic reconciliation. Some of these recommendations were submitted to CRTC 2019-406 and CRTC 2020-366, as Indigenous service providers worked to identify barriers to deployment in rural, remote, Northern and Indigenous communities. At time of writing (Fall 2022) we are not yet aware of the Commission’s Decision on those important proceedings; therefore, we include mention of these recommendations in response to questions posted in these proceedings.

98. We also believe that economic reconciliation includes equitable policies to ensure affordable access by Indigenous people to communications facilities and services, including subsidies where necessary. We discuss affordability and subsidies in responses below.

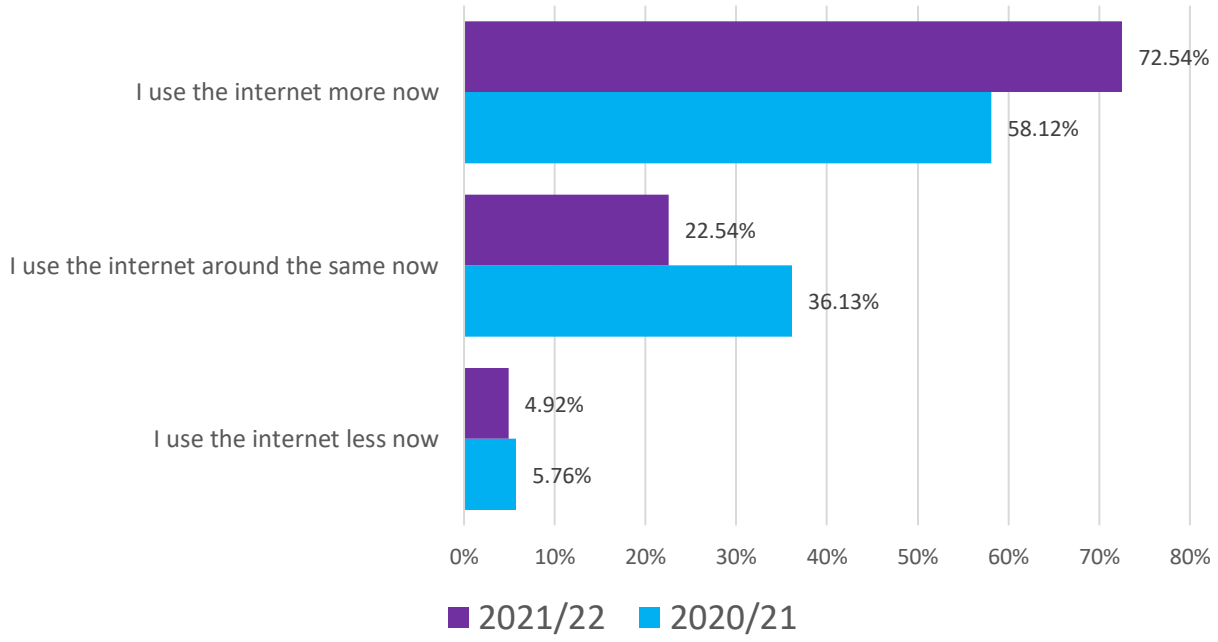
99. Economic reconciliation may also be achieved through reduced charges for Indigenous providers to connect with backhaul facilities and modifications to tariffs for services to Indigenous communities. We provide some examples in responses below and intend to comment further in the next phases of this proceeding.

Q6 :What actions should the CRTC take to ensure that the impact of the COVID-19 pandemic in the Far North is appropriately addressed in its evaluation of possible regulatory outcomes in this proceeding?

100. Broadband connectivity became a critical lifeline for communities during the pandemic. Demand for broadband greatly increased, as education and health services moved online, and online services such as e-commerce to order supplies, online banking, and other online government services became more important because of lack of in-person services. Two-way videoconferencing became an important means for citizens to access essential services such as health care and education, and Northerners used Zoom and other interactive video services for work and to stay in touch with distant family members and friends. The COVID-19 pandemic thus further underscored the importance of the Commission's 2016 Basic Service Objective, as well as of **affordable** services.

101. As a partnership dedicated to digital literacy teaching and learning in NWT communities, DigitalNWT found that many NWT community members faced access, affordability, and reliability barriers when public access learning centres closed due to social distancing.

102. The figure below illustrates responses from DigitalNWT household surveys in rural/remote NWT communities (2020/21; n=191 and 2021/22; n=244) to the question: "*Since you've had to stay home during the pandemic (coronavirus), has your use of the internet changed?*"



103. In our 2021/22 surveys, we also asked households in rural/remote NWT communities: "*Since the start of the pandemic, what have you and/or people in your household used the internet for?*" Responses to this question (n=237) demonstrate how important online services are to residents of the Far North. Banking services and connecting with friends and family

ranked highest, but other activities such as buying/selling items online, participating in politics, and working from home were also important.

104. We also asked an open-ended question: "*Anything you would like to add about Internet use during COVID-19?*" (n=122). The highest numbers of open-ended responses included:

- Need cheaper Internet services (23%)
- Used the Internet more (17%)
- Need more (or unlimited) data (15%)
- Need reliable/better service (14%)
- Need faster Internet speed (11%)

105. Thus, the Commission needs to address the needs for increased bandwidth, affordable connectivity, and improved quality of service in this proceeding. We provide specific comments and recommendations in responses below.

106. The greatly increased demand during the pandemic not only demonstrated the importance of broadband for rural/remote communities, including in the Far North, but the exploding data traffic also put increased strain on already-burdened local and transport networks. The Commission therefore also needs to address the need to upgrade these networks while still offering affordable services in this proceeding.

107. **Recommendation: Adopt regulations that will help to increase bandwidth and support competitive providers, including Indigenous providers. Bandwidth, QoS and affordability are critical and will be required post COVID as well.**

Q7 : New market entrants that use low earth orbit (LEO) satellite technology to provide retail or wholesale Internet services have indicated their intention to provide services across Canada, including in the Far North, in the relatively near term. Comment on the impact these new developments may have on consumers, communities and the market.

108. Satellite systems play an essential role in connecting rural and remote communities. In 2014, the Commission's *Satellite Inquiry* report outlined two primary deployment models for satellite systems, and their implications for communities.[34] The **community aggregator model** provides a single point-of-presence in a community that allows for local control of connectivity distribution. The **direct-to-home model** delivers services directly to households, cutting out the 'local loop'.

109. The "local loop" community aggregator model provides more opportunities for local ownership and control of connectivity assets and services. Local providers can utilize this deployment model to generate economic opportunities for community members and can circulate revenues within rural/remote regions, thereby contributing to the development of a sustainable economic base.

110. We note that some LEO satellite providers such as Telesat may allow for local access networks via satellite backhaul. An example of a satellite backhaul network that utilizes a community aggregator model is Tamaani Internet Services in Nunavik.[35] Another is K-Net services, which is discussed in detail below.

111. The "direct-to-home" model removes the possibility of Community Networks since the connectivity distribution system is completely owned and controlled by a centralized entity; in this case the LEO operator. Direct-to-home networks cut out local distribution by providing services directly to households and other end-users, thereby also limiting local opportunities to manage bandwidth and services.

112. Our comments below focus primarily on direct-to-home models. FMCC member organizations that are service providers operating in rural/remote Indigenous communities, including the Western James Bay Telecom Network (WJBTN), and K-Net Services (K-Net) and Matawa Peoples' Network in Northern Ontario, have experiences with direct-to-home LEO services being introduced in the communities they serve.

Impacts on Consumers

113. Direct-to-home LEO systems, such as Starlink's service, have been proposed as a connectivity solution for consumers in remote and Indigenous communities. We note that Starlink is presently a beta service that is still being tested and is not currently offered in most of the Far North.

114. The introduction of new LEO systems may increase competition in ISP services for consumers. However, these LEO systems are very new and could result in affordability,

[34] See: https://crtc.gc.ca/eng/publications/reports/rp150409/rp150409.htm
[35] See: https://tamaani.ca/about/tamaani-internet-history/

reliability, and capacity limitations for consumers. The following points present issues to consider with respect to direct-to-home LEO systems like Starlink:

- **Speed/QoS:** Starlink currently has a very limited customer base. Once more subscribers and users are online, speed/service may decline from the levels available today;
- **Affordability:** Costs are relatively high for consumers: approximately $600 for equipment + $180 monthly fees. To our knowledge, Starlink is not offering any subsidized services, such as for low-income households;
- **Reliability:** Reliability of the system is unclear at this time. While Starlink terminals appear to be easy to install, there are no local technicians available if something goes wrong with the equipment.

115. Starlink equipment has been deployed in some remote communities, at times supported through public funding. For example, ISED's Rapid Response Fund, which was set up in response to support connectivity requirements during the COVID-19 pandemic, subsidized deployments. These emergency programs provided subsidies to purchase equipment and cover monthly fees for a set period of time (1-3 years). Since these short-term programs cover costs of service, it will be important to evaluate and closely monitor how consumers respond once services are no longer subsidized.

116. We have conducted preliminary pricing and quality of service research on Starlink deployments in a remote (fly-in) First Nation in Northern Ontario. This consisted of conducting surveys in 73 households, 26 of which (36%) received Starlink services. Among other findings, our preliminary results indicated that one in three (35%) of respondents pay data overage fees every month.

117. Starlink equipment is also being installed in several Alaska villages. The CRTC should request any FCC data that becomes available on U.S. installations. We intend to keep in contact with counterparts in Alaska communities to learn about their experience with Starlink and other LEO systems.

118. We note that the Commission does not currently regulate Northwestel's satellite-based retail and wholesale Internet services since it determined that these *are subject to sufficient competition* to protect the interests of users (2022-147, NOC, para 27). We disagree with the determination that there is sufficient competition to protect users. We would like clarification about whether the CRTC will extend that policy to Telesat's LEOs or other LEOs if they are used for backhaul by Northwestel to serve communities rather than households.

119. **Recommendation: CRTC should monitor reliability, QoS and pricing (including data caps overage fees) for LEO customers.**

Impacts on Communities

120. LEOs can be a useful complement to other connectivity technologies in the North, and can provide important benefits to communities with respect to network resilience, redundancy

and reliability. Whenever more than one connectivity service is available in a community, residents and organizations should benefit.

121. For example, in the three communities WJBTN works with on the James Bay coast, direct-to-home LEO services have been offered by Starlink since late 2021, at an average cost of $160/month. The cost, reliability and speed of the Starlink LEO service was superior to the wireless household services offered at that time by Bell-owned subsidiary Xittel/Maskatel, which had been available since 2010 and cost an average of $211/month.

122. WJBTN has now started deploying FTTH services in these three communities. These FTTH services will be much lower cost, faster, higher capacity, and more reliable than both Starlink and wireless services. As of Fall 2022, WJBTN reported that many residents of the communities are using their Starlink systems for land-based activities, such as at hunting camps. However, they are also contracting with WJBTN for household FTTH service. Residents are therefore using Starlink to complement terrestrial networks in innovative ways to support land-based and cultural activities. **However, the core services remain the more robust, high-capacity FTTH services offered by WJBTN.**

123. Recent government funding programs have included major investments in satellite technologies (e.g. $1.44 billion in federal funding for Telesat's Lightspeed LEO project).[36] Some past initiatives involving Telesat utilized satellite licensing and associated 'public benefit', including the non-profit Northern Indigenous Community Satellite Network servicing groups in Ontario, Quebec and Manitoba.[37] Indigenous organizations secured free access to satellite transponder capacity to connect their communities. This policy may have resonance for communities given recent plans to launch thousands of satellites by LEO companies such as Starlink, Telesat and others.

124. **Recommendation: The Commission, in partnership with ISED, should consider reviewing conditions for LEO satellite licenses to support public benefit outcomes.**

Impacts on the Market (Service Providers)

125. As noted above, LEOs may actually complement existing infrastructure, or act as a temporary solution until terrestrial networks are upgraded.

126. In some very remote communities, LEOs may be a more cost-effective solution than other services provided through GEO satellites.

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[36] Telesat's first constellation of LEO satellites, dubbed Telesat Lightspeed, has received $1.44 billion in federal money and $109 million from the province of Ontario. It was scheduled to be in orbit in 2024, but the company failed to achieve the $6.4 billion investment needed for the project, and with the supply chain issues driving up costs, the project has been delayed, possibly downsized, and not expected to offer service until 2026. See: https://www.canada.ca/en/innovation-science-economic-development/news/2021/08/government-of-canada-announces-144-billion-investment-in-telesat-supporting-the-future-of-connectivity-for-rural-and-remote-communities.html and https://spaceq.ca/telesat-looks-to-more-financing-to-complete-lightspeed/

[37] See: http://firstmile.ca/northern-indigenous-community-satellite-network/

127. Community-aggregator LEO services such as those proposed by Telesat may be a cost-effective alternative to GEO backhaul. When available, Telesat's LEO services should be made available to all service providers in the North and not just to Northwestel, at the same rates.

128. We note that subsidized provision of LEO equipment and services may be disruptive for existing operators including Indigenous ISPs. The introduction of subsidized LEO services to consumers may limit opportunities for non-profit and Indigenous service providers that typically own and operate local networks.

129. For example, in the K-Net's satellite-served communities, which currently operate through a community-aggregator model, the introduction of a direct-to-home LEO service (Starlink) has had a significant impact on consumers, communities and K-Net as a service provider.

130. K-Net has been waiting more than a year for a contribution agreement for an approved funding proposal to the federal government to upgrade the regional fibre optic network connecting these communities. K-Net's project will increase the capacity of this existing regional fibre infrastructure, which they expect to be completed in 2023.

131. In the meantime, to support communities and households during COVID-19, the Nishnawbe Aski Nation (NAN) received $12M over three years of emergency funding through ISED's Rapid Response Fund to install direct-to-home Starlink systems. While this was an important measure to support these communities during COVID-19, it also had impacts on the existing market. Prior to this intervention, each involved First Nation owned its own local ISP, and had 95% of the market for Internet.

132. The introduction of subsidized LEO systems in these communities has created a situation whereby some households have access to subsidized LEO systems, and others do not. Unfortunately, this has created new divisions in these communities between 'have' and 'have not' households. It is also splitting the consumer market and affecting the business model for K-Net-supported local ISPs.

133. The limited-term government subsidies for Starlink services are already starting to come to an end for some consumers. For example, the Matawa First Nations received Starlink services from ISED's Rapid Response stream funding during the Covid-19 pandemic. As the period of subsidized services is coming to an end, communities are concerned about what will happen. A number of households, including single parent families, that currently rely on Starlink services for their children's schooling and other essential services will be unable to pay monthly fees that are too high in proportion to household income. There is no current plan to further subsidize these households.

134. We raise this example to illustrate some of the challenges that can arise from well-intended emergency solutions that tend to be short-term and may result in unintended effects. We recommend that any subsidy programs (such as those we discuss under affordability below) should be provided to consumers to use with any available technology.

135. We recognize that LEO services are likely to be part of the technology mix in northern regions. We acknowledge their value in meeting Northerners' needs and adding redundancy, but we are also concerned that they may be a relatively short-term solution, given the lack of sustainable business models of LEO systems to date.

136. Recommendation: The Commission (and other funders) should consider both immediate and long-term impacts of introducing LEO systems in rural/remote communities. LEO systems should be considered in relation to longer-term solutions such as fibre networks owned and operated by non-profit and Indigenous providers.

137. While not limited to LEO systems, we also recommend **against** short term subsidies which can undermine the business models of existing Indigenous and non-profit providers, by drawing away customers who then expect cheap or free services. The result can also be disparities in communities between households with and without subsidized Internet service.

Q8 : Please comment on the following perspective: a good or service is affordable when a consumer is able to purchase it without suffering undue hardship. Do you agree with this view? Why or why not? If not, explain how you would describe what makes a service affordable or not.

138. We agree with the Commission's statement that "a good or service is affordable when a consumer is able to purchase it without suffering undue hardship". However, this statement is very vague. What is undue hardship? And how does that term apply to subsistence residents? Employed head of household with obligations to many relatives and Elders? Unemployed or seasonal employees with several children at home?

139. Statistics Canada's most recent reports point out that low-income households make up to one-quarter of the number of households in each remote community. This measure of low-income households in rural/remote communities in the Far North is important when considering "undue hardship". In Nunavut, more than 22 percent of households are considered low income, and in 2021, and 27.4 percent of people in Nunavut under 65 received funds under the Income Assistance Program.[38]

140. Overcrowded housing is a well-recognized challenge in rural/remote Northern Indigenous communities. For example, in Nunavut, 31 percent of households have 5 or more inhabitants.[39] In the NWT, in most Indigenous communities at least 5 percent of households have 6 or more residents, and in 8 communities more than 15 percent have 6 more residents.[40] Many people in these households are required to share a single connection, which can significantly increase data overage fees. We also note that in large households, income has to cover living costs of many family members.

141. The high costs of telecommunications – particularly when data overage fees and other ancillary costs are involved – reflect an additional cost to access essential services that residents of the Far North must pay compared to residents of urban and Southern communities. The increased reliance on broadband during the pandemic has shown that connectivity is unaffordable to many who have to pay high overage charges for school, work, and other necessary usage. In many cases, several family members must share one unreliable connection.

142. To estimate the actual costs paid by consumers in rural/remote communities in the Far North, we used Northwestel's publicly posted household Internet plans and Usage Estimator and analyzed them in relation to Statistics Canada's most recent (2021) data on household incomes in the NWT.[41]

143. During the COVID-19 pandemic, two-way videoconferencing became an important way for citizens to access essential services such as health care and education, as well as participate in economic activities, whether working from home or purchasing goods and

[38] https://maytree.com/social-assistance-summaries/nunavut/
[39] https://www.statista.com/statistics/901353/population-of-nunavut-by-size/
[40] https://www.statsnwt.ca/Housing/housing-conditions/
[41] For more details of this analysis, please see: https://www.digitalnwt.ca/uploads/files/DigitalNWT-Affordability-Report-2022-FINAL.pdf

services. Since two-way videoconferencing is not available as an option on Northwestel's Usage Estimator, we chose streaming video as the closest approximation. Conservatively, we estimated households use data equivalent to streaming one-hour of Standard Definition video per day on one device (93GB). We added the cost of home phone services to those communities that require it to access Internet services.

144. We use these amounts to calculate the lowest possible price that households pay among the available Internet plans for each community. For example, in Ulukhaktok the lowest cost of a monthly service plan (including 93GB of data) including ancillary fees was calculated this way:

- DSL Satellite 5 (60GB, $79.95/month) monthly base plan;
- Data overage fees (above monthly base plan limit) for 33GB, which equals $99;
- Home phone services (required by this plan), which costs $36.74/month.

145. The estimated total cost to watch one hour of streaming video per day on one device in Ulukhaktok is therefore: $79.95 + $99 + $36.74 = **$215.69 per month**. Using Statistics Canada data, **this represents 3.34% of the <u>median</u> after-tax total monthly household income in that community.** In comparison, using Statistics Canada data the monthly cost for the same level of service in a household in the Urban South is estimated at 0.3% of the median household income.

146. When we conducted the same analysis on **low-income households** – which make up almost one-quarter (22.2%) of the homes in Ulukhaktok, **that number almost doubles to an estimated 6.13% of their total monthly income.**

147. We note this estimate considers only a single device – as noted above, many households in the Far North, including low-income households, consist of large families and/or numbers of people living together.

148. Some intervenors may argue that goods and services in the Far North are more expensive due to their geographic location – that "everything costs more in the North", and so high telecommunications prices should not be a policy concern. However, as Former Commissioner Peter Menzies stated during the hearings for the 2015 Basic Service Objective (and we noted in a prior submission):

> "I thought that some people might find that position a little blunt and perhaps even uncharitable. And just in the context of Canada's longstanding tradition … we do transfer payments to make sure that people have similar access to basic standards of healthcare and education, for instance. And some people in the North might look at that and say, well, why wouldn't the same philosophy apply to connectivity" (Transcript, April 27, paras-18054-18055).

149. We can also assess whether household consumers in the Far North believe that "a good or service is affordable when a consumer is able to purchase it without suffering undue

hardship" by asking them directly. Our DigitalNWT research demonstrates how residents of the Far North perceive affordability.

150. In 2020/21 and 2021/22, we surveyed households in 11 rural/remote communities (and 450 households)[42] in the NWT. Of the total number of respondents to this question (191 in 20/21; 276 in 2021/22), many said they do not subscribe to home Internet services (34% in 2020/21 and 45% in 2021/22). More than 50 percent who gave a reason for why they do not subscribe to household Internet services stated it was because of price. Depending on the year, in communities such as Tulia, Wekweètì, Délı̨nę, Paulatuk, Tulita and Ulukhaktok, more than two-thirds of respondents who gave a reason said the high price of service is why they do not have home Internet.[43]

151. In Summer/Fall 2020, we conducted interviews with 26 individuals living in NWT communities including Inuvik, Yellowknife, Paulatuk, and Sachs Harbour. Nearly all of these respondents (88%) found the Internet expensive. Some reported receiving monthly bills for hundreds of dollars—an experience also noted by several household survey participants. Only two interview participants found the Internet price reasonable. Specific comments include:

- "[Internet is] more expensive than any of our household bills, the highest expense for our family."
- "[Internet is provided] at a rate that is sometimes triple the national average."
- "The price has gone up, while the (Internet) service has become more necessary."[44]

152. **Recommendation: The Commission should determine "undue hardship" using the appropriate metrics: for example, considerations of geography, household income, household size, and bandwidth / data usage requirements for essential public services and economic activities accessed online.**

[42] While overall numbers of respondents to our community surveys may appear to be low, given the small population of these communities, the surveys are quite representative. For example, depending on the year (2020/21 or 2021/22), we surveyed one quarter (25%) or more of households in Délı̨nę, Fort McPherson, Sachs Harbour, Tsiigehtchic, Tulita, Ulukhaktok, Wekweètì, and Whatì.

[43] More details of this study are available here: https://www.digitalnwt.ca/uploads/files/DigitalNWT-Affordability-Report-2022-FINAL.pdf

[44] More details of this study are available in McMahon, R., Akcayir, M., McNally, M.B. & Okheena, S. (2021). Making sense of digital inequalities in remote contexts: Conceptions of and responses to connectivity challenges in the Northwest Territories, Canada. *International Journal of Communication, 15*(1): 5229-5251.

Q9 : Do you think the CRTC should establish an "affordability standard" or guidance on what constitutes an affordable retail telecommunication service in the Far North? Why or why not? If yes, what factors do you think are relevant to consider when assessing the affordability of a plan or service to an individual, household or small business?

153. Yes, the Commission should establish an "affordability standard" and provide guidance on what constitutes an affordable retail telecommunications service in the Far North.

154. In 2013, we emphasized: "Ensure that communication services are AFFORDABLE in the North, using data on Northern costs of living, incomes, and household size to determine affordability." Today, affordability remains a critical issue for Northern consumers, as do these metrics.

155. As noted in our response to Q8, factors used in assessing this standard should include income levels, family sizes, and monthly charges including ancillary fees (e.g., data overages; mandatory landline telephone services). Consumer affordability should be measured according to 'baskets' of services and indexed to household spending, cost of living, and employment and income levels. The type of devices and services people use (and pay for) is also important. For example, household Internet requires a computer but is more functional than mobile Internet, which requires a mobile phone device and expensive monthly data caps.

156. Specific factors to consider when establishing an affordability standard may include:

- Geography (North/South; North-North; within Communities) – see Q1;
- Household income, and percentage of low-income households;
- Household size;
- Bandwidth / data usage requirements for essential public services and economic activities accessed online; and
- Additional costs paid by consumers in some communities, such as data overage and/or telephone service for DSL Internet service.

157. Although the CRTC now requires more information on data charges to be provided to subscribers, data caps remain an issue. Unlimited plans are now available, but they are far too expensive for many, particularly low-income households.

158. Monthly plans with unlimited data are also expensive for small, local businesses and organizations. In the NWT, commercial service plans offered by Northwestel can cost double (or more) the cost of residential plans for comparable levels of service. For example:

- Residential – Unlimited Internet 200 - $189/month
- Business – Unlimited Internet 150 - $300/month
- Business – Unlimited Internet 250 - $400/month

159. Recommendation: in establishing an affordability standard, the Commission should use costs for a basket of services including a reasonable estimate for streaming or video downloads.

Q10 : During Phase I, parties submitted that despite the range of plans available, customers in the Far North generally pay more for less in comparison to customers in the south and that this impacts all retail customers in the Far North, including low-income households. **What actions should the CRTC take to address the affordability of retail telecommunications services in the Far North as it impacts all customers, regardless of income**? Explain how these actions would improve the affordability of telecommunications services to customers in the Far North.

What actions should the CRTC take to address the affordability of retail telecommunications services in the Far North **as it impacts low-income households?** Explain how these actions would improve the affordability of telecommunications services to customers in the Far North.

160. Our analysis of submissions in Phase 1 of these hearings, as well as the data we collected from household surveys and interviews, confirms the statement that "customers in the Far North generally pay more for less in comparison to customers in the south and that this impacts all retail customers in the Far North, including low-income households".

161. As discussed in our response to Q1, our research confirmed that there are also divides within the Far North (such as between rural/remote and more central/urban communities) and inside communities (such as between higher- and lower-income households). To support principles of equity and substantial equality, any assessment of affordability and measures to address affordability must take these distinctions into consideration.

162. With respect to actions the CRTC should take to address affordability **as it impacts low-income households**, we strongly disagree with Northwestel's statement in its intervention in CRTC 2020-367 that: "Northwestel still provides residential Internet service to the North at rates that are affordable for low-income Canadians" (Northwestel, para 19).

163. See our response to Q8 above for details about affordability in the context of low-income households in the NWT.

164. Governments can offer subsidies for low-income groups/individuals. Examples include the FCC's *Lifeline Support for Affordable Communications*[45] and the U.K.'s *Better Broadband Scheme*.[46]

165. The Commission can consider offering subsidies to help offset the costs of services for low-income households in the Far North. Such subsidies can be developed with reference to existing programs. We provide more details and recommendations about such subsidies in our response to Q19 below.

166. Recommendation: Drawing from the experience of regulators/policy makers in countries such as the U.S. and the U.K., as well as from input provided by low-income residents including Indigenous peoples, the Commission should design and provide

[45] See: https://www.fcc.gov/lifeline-consumers
[46] See: https://www.embertonparishcouncil.co.uk/_webedit/uploaded-files/All%20Files/guide-to-better-broadband-subsidy-scheme.pdf

affordability subsidies for low-income households in the Far North. See our further discussion in response to Q19.

167. We note that the federal government has introduced a subsidy scheme known as Connecting Families[47], which is being implemented by such as Rogers' *Connected for Success*[48] or *Internet for Good* by TELUS.[49] This subsidy is not offered by Northwestel. These programs may also be cancelled without warning or offer only limited support. They may also impact the viability of smaller and non-profit ISPs, since larger providers might offer them as 'loss-leader' products to secure customers away from potential competitors for commercial gain.[50] We discussed this issue in relation to LEOs in our response to Q7.

168. Recommendation: The Commission should make any subsidy program permanent rather than short term to avoid issues that have occurred with respect to corporate-led initiatives, as well as government-funded initiatives such as the Rapid Response Stream funding for short-term support for LEO systems in Ontario during the COVID-19 pandemic.

[47] See: https://www.connecting-families.ca/welcome
[48] See: https://about.rogers.com/our-impact/connected-for-success/
[49] See: https://www.telus.com/en/social-impact/connecting-canada/internet-for-good
[50] See: https://downup.io/b-c-prepared-to-blunt-any-impact-of-10-internet-on-smaller-providers/

Q11 : Do you think the CRTC should end Northwestel's practice of charging $20 per month to customers of its stand-alone residential DSL Internet service in certain high-cost serving areas, unless they also purchase home phone service? Why or why not?

169. Yes, the CRTC should end Northwestel's practice of charging $20 per month to customers of its stand-alone residential DSL Internet service in certain high-cost serving areas, unless they also purchase home phone service. This "discounted" approach to a 'dry loop' phone line is not the best way to cover these costs. It is less transparent and appropriate than using targeted subsidies, since a subsidy model would require the incumbent to show the actual costs of providing these services to consumers. We discuss targeted subsidies in Q19.

170. In our analysis of submissions to Phase 1 of these proceedings, several respondents requested that the Commission address mandatory landline phone subscriptions.

171. Typically, it is the consumers living in rural/remote communities who must pay for mandatory 'dry loop' phone service. We also note that these same communities have high percentages of low-income households – almost one-quarter of the population in some cases. Therefore, based on the available data, we can assume this issue is considered of high importance to consumers in those communities, and the Commission should address it in relation to its commitment to principles of equity and substantial equality.

172. Recommendation: The Commission should replace the "discounted" dry loop phone line service with targeted subsidies to those consumers.

173. The marketing of this current "discounted" approach for dry loop telephone services is also confusing for consumers. When we visited Northwestel's website, it was unclear to us how much residents of the Far North must pay for the required stand-alone residential home phone service. On the Northwestel website, details on applicable Internet plans state: "Northwestel Phone service is required for Internet Packages" and then Home phone plans are listed as $36.74/month.[51]

174. We learned from reading the Commission's Notice of Consultation that this cost is a "$20 monthly surcharge, per Item 1735 of its General Tariff, to retail customers of its stand-alone residential Digital Subscriber Line (DSL) Internet services in certain high-cost serving areas" (cited from Q10). The actual amount that Northern subscribers must pay is not clear on Northwestel's public-facing website.

175. Recommendation: Northwestel should make actual costs of 'dry loop' telephone services clearer and more transparent on their website.

176. Finally, we note that Northwestel should be phasing out of DSL services altogether and use fibre or fixed wireless as other service providers do – particularly in cases where the company has received considerable funding from sources such as the Broadband Fund.

[51] https://www.nwtel.ca/internet-plans

Q12 : Do you think the CRTC should take action to address the amount that consumers may pay in overage fees for their Internet services in the Far North? Why or why not?
If so, what action(s) do think the CRTC should take?

177. Yes, the CRTC should take action to address the amount that consumers may pay in overage fees for their Internet services in the Far North. To our knowledge, there is no upper limit to the amount of data overage fees that consumers must pay.

178. Data overage fees are a symbol of the lack of equity in telecommunications affordability across the Far North, between rural/remote and central/urban communities, and between households in rural/remote communities. Submissions to Phase 1 of these proceedings, along with research findings and sentiments expressed through news and social media provide evidence of the challenges that Northerners face regarding data overage fees.

179. In our household surveys and interviews with NWT residents in summer/fall 2020, the issue of data caps came up frequently. Most interview participants (58%) stated "pricey overages" are a main issue affecting Internet affordability. These perceptions are validated by our household survey respondents who stated data caps (40%) as one of the key challenges they face. One survey participant described data caps as a "vicious cycle of financial abuse," while another explained, "[Data caps are] really what the cost is, and that's how these companies recoup their costs."

180. As noted above, Northerners also use Internet access for video and streaming. Activities could include taking online classes, accessing health care information and providers, staying in touch with distant family and friends, and accessing videos for education and entertainment including cultural content. It is also important to take into consideration that one household may have several family members online. Many contemporary software and application services result in expensive data overages to access cloud-based services or upgrade software.

181. Northwestel's Usage Estimator tool does not provide two-way videoconferencing as an option, which means that consumers lack a way to estimate the data costs involved.[52]

182. As a result of the expense incurred from data overage fees, some NWT consumers are self-regulating their use of connectivity services and applications. Some interview respondents have reacted to high overage fees by monitoring their daily (sometimes hourly) data usage. In some cases, residents will stop household Internet usage and wait until the end of the month before going back online. Statements collected during interviews included:

- "I start to get very anxious when we're getting toward 85% [of our data cap]."
- "I tried to get my children to be, you know, cognizant of the fact that it's [Internet] a very expensive thing here. So we've been trying to regulate [Internet use]."
- "Especially with your data cap, it makes it pretty expensive to download software."
- "Software that requires a lot of updates is a problem in the Northwest Territories."

[52] See: https://www.nwtel.ca/usage-estimator

183. These findings are validated in our analysis of responses in Phase 1 submissions to CRTC 2020-367. Specific comments we noted from the submissions that related to data overage fees included:

- "At this moment, I work full-time and am not using excessive Internet, and the limit is still met and followed up by expensive fees. I cannot enjoy streaming platforms like Disney + that stream in high quality."
- "We have been promised for years an unlimited Internet option, with no delivery."
- "All we want (in Iqaluit) is the option to have unlimited bandwidth at a cost that is affordable. It's 2020. I don't think that is too much to ask".

184. As noted in our response to Q6, during the COVID-19 pandemic, when many public and commercial services transferred online, data limitations became more challenging and discouraged Northerners from using the Internet due to fear of bill shock.

185. Some NWT residents have also developed workarounds to try to address these limitations and save money. Where possible, Northern residents attempt to increase access by setting up multiple household Internet connections. For two interview participants, it was cheaper to subscribe to a second household Internet connection from an alternative ISP than pay data overage fees charged by their primary ISP. As one respondent said, "I had to have multiple connections because we've got data caps." However, the two participants who adopted this strategy were from Inuvik, where an alternative ISP is available; residents in the smaller, remote NWT communities do not have this option.

186. People also commonly tether their mobile phones to computers. SMS (text message) surveys that we conducted in 2022 found that half of the 101 people who responded to this question (49%; n=49) stated they use their cell phone to 'tether' or 'hotspot' to their own laptop or computer (e.g., make a Wi-Fi access point). We also learned that a majority of respondents (89%; n=90) tether or hotspot their phone to share their data with others (family or friends). Interviews suggested this is sometimes done to avoid overage fees on household services.

187. **Recommendation: The CRTC should require Northwestel to conduct a review of the actual costs to provide household data and enforce an upper limit to data overage fees. Northwestel should provide better tools to help consumers estimate data overage fees.**

188. **Recommendation: Eliminate overage fees but packages still should be affordable. We believe that Northwestel should offer an affordable option of unlimited use. There are several options to achieve this goal. First, Northwestel could add or allocate significant bandwidth to Northern connectivity.**

189. Second, increased competition would provide more bandwidth and pricing options. We discuss competition in our response to Q26.

190. Third, targeted subsidies could be used to reduce prices to customers. We discuss possible subsidies in our response to Q19 below.

Q13 : Do you think the CRTC should ***change any aspect of Northwestel's retail tariffed services*** (i.e., home phone or terrestrial Internet) to improve the affordability, reliability or quality of these services? Why or why not?

If so, what action(s) do you think the CRTC should take? For example, changes to rules that address installation fees, maintenance fees, suspension and disconnection of service, security deposits, refunds for outages, etc.

191. We note that we could not find details of installation fees on Northwestel's consumer website, or for other charges such as security deposits, suspension and disconnection of service, or refunds for outages. The CRTC should require Northwestel to make this information publicly available on its website, including in Indigenous languages. We also discuss consumer information in Indigenous languages below in response to Q24.

192. With respect to rules regarding installation and maintenance fees, we note that in our analysis of submissions to Phase 1 of these proceedings, respondents requested that the Commission address mandatory and pricey installation fees.

193. With respect to rules regarding suspension and disconnection, we note that such actions taken by telecommunications service providers do not help either the consumer who loses service or the provider that loses revenue.

194. Security deposits may be challenging for low-income consumers, particularly in cases where people may not have access to credit or a bank account.

195. We have not been able to review the details of Northwestel's tariff to date. We intend to comment on tarif questions during the next phase of the proceeding.

196. Recommendation: The CRTC should require Northwestel to make information regarding installation fees, security deposits, suspension and disconnection of service, and refunds for outages publicly available on its website, including in Indigenous languages.

Q14 : Do you think the CRTC should impose any new conditions of service on satellite Internet providers in the Far North in order to improve the affordability, reliability or quality of these services? Why or why not? If so, what new regulatory requirements do you think are required?

197. Our response to this question relates to previous responses to Q1 and Q10 on affordability in the context of equity and substantial equality, as well as Q7 on satellites, and Q11 and Q12 on excessive fees that consumers in satellite-served communities must pay, such as data overage charges and 'dry loop' phone lines.

198. In our response to Q10, we noted that the Commission may need to establish targeted subsidies for low-income consumers. We note these subsidies should apply to consumers utilizing ALL providers, including satellite providers. We discuss possible subsidies in Q19 below.

199. Given the importance of reliability and bandwidth to northern customers that we have highlighted above, the Commission should also monitor and report on these metrics for satellite services.

200. Recommendation: The Commission should set targets for reliability and other QoS metrics for satellite operators as well as Northwestel.

201. Recommendation: The Commission should require satellite operators to provide annual reports on QoS. It should also obtain such data from third parties to ensure accuracy of reporting.

Q15 : Do you think the CRTC should take any other action to improve the affordability of telecommunication services in the Far North? Why or why not? If so, describe the actions the CRTC should take. Alternatively, describe the outcomes you think the CRTC should aim to achieve.

202. Yes. We have discussed affordability – or the lack of it – in responses above. We think targeted subsidies for low-income residents should be implemented.

203. We discuss possible subsidies and criteria for eligibility in Q19 below.

204. As discussed in our responses to Q26 and Q27, competition in service provision – particularly when it is delivered by non-profit and Indigenous service providers, could reduce costs and improve availability of bandwidth and better QoS.

205. Operational subsidies or other supports for non-profit service providers in rural/remote regions can lower rates and increase competition. Since these organizations are not obligated to make a profit, they can use excess revenues to lower prices for end users.

206. The Commission should also consider technical and organizational solutions. Anchor tenants such as schools and local governments often lease capacity that is used primarily during the daytime. To address the need for more bandwidth for homework and other online activities, we propose that the Commission explore how this leased capacity can be made available for use by the whole community during non-business hours.

207. Other solutions such as local mesh networks can also help lower costs and bandwidth requirements in rural/remote communities. For example, by moving data traffic associated with local video calls to a local network rather than through an Internet gateway.

208. **Recommendation: Examine how under-utilized bandwidth from anchor tenants and public services (schools, health centres, etc) and/or local mesh networks could be purposed for community use, for example to reach end-users in households and/or outside of working hours.**

Q16: Do you think the CRTC should take action to address the affordability of local (home phone) service rates in some areas or all of the Far North?

209. We note that voice and 'plain old telephone services' (POTS) are still important in the North. Therefore, we believe that ILECs including Northwestel should not be able to waive their obligation to provide voices services in these communities.

210. Also, as we noted above, details about the total costs of fixed line service are not provided on Northwestel's website. For example, fixed line service monthly charges are $36.80 in Old Crow, but installation charges are not shown. Also, there are many other service options with add-on charges.

211. In computing average monthly charges for phone service, the total average monthly charges for phone service for remote customers should be included. (Various calling plans and feature charges are shown on the Northwestel website.)

212. Further, we think it is at best premature to allow mobile service to be substituted for fixed lines, which are still important in northern communities. One mobile device per household is not the same as one fixed line.

213. Pricing becomes critical if mobile is the only service available, and there are numerous consumer complaints about mobile data caps and quality of service.

214. Local IP phone service can also be provided by CLECs, but there are significant pricing barriers. For example, Katlotech (KTC) has been working to install IP phone systems in communities such as Jean Marie River First Nation, a rural community that is a six-hour drive from Yellowknife. KTC has proposed an IP phone system in the local Band Office that would offer unlimited long distance calling and could reduce the cost of telephony services by an estimated 30%, compared to the existing services provided by Northwestel.

215. However, KTC has faced barriers in installing this third-party IP phone system. While the third-party system is technically feasible, it is impossible to install it because telephone numbers are locked into Bell Canada's proprietary network. KTC is therefore required to use phone numbers and systems offered by Bell Canada (which owns Northwestel) and pay associated costs and fees, rather than work with a lower-cost third-party VOIP provider.

Q17: Do you think the CRTC should re-introduce a local service subsidy to address the price of home phone service in some or all high cost serving areas in the Far North?

216. While POTS remains important to Northern consumers, a local service subsidy should not remain restricted to telephony. It should also include retail Internet services. We discuss subsidy options in our response to Q19.

Q18: What considerations, if any, should the CRTC take into account with respect to Northwestel's capital investment plan and the growth technology for the provision of telecommunications services in Northwestel's operating territory?

217. In our analysis of submissions to Phase 1 of these proceedings, we found that many respondents asked the CRTC why infrastructure in the North remains so limited and expensive when billions of dollars in public funding and support from various levels of government have been granted to the incumbent ISP. Many respondents requested that the ISP should clearly and publicly report detailed financial statements on project spending and profits in an accessible way.

218. Northwestel was required for some years submitted reports to the CRTC that include some financial information at the end of each yearly report. It appears that these reports came to an end in 2018. We present an example of this information on what we believe is the last available report, from 2017:

Northwestel Selected Financial Highlights - Consolidated
Year Ended December 31, 2017

Selected Financial Results (in $000s)	
Operating revenues	238,792
Operating expenses	168,776
Income from operations	70,016
Financing costs	3,551
Operating cash flow	65,998
Capital expenditures	45,282
Free cash flow	20,561

Balance Sheet Data (in $000s)	
Assets	
Current assets	74,157
Property, plant & equipment, net of depreciation	301,050
Other	40,525
Total assets	415,732
Liabilities	
Current liabilities and short term financing	64,671
Long term debt	21,810
Deferred income taxes	13,485
Other	14,481
Total liabilities	114,447
Common Shareholder's Equity	301,285
Total Liabilities and Shareholder's Equity	415,732

219. We have been unable to find financial or planning reports or data for Northwestel since then. Northwestel is a subsidiary of Bell, but Bell's financial statements are not disaggregated

to show costs and revenues for Northwestel. There is also no publicly available construction plan available for Northwestel.

220. We note that the Commission has asked Northwestel for specific information, but the responses have been considered proprietary or heavily redacted. It is therefore impossible to provide an informed response to this question without transparency by Northwestel and the CRTC.

221. Recommendation: We urge the Commission to require Northwestel to make its financial and planning information publicly available.

Q19 – Should CRTC introduce a new subsidy to reduce the rates charged for retail Internet services in the Far North? Why/why not?

222. Yes, we think that the CRTC should introduce a new subsidy to reduce the rates charged for retail Internet access services in ***all*** communities in the Far North. We agree with the statement by former Commissioner Peter Menzies that we quoted in response to Q8 above: "… we [Canadians] do transfer payments to make sure that people have similar access to basic standards of healthcare and education, for instance. And some people in the North might look at that and say, well, why wouldn't the same philosophy apply to connectivity."

Focus of Subsidy of Retail Internet access services in the Far North

223. We believe that a targeted subsidy for Internet services should be provided to **all low-income subscribers in the North**. This subsidy should:

- Be available to use with any provider or any technology
- Include both voice service and Internet access

224. We think the most appropriate way to identify low-income households is to use other eligibility data such as for Nunavut's and NWT's Income Assistance Program.[53] Social service officers in the communities could verify eligibility.

225. Special outreach efforts will be needed to ensure that low-income households in northern communities know about and can access subsidies. For example, Band councils or other local governments could certify eligible residents for such subsidies.

226. This approach has been used for eligibility for Lifeline services in the U.S. **The Lifeline Program,** which has provided subsidies for voice service for low-income subscribers since 1985, now also provides subsidies for broadband access.[54] The FCC relies on evidence that consumers have qualified for other federal income assistance programs (unemployment, Tribal, Medicaid, disability assistance, etc.).

227. This subsidy should be portable to allow consumer choice and stimulate competition. The FCC Lifeline subsidy is portable; it can be used with any provider that meets program criteria.[55] The subsidy should go directly to consumers who can then choose how to spend it on communication services.

228. Also, the FCC's Affordable Connectivity Program (ACP) is the sequel to the Emergency Broadband Benefit Program, which implemented additional subsidies for broadband services to low-income and Tribal Households in 2021, following the greatly increased

[53] See: https://maytree.com/social-assistance-summaries/nunavut/ and https://www.ece.gov.nt.ca/en/services/income-security-programs/income-assistance-program
[54] FCC, "Lifeline Program for Low-Income Consumers." Accessed Oct. 5, 2022. https://www.fcc.gov/general/lifeline-program-low-income-consumers.
[55] Federal Communications Commission. FCC MODERNIZES LIFELINE PROGRAM FOR THE DIGITAL AGE: *New Rules Will Help Make Broadband More Affordable for Low-Income Americans* WASHINGTON, March 31, 2016**.**

demand for broadband access for online education and access to other services during the COVID-19 pandemic.[56] Participating providers are to make available discounts of up to $30 per month for Internet service and associated equipment to eligible households. On Tribal lands, the monthly discount may be up to $75 per month. Participating providers that also supply an eligible household with a laptop, desktop computer, or tablet may receive a single reimbursement of up to $100.64.[57]

229. We note that while Canada has a small high-cost fund, most funding programs in Canada provide only Capex (capital expenditure or infrastructure funds), and do not provide any funding sources to cover operating and maintenance costs (Opex). Other subsidies may reduce retail Internet costs for subscribers. A revised high-cost subsidy that could be available to any qualified provider could address the problem of high operating costs from the providers' perspective and high prices from the users' perspective.

230. The U.S. also operates universal service funds to subsidize Internet connectivity for schools and libraries (known as the E-Rate) in low-income or high-cost regions and the Rural Health Care Program that subsidizes connectivity for rural hospitals and clinics.[58]

231. We realize that such education and healthcare subsidies may be beyond the mandate of the CRTC but draw the Commission's attention to them as a means of providing subsidies for "anchor tenants" in the communities. In Alaska, these programs have been highly beneficial for remote Alaska communities in providing broadband for schools and libraries, and connectivity for village clinics. However, their value extends beyond these services because the schools and clinics have become "anchor tenants" for many communities, and because the predictable annual subsidy payments helped to make the business case to providers to justify further investments to upgrade residential connectivity in these villages.[59]

Eligibility Criteria

232. It is important that subsidy programs define standards of service. Any such standards should be updated to fit the current BSO standards in Canada.

233. A revised high-cost subsidy that could be available to any qualified provider could address the problem of high operating costs from the providers' perspective and high prices from the users' perspective. Necessary costs should be calculated using a 'bottom up' approach that first determines the requirements of providers (as expressed, for example, in feasibility studies) and then generates estimated costs based on this information.

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[56] "Consolidated Appropriations Act, 2021." Legislation. 2019/2020. Accessed Oct. 5, 2022 https://www.congress.gov/bill/116th-congress/house-bill/133/text.
[57] FCC, "Emergency Broadband Benefit. Accessed Oct. 5, 2022. https://www.fcc.gov/broadbandbenefit
[58] Information on these and other U.S. universal service programs is available at https://www.usac.org/
[59] Hudson, Heather E. (2015). *Connecting Alaskans: Telecommunications in Alaska from Telegraph to Broadband*. Fairbanks: University of Alaska Press.

234. Concerning sources of funding, we believe that a small percentage of revenues for all telecommunications services in Canada should be made available for this purpose. All revenues of all telecommunications services (including Internet and mobile) should be subject to the overall subsidy regime – with a key exception. The Commission should maintain the exemption for telecommunications providers with revenues under $10 million. This figure of $10 million should be adjusted for higher cost of service delivery and infrastructure in the North.

235. While the consumer subsidy could be introduced first in Northwestel's territory, we believe that it should be an open, portable subsidy that includes all regions and communities in the Far North, as well as the northern territories of Yukon, Northwest Territories and Nunavut as well as the northern parts of the provinces and the regions of Nunavik and Nunatsiavut, which include remote communities similar to those in the territories. Regions outside of the Far North face similar challenges to access to affordable, adequate infrastructure and services. This geographic focus includes communities in northern parts of provinces without year-round road access as well as other isolated communities.

Q20 Do you think the CRTC should take action to improve the quality of Northwestel's Internet network? For example, should the CRTC take action to improve the speed of Internet service?

236. Yes, the CRTC should take action to improve the quality of Northwestel's network, including issues related to speed, bandwidth and latency.

237. In our intervention in Phase 1 of these proceedings (CRTC 2020-367), we stated that any upgrades or extensions of facilities approved by the Commission or funded by public sources including the Broadband Fund should be carefully monitored, not only through reports filed by Northwestel, but by independent third parties. There should be regular monitoring of Quality of Service (QoS), including standards, measurement, monitoring and enforcement conducted or authorized by the CRTC in communities served by Northwestel, including those in northern B.C., and that QoS standards should be mandated and enforced.

238. DigitalNWT research through household surveys and interviews found that "speed" remains a significant source of frustration for NWT residents. Data obtained from 212 community household surveys in 2020/21 confirm "speed of Internet" as one of the most prominent challenges expressed by NWT residents, with 70% of respondents stating that slow speed as a key challenge. This finding is supported by interview data; as one participant stated, their average download speed is around 11 Mbps, even though it is supposed to be 50 Mbps. Only seven interview participants (27%) felt their Internet speed was good enough.

239. These findings are supported in our analysis of submissions in Phase 1 of these proceedings (2020-367). A commonly reported (n=84) challenge is slow broadband speed. Only four respondents reported that the speed is adequate for them.

240. Relying on indicators based on maximum (up-to) speeds that sellers advertise in particular areas is not the appropriate basis for formulating connectivity policies.[60] In Phase 1 of these proceedings, a considerable number of respondents (n=27) reported they are not getting the speed for which they paid/contracted - even though most of the available Internet plans offer slow download speeds (e.g., 768 Kbps, 2.5 Mbps, 5 Mbps). Comments about this issue included:

- "Internet speeds are always way lower than what we are paying for."
- "On a good day, I was getting download speeds of 200 kB/s with averages of 110 kB/s. This was much slower than their advertised 5 Mbps (max) and 3.5 Mbps (min). Why is it allowed to advertise a minimum speed of 3.5 Mbps if that speed is never attained?"
- "I have never received the minimum [advertised] download speed of 3.5 Mbps, ever."

[60] Hambly, H., & Rajabiun, R. (2021). Rural broadband: Gaps, maps and challenges. *Telematics and Informatics, 60*, Article 101565. https://doi.org/10.1016/j. tele.2021.101565

241. **Recommendation: The Commission should utilize actual vs advertised speeds in any measures and evaluations of QoS in the Far North. This should include QoS data from end-users as well as suppliers such as service providers.**

242. The limited publicly available information available about QoS (such as information from CIRA's Internet Performance Test) indicates the challenges users experience with regard to issues such as speed and reliability, particularly in smaller, more rural communities. However, it is impossible to assess these issues without access to more data.

243. The most recent "SamKnows" report from June 2020 has been critiqued for collecting data during periods of inactivity, reflecting selection bias by excluding many rural/remote areas, aggregating data (e.g. combining results into "West and North"), and reporting results that do not account for increased use during the COVID-19 pandemic.[61] Data from Northwestel's service area appears to consist of a small sample size of 43 'white boxes' (unique test sites) (SamKnows, 2020, p.20).[62]

244. Furthermore, the SamKnows study of NWT services appears to rely solely on cable connections -- effectively limiting results to communities that provide such offerings (currently the centres of Hay River, Fort Smith, Norman Wells and Yellowknife). This does not include smaller, remote satellite-served communities (such as Ulukhaktok, Paulatuk, Sachs Harbour, Deline, etc) that are connected through other infrastructure such as DSL or satellite. These smaller, more remote communities are those experiencing the slowest speeds (according to other measures such as social media posts, CRTC interventions by Northern residents, and community surveys).

245. To examine how users in remote Northern communities experience Internet speeds in more detail, we developed an NWT-specific landing page that utilized the Canadian Internet Registeration Authority's Internet Performance Test (CIRA IPT). See DigitalNWT CIRA IPT : https://performance.cira.ca/digitalnwt

246. We recognize the limitations of this test that have been raised by industry consultants and others.[63] However, we believe it is an important tool that provides public data on household Internet speeds that is otherwise unavailable.

247. We present below CIRA IPT results on our DigitalNWT landing page from January 1, 2019 to October 4, 2022. This represents a total of 1,874 tests in the NWT from 532 different IP addresses. These results illustrate that 51.8% of the Internet speeds tested were between 0 and 5 Mbps (see Figure below). Most—83.2%—of the test results do not meet the CRTC's 50 Mbps/10 Mbps objective for fixed broadband services. The mean download speed is 4.7 Mbps.

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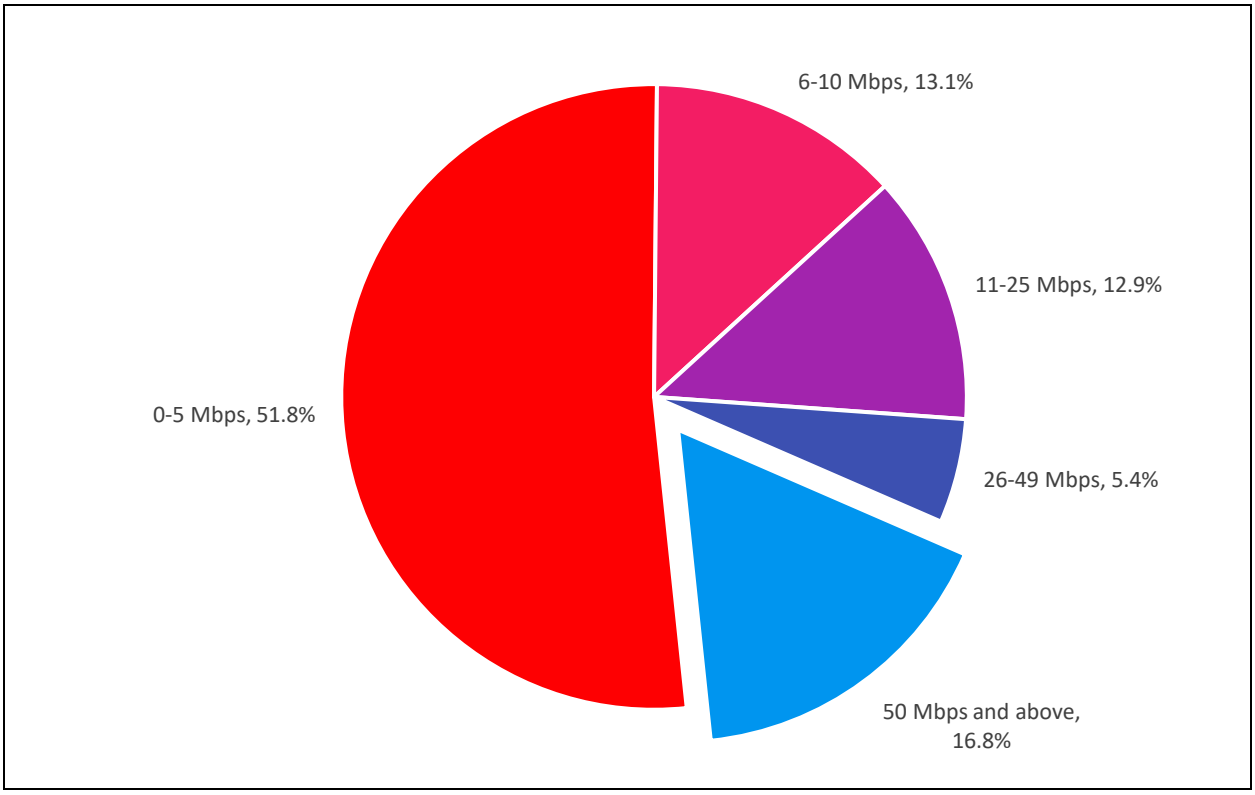
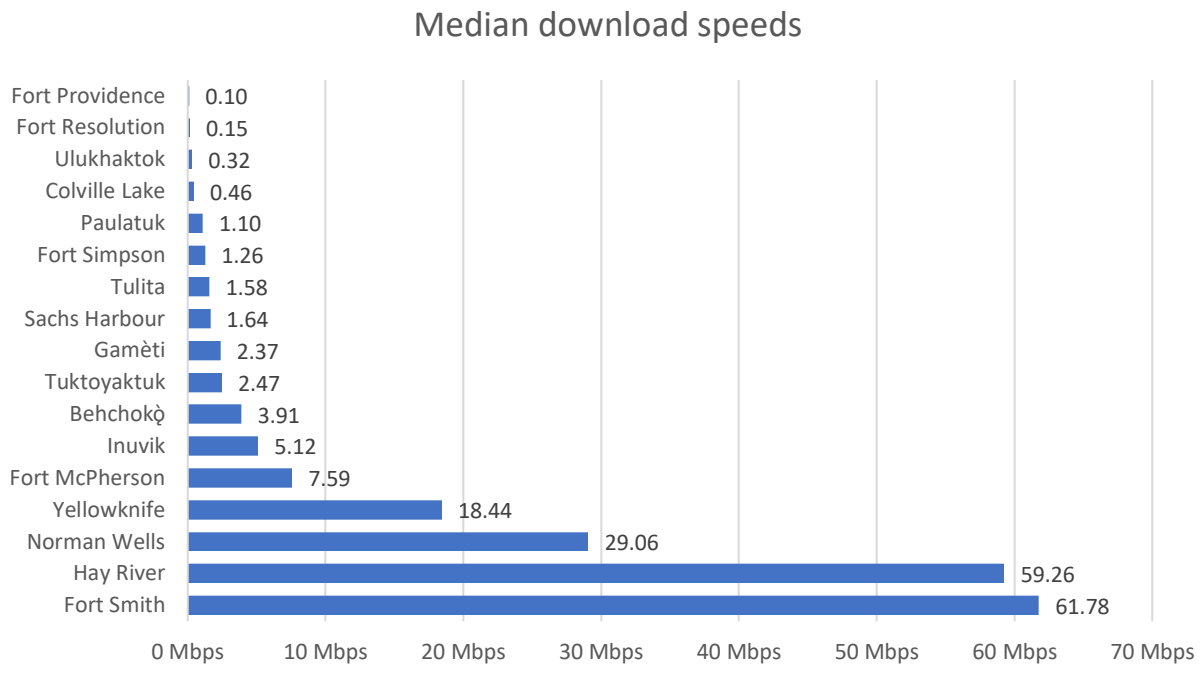
[61] Lawford, J. (2020). Buying Speed? What Canadians Pay for Broadband: Part 1 – The CRTC's "Measuring Broadband Canada" report does not measure up. Retrieved from https://www.piac.ca/buying-speed-what-canadians-pay-for-broadband-part-1-the-crtcs-measuring-broadband-canada-report-does-not-measure-up/

[62] SamKnows (2020). Measuring Broadband Canada. Retrieved from https://crtc.gc.ca/eng/publications/reports/rp200601/rp200601.PDF

[63] Goldberg, M. (2020). CIRA fails its performance test. Retrieved from http://mhgoldberg.com/blog/?p=14098



248. Tests also varied among communities. As the image below demonstrates, smaller population, rural/remote communities (e.g., Fort Providence, Ulukhaktok, Colville Lake) typically have much slower median download speeds than larger, more central hub communities (e.g., Yellowknife, Norman Wells, Fort Smith). Further engagement, speed testing, and research are needed to better understand these challenges in the smallest communities.



249. While speed is one important metric regarding QoS and quality of experience, it is not the only one. Household survey and interview respondent noted Quality of Internet as the third most prominent challenge reported by NWT residents. More than half of our survey respondents (51%) reported this challenge, which was more prominent in satellite-served communities. For example, in 2020/21, nearly 80% of survey respondents from Paulatuk (18 of 23 participants) referred to poor service quality.

250. Issues with quality of service and experience are also reflected in northerners' experiences of the reliability of online applications (e.g., Skype and Zoom). Interviews we conducted in 2020/21 revealed that in many remote communities it is nearly impossible to conduct video Zoom calls or file-sharing services like DropBox:

- "I also use Dropbox, and I found that it was hard. Whenever we had to share [files], it definitely took a while."
- "[The challenge is] not so much the access to the software, but the functionality of it [software] with limited speeds."
- "If we are uploading at the same time [as a meeting], I have to pause the upload to attend the meeting."

251. For these reasons, we recommend more funding for user experience data collection in the North. The SamKnows project and the mapping initiatives established by ISED could be accompanied with additional sources to strengthen the base of empirical evidence.

252. In 2020, the U.S. Congress directed the FCC to develop processes and procedures to collect, verify, and publish more precise data in the Broadband Deployment Accuracy

and Technological Availability Act (Broadband DATA Act).[64] The FCC established a Broadband Data Task Force in 2021, and is in the process of collecting and publishing data from numerous sources including Native entities.[65] As noted in our response to Q2, the Broadband DATA Act mandates a process through which state, local, and Tribal governments or entities may submit their own verified primary broadband-availability data and may challenge existing FCC data. The FCC has also stated that it intends to increase Tribal outreach, including through Tribal training workshops on data collection.[66]

253. **Recommendation: The Commission should play a role in supporting collection of more robust data that includes user experience monitoring. This might include setting standards in QoS monitoring and opening opportunities for more entities to be involved in collecting and presenting empirical, publicly available data. Recent developments in the U.S., including at the FCC, provide a model.**

[64] See: United States Congress. "Broadband Deployment Accuracy and Technological Availability (DATA) Act. Public Law 116–130, 116th Congress." March 23, 2020. Accessed October 3, 2022. https://www.congress.gov/116/plaws/publ130/PLAW-116publ130.pdf
[65] See FMCC "Broadband Data Collection." Accessed October 3, 2022. https://www.fcc.gov/BroadbandData .
[66] See: https://www.fcc.gov/office-native-affairs-and-policy

Q21 Do you think the CRTC should take action to improve the reliability of Northwestel's Internet network? For example, should the CRTC take action to reduce the duration and frequency of network outages (sometimes, this is referred to as bringing redundancy to a network or making a network more resilient)?

254. Yes, the Commission should take action to improve the reliability of Northwestel's network.

255. In 2013, we stated that: "The CRTC should require more thorough monitoring of Northwestel's quality of service. There have been many complaints from interveners that the service provided does not reach even minimum advertised speeds. Regular monitoring of actual upload and download speeds and services outages should be required."

256. Unfortunately, this is still very much the case. While there have been efforts by some third parties to monitor QoS including download and upload speeds and outages, there appears to have been no enforcement of any QoS standards on Northwestel.

257. Outages can have major impacts on communities, particularly if they rely on connectivity for public or commercial services. As one participant in our 2020/21 interviews reported, they experienced Internet drops of six to 36 hours, during which "Everything shuts down — banking systems, machines, everything. And it's a very stressful time in the community."

258. Our analysis of Phase 1 submissions to these proceedings (2020-367) demonstrates the frustrations experienced by residents of the Far North with respect to the reliability of services. Northern consumers reported many challenges related to the reliability of their Internet services and the second most frequently reported expectation among individuals is "reliable internet" (n=59; 24%). Challenges reported by Northern respondents included unreliable service (n=59), cut outs (n=35), and speed variations (n=25). One respondent stated, "the Internet cuts out on a daily basis."

259. Connection connection problems can last days, or even weeks. One person wrote, "Some of these system failures take hours, or more than a day or more to resolve." In more remote communities, Internet can be down for more than a week – as occurred in Ulukhaktok when Internet was cut out for 8 days in March 2021.[67]

260. Northern residents – many of whom use the Internet for accessing essential public services such as education and health that are often not physically accessible in smaller communities – reported they are experiencing difficulties because of unreliable connections. One respondent described these challenges in detail: "It is one of the primary reasons our daughter opted to return to Quebec for her post-secondary studies. Although all her classes are virtual, there was a high degree of risk that there would be another outage in the middle of an exam."

261. Reliability issues also impact Northern businesses that operate online. As one respondent noted: "Some days, I can't even open my email. My business relies 100% on Internet speed,

[67] See: https://www.cbc.ca/news/canada/north/ulukhaktok-without-reliable-internet-for-8-days-1.5937597

and I am definitely loosing [sic] money." Loss of connectivity also means that retail payment systems can go down. A respondent stated, "I keep an emergency envelope of cash, in case we lose service and I need to get gas or groceries or something."

262. A recent network outage in the small community of Jean Marie River, NWT illustrates these issues.[68] In 2021, severe flooding impacted at least three communities in the NWT, including Jean Marie River. Floods on May 12, 2021 in that community of 77 people resulted in the loss of Internet and electrical power for several days.

263. Northwestel was powering their cell tower by flying in fuel by helicopter to power a generator. However, the local Internet system was not working. After waiting for a Northwestel technician to come to the community, the Band Manager called Katlotech. The owner of Katlotech called Northwestel regarding the issues facing Jean Marie River, and their lack of technical support after days of waiting. Northwestel stated they would address the situation.

264. In the meantime, the Katlotech technician drove to the community from Yellowknife (a 5-6 hour journey) to set up a wireless access point to connect employees in the local Band office and other services, who were working in a temporary work trailer. After the technician left the community, this system failed since the community was using backup generators that damaged the Internet routers. The technician returned to fix the system by setting up solar panels to power up the wireless system and realigning the local network's Wireless Access Points, after which Internet access was restored in the community.

265. While this example presents an extreme flood event, we can anticipate more similar events in the future as climate change continues to affect communities in the Far North. As well, even during non-emergencies, Jean Marie River experiences ongoing reliability challenges due to a lack of local technicians. Residential customers have reported waiting 3-4 months for a Northwestel technician to arrive in town to fix their service.

266. Northwestel has declined to make publicly available information about network reliability, including community-level service outages and the average time to restore services in communities.

267. To obtain timely information, four intermediary organizations in Phase 1 of these proceedings sought to require ISPs to disclose information about their network performance. One respondent stated, "This [Internet performance report] should not be limited to full service outages but also [applied] to bandwidth limitations, where the services are essentially lost, and localized outages."

268. Recommendation: The Commission should work with Northwestel to monitor network reliability in both day-to-day cases and in response to extreme events. This should include coordination between the Commission, service providers, emergency managers

[68] For the full story, see: https://www.digitalnwt.ca/local-indigenous-technology-company-helps-address-power-and-internet-access-shortages

and local governments and technicians to increase network redundancy and plan for disaster management and resiliency.

269. Network reliability can be further improved through more frequent maintenance, timely repairs, and upgrades of obsolete equipment. As we have pointed out, training and hiring local people as technicians can help to reduce outages, as well as being much cheaper than sending in a company technician.

270. **Recommendation: The Commission should require Northwestel to train and hire local technicians in small-population, rural/remote communities and base more maintenance crews in the Far North.**

Q22 Do you think the CRTC should require Northwestel to develop a network improvement plan?

272. Yes, Northwestel should develop a network improvement plan.

273. Along with providing details regarding upgrades to transport facilities, network redundancy, and upgrades, expansions and improvements of services, such a plan would assist in improving transparency of how Northwestel is managing the public funding it received to build and operate networks in the Far North.

274. In 2013, the CRTC approved Northwestel's Modernization Plan. At that time, we stated: "In addition to requiring an annual progress report from Northwestel on its modernization activities, the CRTC should require an annual external review or audit to document progress on the plan and specifics on how NCF subsidies have been spent."[69]

275. Northwestel was required for some years to submit reports to the CRTC that include some financial information at the end of each yearly report. Unfortunately, it appears that these reports came to an end in 2018, when Northwestel submitted its final progress report on its modernization activities under the Plan (CRTC NOC 2020-367, para 34).

276. As we noted in our response to Q18 above, there is also no publicly available modernization plan available for Northwestel.

277. We note that the Commission has asked Northwestel for specific information, but the responses have been considered proprietary or heavily redacted.

278. It is therefore impossible to provide an informed response to this question without more transparency from Northwestel and the CRTC.

279. We urge the Commission to require Northwestel to make its planning information publicly available.

280. We note that the FCC now allows Tribal governments access to the most recent filings submitted by telecommunications carriers that serve their lands with support from the Universal Service Fund (USF) High-Cost program. FCC's Form 481 collects financial and operations information used to validate carrier support. This includes information about a carrier's holding company, operating companies, affiliates and branding designations …; ability to function in emergency situations; terrestrial backhaul; Tribal lands engagement; and comparability of voice and broadband service rates in rural and urban areas.[70]

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[69] Quotations below are from our 2013 submission: "Final comments submitted on behalf of the First Mile Connectivity Consortium". CRTC Consultation CRTC 2012-669-1: Review of Northwestel Inc.'s Regulatory Framework, Modernization Plan, and related matters. Submitted 8 July 2013.

[70] "Tribal Governments May Now Access Form 481" Universal Service Administrative Company (USAC), October 3, 2022.

281. Following OCAP™ principles, the CRTC should require Northwestel to provide similar information for its services on Indigenous lands.

282. **RECOMMENDATION: The Commission should publish details concerning how monitoring and oversight of funded projects will be carried out in the Far North, and how compliance will be enforced. These details should include specific annual reporting requirements for Indigenous contexts (perhaps drawing from the FCC requirements). Monitoring and evaluation should examine the immediate, mid- and long- term outcomes for consumers in the Far North.**

Q23 Do you think the CRTC should take action to improve the complaint resolution process for telecommunications services in the Far North?

283. Yes, the CRTC should improve the complaint resolution process for telecommunications services in the Far North.

284. We recognize that the CRTC has created some resources to protect consumers. For example, the *Internet Code* came into effect on Jan 31, 2020.[71] Among other things, the *Internet Code* aims to make billing/pricing information clearer, simplify documentation, and counter "bill shock". Unfortunately, due to the lack of competition for services in most of the Far North, these measures are not useful to consumers who have no alternative choice of providers.

285. As noted in this question, for non-satellite services, consumers must file complaints directly with the Commission rather than with the Commission for Complaints for Telecom-television Services (CCTS).[72]

286. The CCTS notes that filing a written complaint should take 15 minutes (and that online sessions expire after 20 minutes, though that time can be extended). The process itself involves 10 pages of questions (recognizing some pages are a single question). It includes complicated language that many consumers may not understand (e.g., "Are any other organizations which have the authority to compensate a customer for losses currently helping you to resolve this complaint?"). Filing a complaint with the CCTS also involves checking off that one has read their Procedural Code, which some Northern Residents may be reluctant to do for the reasons noted above.

287. As currently structured, navigating the CRTC website to reach the complaints is also a challenge, for many of the same reasons noted above.

288. Also, the form states that the CCTS cannot review complaints about the following issues:

- Accessibility issues for TV services
- **Digital Media Services**
- **Emergency Services (e.g., 911)**
- **Internet applications/content**
- Journalistic ethics in TV
- Lack of clarity or information-sharing with consumer (TV only)
- **Language barriers**
- **Networking services**
- Offshore outsourcing of customer service
- **Payphones**
- **Privacy Issues**
- **Rights of way**

[71] See: https://crtc.gc.ca/eng/internet/code.htm
[72] See: https://www.ccts-cprst.ca/

- **Rude service provider representative**
- Security services
- Service provider facilities
- Simultaneous TV signal substitution
- **Telemarketing/Unsolicited messages**
- **Third-party fraud/Phone/Internet scams**
- TV Content
- **Wait times for customer service**
- Yellow Pages/Business Directories 900 and 976 pay-per-call services (home phone or wireless phone)

289. Issues likely to be relevant to Northerners are shown in **bold.** There is no information on how consumers can get help with these issues.

290. The complaints process should be completely revised. The form (either online or downloaded) should be simplified to require only name and contact information, service and phone or account number, and information about the complaint. A single point of contact and simple form should be used for ALL technologies and services.

291. A toll-free number could also be used so consumers could call, select a language, and provide contact information and leave a verbal complaint.

292. Generally, language on both the CRTC and CCTS complaints websites should meet accessibility and plain language requirements. Many residents of the Far North have low literacy levels that should be taken into consideration.

293. Information on how to file a complaint should be clearly shown on bills and provider websites. There is a small heading at the bottom of the Northwestel website that says "CRTC and CCTS Concerns" but most English speakers - let alone other language speakers - would not know what this means.

294. Public service announcements about how to file complaints could also be prepared for Northern radio and TV stations and northern newspapers.

295. There is also limited information available with respect to the outcomes of these complaints, and they lack transparent enforcement mechanisms. The CCTS includes some high-level outcomes and compliance information, including targets for how quickly things are resolved. The Commission should provide more details on enforcement requirements or penalties that result from consumer complaints.

Q24 Do you think the CRTC should take action to **improve how telecommunication services are offered or provided** to better meet the needs of Indigenous individuals, local communities or small business customers in the Far North? For example, customer service in Indigenous languages, culturally sensitive payment plans, business plans that support Indigenous businesses, etc.

296. Yes, the CRTC should improve how telecommunications services are offered and provided to customers in the Far North.

297. Our response to Q20 pointed out the issues experienced by consumers regarding "advertised" versus "actual" speeds.

298. With respect to Indigenous languages, currently Northwestel websites offers some content in Inuktitut syllabics, but the majority of the information is in English. For example, if you visit Northwestel's website from the village of Kugluktuk, you will find the headings for the pages: Personal; Business; Community appear in Inuktitut syllabics, but all of the pricing information, as well as information on upload and download speeds, how to check and test your Internet usage and connection, and telephone support is only in English. For a monolingual Inuk, the Northwestel website would not offer much information. In contrast, SSi Canada, which operates in Nunavut, has a website that is entirely translated into Inuktitut.

299. Generally, language on the websites and in service contracts should meet accessibility and plain language requirements. For service providers operating in the Far North, special consideration should be given to the fact many residents of the Far North have low literacy levels.

300. Customer service such as for service problems and billing problems should be available in Indigenous languages. It appears that "Live chat" may be available in Inuktitut in Nunavut, but information for NWT and Yukon customers is available only in English.

301. Official languages in the NWT in addition to English and French include:

- Chipewyan
- Cree
- Gwich'in
- Inuinnaqtun
- Inuktitut
- Inuvialuktun
- North Slavey
- South Slavey
- Tlicho[73]

Indigenous languages spoken in Yukon include:

[73] https://olc-nt.ca/languages/overview/

- Gwich'in
- Hän
- Upper Tanana
- Northern Tutchone
- Southern Tutchone
- Tagish
- Inland Tlingit
- Kaska

302. While hiring full time customer support staff who speak all the Indigenous languages in Northwestel's territory is unrealistic, there is a much simpler solution – using telecommunications! In the 1970's the CRTC ordered Bell Canada to provide customer services in Indigenous languages in northern Ontario and the eastern Arctic. Bell claimed that it was unable to find anyone who could speak Oji-Cree. Wawatay Native Communications Society proposed to offer the service and contracted with Bell. A customer who called Bell customer service needed only to say "Translataphone" and the operator knew to transfer the call to Wawatay.

303. A similar service hiring Indigenous language speakers as teleworkers could also be implemented in Northwestel's territory to serve Indigenous language speakers.

304. All customer service staff working in the Far North or providing services for the Far North should receive training in cultural sensitivity.

305. There are no indications of any culturally sensitive payment plans or business plans on Northwestel's website. The only payment plans Northwestel offers are the standard installation fee plan. There do not appear to be any culturally specific services available.

Q25 Should the CRTC impose any requirements or expectations on service providers relating to **meaningful engagement with Indigenous communities** when providing (or planning to provide) telecommunications services to Indigenous communities in the Far North?

306. Yes. It is important for the CRTC to require service providers to undertake meaningful engagement with Indigenous communities when planning or upgrading telecommunications services for Indigenous communities in the Far North.

307. The FMCC pointed out in previous interventions that original CRTC Broadband Fund guidelines stated that applicants should show that they "attempted to consult" with communities. Such a requirement could be fulfilled by a letter never received or a telephone call never answered. Further, an example of acceptable consultation was a "market study" that could be done using available information (e.g., population, average income, public institutions, local businesses) without any interaction with the community.[74]

308. We recognize that some service providers have published their own principles for consultation and engagement. For example, TELUS states that it recognizes Aboriginal Title and Rights and Treaty Rights, UNDRIP, the inherent right to self-governance, and processes and agreements that reflect the authority of Indigenous Peoples as stewards of their lands. The company states that meaningful engagement informs its goal "to build long-term, meaningful and collaborative relationships with Indigenous governments and customers".[75] We note that in its intervention in Phase 1 of these proceedings (2020-367), Northwestel acknowledges that it "operates on the traditional territories of First Nations, Metis, and Inuit peoples" and that it commits "to moving forward in consultation and collaboration with local communities and governments" (Northwestel Intervention, 2020-367, para 5). However, we are not aware of any specific commitments by Northwestel.

309. We emphasize that telecommunications providers have a duty to consult with First Nations and other Indigenous communities before undertaking work on their lands.

310. To date we are not aware of any specific definition of 'duty to consult' or 'free, prior and informed consent' in the context of telecommunications or connectivity policy.

311. Requirements for meaningful consultation need to be explicit. They should include in-person meetings with leaders of affected communities (or videoconferences if necessary and feasible) and a specific agenda with opportunities for clarification on technical issues, access to land, or other issues, including those related to local economic development opportunities related to infrastructure and service delivery. To help determine elements that could be included in a formulation of the requirements and expectations required for 'duty to consult' in this context, we refer to requirements in the U.S.

312. The FCC established a Native Nations Communications Task Force (NNCTF) that adopted a requirement for service providers that receive federal funds to meet with Tribes.

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[74] FMCC, "CRTC 2019-406: Intervention," para E11.
[75] See: https://www.telus.com/en/social-impact/connecting-canada/indigenous-reconciliation

Service providers must demonstrate they have coordinated with the Tribal government and provide a report documenting their compliance.[76]

313. To qualify for federal funding, carriers providing services on Tribal land must show that they have fulfilled a Tribal Government Engagement Obligation. They must demonstrate that they have coordinated with the Tribal government and provide a report documenting the following:

- Needs assessment and deployment planning with a focus on Tribal community anchor institutions;
- Feasibility and sustainability planning;
- Marketing services in a culturally sensitive manner;
- Compliance with Rights of way processes;
- Compliance with Land Use permitting requirements;
- Compliance with Facilities Siting rules;
- Compliance with Environmental Review processes;
- Compliance with Cultural Preservation review processes; and
- Compliance with Tribal Business and Licensing requirements. (p. 7)[77]

314. The Commission also needs to require clearer definitions of the roles and responsibilities of staff working on Indigenous consultation and engagement. For example, it is unclear what their level of decision-making power is concerning the outcomes of project planning and implementation. Without details on how consultation and engagement feedback are applied by service providers, consultation can be treated more like a 'sales pitch' than a reciprocal partnership.

315. **Recommendation: The Commission should require commercial service providers to publicly post details on the scope of work, roles and responsibilities of staff members working on Indigenous consultation and engagement. The scope of work should be clearly communicated to Indigenous participants have a clear understanding of what is possible during consultations.**

316. We emphasize that telecommunications providers have a duty to consult with First Nations and other Indigenous communities before undertaking work on their lands. Such requirements need monitoring in order to determine whether they have been carried out.

317. Recommendation: A specific definition of "Duty to consult" and associated performance indicators based on community desires and needs, clear project timelines, and mutually understood goals and definitions could be developed. Consider reviewing the FCC's Tribal Government Engagement Obligation to develop consultation requirements in Canada. The Commission should establish a public process to examine the question of 'duty to consult' and determine a formal

[76] Form available at: https://www.usac.org/wp-content/uploads/high-cost/documents/Forms/FCC-Form-481-Template.pdf (Accessed Oct. 5, 2022).
[77] Form available at https://www.usac.org/wp-content/uploads/high-cost/documents/Forms/FCC-Form-481-Template.pdf (Accessed Oct. 5, 2022).

process and indicators to address this question in the context of telecommunications in Indigenous contexts.

318. Our research into submissions from Phase 1 of these proceedings (CRTC 2020-367) found that participating Intermediary Organizations expressed limitations they experienced during this consultation process. Specific comments on this issue included:

- "There was no discussion or opportunity for [community] input on project criteria; and funding options were not discussed."
- "Northwestel upgraded some existing cell towers in CAFN's [the Champagne and Aishihik First Nations] traditional territory without any consultation with CAFN and without giving consideration to how upgrades of the towers might benefit or address the needs of CAFN in relation to telecommunications and internet services."

319. We have reviewed the publicly available version of Northwestel's community consultation report. This was a highly redacted version of the report provided in the public record of Phase 1 of these proceedings (CRTC 2020-367).[78] Without being able to read the full report, it is challenging to assess the extent to which Northwestel's consultations indeed reflect "meaningful engagement" as well as address issues related to "duty to consult" and "free, prior and informed consent".

320. Our review of Northwestel's consultation report considered the length of time dedicated to community engagement. The report is dated Dec. 1, 2020, and states that consultations began in August 2020.[79] Based on this date range (August 1 – November 30, 2020) and removing weekends and statutory holidays, this reflects a total of **82 days to consult with 63 entities**.[80]

321. The report states that consultation activities consisted of the following steps (on p.11):

- "Engage via video or phone conference or in-person meetings with representatives of each Indigenous and municipal government or organization and affected community to deliver a project-specific presentation that introduces the project scope and timeline.
- Ensure that questions and concerns expressed by community representatives and community members were applicable, recorded, and addressed via follow-up correspondence or meetings.
- Conduct engagement using safe COVID-19 protocols.
- Facilitate an opportunity for information sharing and public comment through a webpage on Northwestel's website.

[78] The report is titled: "Northwestel Engagement Report: Broadband Fund Projects" and dated Dec. 1, 2020.
[79] "Northwestel conducted an extensive engagement program and has since communicated with 60 Indigenous and municipal governments and organizations as well as 14 regional governments and organizations" (p.i).
[80] On p.ii, Northwest states that it "successfully met with 51 (of 60) Indigenous and municipal governments and organizations of communities identified across all four BBF Projects, 12 (of 14) regional governments and organizations".

- Identify where specific project design changes could be incorporated in order to address community concerns and feedback.
- Determine areas where procurement of services may be applicable and plan for future community events were applicable" (p.11).

322. The report mentions an "Engagement Log" that documented phone calls, voicemail messages, emails, letters, successful meetings, attempted meetings, and presentations. It also notes a summary of engagement activities undertaken outside of meetings, such as public information sessions and advertisements. As well, it appears that Northwestel sent briefing notes to only three organizations prior to meeting them (upon the request of the participating organizations).

323. The "Engagement Log" is not included in the report, so the form and extent of these activities are unclear. It is unclear which communities were visited in person and which consultations used online or telephone methods. It is also unclear how these meetings were arranged, and whether any local residents were hired to facilitate consultation activities.

324. Northwestel's report states that participants "commonly" asked about local employment or training opportunities that may derive from the BBF Projects, as well as about opportunities for local businesses (p.17). As well, "Members of some Indigenous and municipal governments and organizations inquired about the opportunity for Indigenous partnerships or asset ownership of project components in their community" (p.17). However, details, including specific questions asked and Northwestel's responses, are redacted.

325. We noted that in two cases, the First Nation of Na-Cho Nyäk Dun and the Ross River Dena Council, Northwestel appeared to consult in more detail "regarding the cultural, heritage, and environmental considerations for the transport project and explore procurement and contracting opportunities" (p.9). It is unclear whether these consultation topics are included in Northwestel's discussions with other organizations.

326. Northwestel also states that participants raised "many questions and comments" regarding what it defines as "Out of Scope Themes". Details are not made public. Other redacted information included feedback on issues such as employment, training and business opportunities. While Northwestel states that it endeavoured to provide responses during meetings or shortly thereafter, details are redacted. Recommendations for improving engagement practices were provided by participants and presented in Northwestel's report. However, these details are also redacted.

327. Northwestel mentions a feedback mechanism on their website and four virtual information sessions that appeared to involve 410 participants:

- 295 responses to the online public survey on the "Every Community" website.
- Four 15-minute virtual information sessions (2 in Yukon; 2 in NWT):
    - NWT: October 20, 2020 (N=13) and October 22, 2020 (N=41).

- Yukon: October 20, 2020 (N=35) and October 22, 2020 (N=26).

328. No details about the issues raised in these surveys or the responses provided by Northwestel are available in the publicly available verion of the report.

329. Without full access to this report and other specific information on engagement activities by Northwestel, we cannot assess whether the consultation was "meaningful."

330. **Recommendation: The Commission should make public the full unredacted Northwestel communication engagement report.**

Q26: How might consumers benefit from competition?

331. We refer to responses above concerning reliability, customer service, and pricing, all of which could be improved with competition. We include some points about these issues specifically relating to competition below.

332. Research we conducted in the NWT presents significant evidence of how Northern consumers think about the benefits of competition. In general, organizations, governments and individuals all express a desire for increased competition. As one interview participant stated, "It's a unique situation [in Northern Canada] that there is no competition." Many Northerners have stated that they are not getting affordable services and/or reasonable rates from Northwestel but lack any alternative choice in providers: "I just don't have a choice...There is no other real or potential service provider."

333. In our response to Q12, we noted that where possible, some Northern residents attempt to increase access by setting up multiple household Internet connections. For two interview participants in Inuvik, it was cheaper to subscribe to a second household Internet connection from an alternative ISP than pay data overage fees charged by their primary ISP.

334. Currently, most of the smaller Northern communities can access only a single provider; in Southern Canada, urban communities have access to, on average, 8.7 providers.[81] Our analysis of submissions in Phase 1 of these proceedings showed that a considerable number of submissions from individuals (n=65) reported that what they perceive as the incumbent ISP's monopoly is a challenge for consumers. Many respondents (n=38) highlighted the lack of competition in the North and reported the limited choices of providers. Specific comments submitted on this issue include:

- "It is so unfair that we are stuck with a monopoly in the North and are not offered any competitors to choose from."
- "Northwestel has a monopoly in the services in the North. They charge the highest amount for the worst product, and residents have no choice but them because they threaten to pull operations and fire people if another company moves up here to allow some competition, so that people [can] get customer service instead of being laughed at and told 'you have to use us'".
- "Myself and many Yukoners are unhappy with the service Northwestel provides and strongly believe the monopoly they hold has made them take advantage of their customers."
- "It is my opinion that without competition up north, Northwestel has and will continue to charge higher than standard prices for their services, services that nowadays are considered essential in day-to-day life for northern residents."

335. A number of respondents (n=20) said they would like to see new ISP/s in the North. Comments on this issue include:

[81] CRTC, 2020. Communications Monitoring Report. Retrieved from https://crtc.gc.ca/eng/publications/reports/policyMonitoring/2020/cmr4.htm .

- “I dream that the CRTC and our Canadian Government will believe and invest in the innovations of our smaller players [ISPs], who are well equipped to contribute to excellent Northern connectivity.”
- “[W]e would happily try anything other than Northwestel”.
- “We are seeking other service providers to ensure that this essential service (Internet) can meet our needs.”
- “I do believe that we need more competition here in the North.”

336. Similar points are expressed in interventions from governments and other Intermediary Organizations. For example, the Government of Yukon noted it “believes it is very important for Yukon homes, businesses, and institutions to have the benefit of competitive choice in telecommunications services.”

337. We have referred to some examples of competition in responses above. For example, Inuvik has a choice in ISPs (Q12). Also, **KatloTech Communications (KTC)** provides Internet services and intends to provide IP telephony in its communities.

Q27: which benefits of competition are most important to consumers? Lower prices, greater choice, increased levels of quality and innovation? How would you rank these priorities?

338. In our opinion, **all** of these benefits are important to Northern consumers, and are interrelated and connected. See our responses to questions on affordability and quality of service above. Innovation is also important so that Northerners benefit from new technologies and services, and innovative means of delivering them.

339. In our analysis of responses from household surveys and interviews conducted in 2020/21, we identified a perceived relationship between cost ("expensive") and competition ("lack of competition"). Participants believe that increased competition among providers may help lower prices and increase quality. NWT residents associate lack of competition not only with high prices but also with poor quality of the Internet (e.g., service cuts, signal drops).[82]

340. We welcome competition through access to wholesale networks as well as technologies such as LEOs and services such as community ISPs and IP telephony.

[82] McMahon, R., Akcayir, M., McNally, M.B. & Okheena, S. (2021). Making sense of digital inequalities in remote contexts: Conceptions of and responses to connectivity challenges in the Northwest Territories, Canada. *International Journal of Communication*, *15*(1): 5229-5251.

Q28: How can the CRTC's Wholesale Analysis be responsive to the particular circumstances of the Far North?

341. In 2016, the CRTC reduced prices for wholesale services. While that decision was reversed, we hope that the CRTC continues to "…strive to create a dynamic competitive telecommunications market for Canadians" as it stated when mandating these wholesale price reductions.[83]

342. We believe that Northwestel should be required to offer wholesale access at reasonable rates to enable additional providers to serve communities in its territory.

343. We disagree with Northwestel's statement in its intervention to 2020-367 that "… there is no need for additional wholesale service" (Northwestel, para 14) and that "to the extent that competition can work, it must be facilities-based" (Northwestel, para 18). While facilities-based competition in the form of optical fibre or various satellite services can provide competitive solutions for some communities, **wholesale access to existing transport networks is likely to remain the only means for some smaller providers to extend broadband services**. Access to wholesale capacity can also be necessary to establish non-profit, Indigenous and community networks.

344. In Phase 1 of these proceedings (2020-367), almost all of the participating IOs specified that third-party Internet access should be made available to competitors. One IO respondent noted that the CRTC's regulations concerning third-party Internet access currently applied to southern service providers have not yet been applied to the incumbent ISP in the North. Changing that policy would potentially help new ISPs access infrastructure, enter the market, and increase competition — expectations frequently expressed in the individual submissions.

345. Several individual respondents raised similar concerns:

- "[T]hey [Northwestel] do everything in their power to block other agencies from entering their space".
- "Although there may be other businesses that offer Internet, the reality is that those businesses purchase bandwidth from NWTel; so, NWTel can dictate the terms and conditions".
- "Northwestel accepted Federal money to increase Internet bandwidth in the North. Then, NWTel did not share the new bandwidth with its competitor Qiniq".
- "Northwestel wouldn't share the lines without charging or taxing a large sum to the company to allow them to use it".
- "I'd like to see the market opened up; but how, if Northwestel owns all the lines coming in?".

[83] See: https://www.canada.ca/en/radio-television-telecommunications/news/2016/10/crtc-finds-proposed-wholesale-high-speed-access-rates-unreasonable.html

- "Perhaps the Commission has a role in ensuring infrastructure paid for by Canada is shared, so new providers do not have to build all their own?"

337. In general, the costs of connectivity are decreasing, with extensions of fibre and availability of higher bandwidth satellites. However, we note that this does not seem to be the case in rural, remote and Northern regions served by Bell Canada. In fact, several FMCC members have experienced higher costs for wholesale bandwidth in recent years. For example, FMCC member Western James Bay Telecommunications Network (WJBTN) states that between 2016 and 2019, it paid 25 percent MORE per GB per month in transport costs from Ontera (which is owned by Bell).[84]

338. While we are not in a position to evaluate the CRTC's Wholesale Analysis and Essentiality Test at this time, we intend to comment on these issues in future phases of this proceeding.

339. **RECOMMENDATION: Northwestel should be required to provide access to its transport network at reasonable rates.**

[84] In 2016, WJBTN paid $9750 per GB, whereas in 2019 it paid $14,300 per GB.

Q29: What form should a mandated HSA service take and why?

346. We believe that Northwestel should be required to introduce a wholesale high-speed access service and that it should be available on any transport and local technologies that can support it.

347. We intend to address these questions further in the next phases of the proceeding.

Q30-39

348. We intend to address selected topics in these questions in future phases of this proceeding.

Concluding Comments

349. We appreciate the opportunity to contribute to this proceeding, and the numerous questions the Commission has included concerning Indigenous rights, meaningful consultation, affordability, quality of service, and other issues.

350. However, as we have noted in several responses, these issues are also relevant for services to rural and remote Indigenous communities in other regions of the Far North and mid North .We therefore recommend that:

- The Commission establish an Office with a specific mandate and expertise to address issues of communication services for Indigenous Canadians, in rural and remote regions.
- The Commission hold a separate proceeding to address issues of Indigenous Rights, and obligations with respect to UNDRIP, OCAP™, economic reconciliation and other matters as they apply to connectivity for all Indigenous communities and lands.

Request to Appear at Public Hearing in Whitehorse

351. We re-iterate our request to participate in the public hearing in Whitehorse. Our members, partners and expert witnesses have firsthand knowledge of the northern regions that are key to many issues addressed in this consultation, including the needs of the communities, community-based models for providing telecommunications, subsidy models, and practical issues that must be addressed in providing basic communications services including broadband in these regions. Further, they can explain the results of our ongoing research on these regions and answer any questions from the Commissioners concerning our submission. Some participants may wish to participate by telephone or videoconference.

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