FIRST MILE CONNECTIVITY CONSORTIUM

September 4, 2014

ONLINE SUBMISSION

Commissioner Candice J. Molnar
Satellite Inquiry Officer
Canadian Radio-television and Telecommunications Commission
Ottawa, ON K1A 0N2

RE: Telecom Notice of Consultation 2014-44 – Final Reply Comments

Dear Commissioner Molnar:

Below are our final reply comments to some of the issues raised by Interrogatories in the Satellite Inquiry, submitted by Professor Heather E. Hudson and Dr. Rob McMahon on behalf of the First Mile Connectivity Consortium.

Yours sincerely,

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General Comments:

1. The First Mile Connectivity Consortium (FMCC) is an independent not-for-profit national association. Our members are First Nation and Inuit broadband service providers, and our associate members are university and private sector researchers and other interested parties. Our work focuses on innovative solutions to digital infrastructure and services with and in rural and remote communities.

2. We welcome the CRTC's decision to examine the satellite industry, which is particularly important for Canada's North and for Indigenous peoples living in remote and isolated communities. Below are our comments on some of the questions posed in the Second Round of Questions to the Interrogatories, and to the responses filed by some of the parties.

Comments on Section 1:

Response to Question 1.1 c : If you consider that the market is not sufficiently competitive, or that the current price ceiling is not appropriate, identify, with supporting rationale, any other regulatory measures that should be put in place by the Commission.

3. As discussed below, we believe that the market for FSS services in the Canadian North, including the northern parts of the provinces, is not competitive. Therefore, the CRTC should discontinue forbearance, and should regulate the rates of any FSS provider. The CRTC should also adopt performance benchmarks for quality of service and should closely monitor the provider's performance. The CRTC should adopt and enforce sanctions that could be applied for failure to meet these benchmarks.

Comments on Section 3:

Response to Question 3.2 a: Explain, with supporting rationale, whether the market for FSS is sufficiently competitive. Your response should consider the application of the criteria set out in Telecom Decision 94-19 (in particular, details of alternate sources of supply, evidence of rivalrous behaviour, and barriers to entry for satellite operators to enter the FSS market), and any other appropriate criteria.

4. We believe that the FSS market for the Canadian North, including the northern parts of the provinces, is not sufficiently competitive to justify regulatory forbearance.

5. We have reviewed the documentation provided by Telesat of other satellites that could potentially provide FSS services, and find that there are no realistic alternatives to cover the Canadian North, which includes not only Nunavut, but the other northern territories and the northern parts of several provinces. Telesat identifies 10 C-band satellites with "full/extensive coverage of the North."[1] Of these, most have weaker signals over the far North than Telesat provides (on Anik F2), and could therefore require larger and more expensive earth stations and/or provide poorer signal quality. One satellite was launched in 1996, and is near its projected end of life. No information is provided by Telesat about available C-band capacity on the satellites listed. Intelsat states that this information is confidential for its satellites in its abridged comments. It also refers to its satellites as providing "incidental coverage" of parts of Canada.[2] We reject Telesat's category B "extensive but less than full coverage" as not offering a competitive alternative for the North. The future Intelsat satellites listed under Telesat's category 1-C appear to have only weak global beams covering northern Canada.

6. Further, we note that evidence provided by other parties supports this view. Northwestel states that there are 38 additional communities in its territory that depend entirely on FSS for backhaul transport, and that Telesat is the only service provider offering C-band FSS backhaul transport as required for its core voice services.[3]

[1] Telesat. "Satellites with Northern Canada Coverage." Telecom Notice of Consultation 2014-44. 21 August, 2014.
[2] Intelsat. "Abridged Annex." Telecom Notice of Consultation 2014-44. 30 May, 2014.
[3] Northwestel. Re: Telecom Notice of Consultation CRTC 2014-44 (TNC 2014-44*) Review Matters Related to Transport Services Provided by Satellite*: Response to Requests for Information. Telecom Notice of Consultation 2014-44, 21 August, 2014.

7. MTS states that it wrote to thirteen satellite providers that are parties in this proceeding, and that it received only three responses. "From those responses, MTS could not conclude that it had a choice in meeting its current or potential need for FSS." [4] We note that MTS serves northern Manitoba, and that its conclusion is relevant for remote areas of other provinces.

8. We also concur with Ice Wireless's view that "fewer than four competitors in a geographic and product market results in a tight oligopoly market structure that enables abuses of market power to take place. In the absence of other sufficient competition, Telesat is in the position of exercising significant market power with respect to the provision of FSS."[5]

9. We also reject Telesat's argument that because it has succeeded in retaining a large proportion of Canadian FSS customers, it should not be regulated. As we and others have pointed out, there has been no realistic alternative to provide northern FSS services. Further, we reject Telesat's statement that it has provided "a very high quality of service."[6] Numerous interveners in the recent Northwestel proceeding (Telecom Notice of Consultation 2012-669) stated that in communities served by satellite, service quality was inadequate.[7] The CRTC responded to comments about Telesat's inadequate quality of service and high prices in the Northwestel proceeding by initiating this Satellite Inquiry.

Response to Question 3.2 b: Explain how your response to part (a) above would differ if the various FSS frequency bands (C, Ka, and Ku) were considered to be part of different product markets.

10. Our position would not change if the various frequency bands were considered to be different product markets. We have noted above that there is no realistic alternative to Telesat to provide FSS service in the Canadian North. We also noted in our previous submission that C-band is likely to remain necessary to provide FSS services in northern communities.[8] However, if the various frequencies were segregated, the market would be even more fragmented, with less likelihood of competition.

Response to Question 3.2 c: Explain, with supporting rationale why FSS should remain forborne from rate regulation (with respect to section 25 of the Telecommunications Act).

[4] MTS. INFORMATION REQUESTED BY CANADIAN RADIO-TELEVISION AND TELECOMMUNICATIONS COMMISSION (CRTC). Telecom Notice of Consultation 2014-44, 21 August, 2014.
[5] ICE Wireless. Response to Interrogatory. Telecom Notice of Consultation 2014-44, 21 August, 2014.
[6] Telesat. INFORMATION REQUESTED BY CANADIAN RADIO-TELEVISION AND TELECOMMUNICATIONS COMMISSION. Telecom Notice of Consultation 2014-44, 21 August, 2014.
[7] See filings and transcripts in CRTC Telecom Notice of Consultation 2012-669.
[8] First Mile Connectivity Consortium. Comments re Telecom Notice of Consultation 2014-44, July 7, 2014.

11. We note in response to question 3.1. above that the market for FSS in the Canadian North including the northern parts of the provinces, is not competitive. Therefore FSS should NOT remain forborne from rate regulation.

12. The Commission appears to be relying on Section 34(2) of the *Telecommunications Act*, which states, concerning forbearance: "Where the Commission finds as a question of fact that a telecommunications service or class of services provided by a Canadian carrier is or will be subject to competition sufficient to protect the interests of users, the Commission shall make a determination to refrain, to the extent that it considers appropriate, conditionally or unconditionally, from the exercise of any power or the performance of any duty under sections 24, 25, 27, 29 and 31 in relation to the service or class of services."[9]

13. We have pointed out above that we do not think FSS service for the Canadian North is competitive. However, we believe that the more relevant section of the Act is 34(1), which states, concerning forbearance: "The Commission may make a determination to refrain, in whole or in part and conditionally or unconditionally, from the exercise of any power or the performance of any duty under sections 24, 25, 27, 29 and 31 in relation to a telecommunications service or class of services provided by a Canadian carrier, where the Commission finds as a question of fact that to refrain would be consistent with the *Canadian telecommunications policy objectives."* [10](emphasis added)

14. As set out in section 7 of the *Telecommunications Act*, Canadian telecommunications policy objectives include:

    (*b*) to render *reliable and affordable* telecommunications services of *high quality* accessible to Canadians in both urban and *rural areas* in all regions of Canada;

    (h) to respond to *the economic and social requirements of users* of telecommunications services.[11] (emphasis added)

15. First Mile and several other parties in this inquiry and in the Northwestel proceeding (CRTC Telecom Notice of Consultation 2012-669) have stated that satellite-based services in the North were *neither reliable* nor *affordable*. There was ample evidence cited that satellite services were often not of *high quality*. We note that these criteria are to apply to both urban and *rural areas*. The northern territories and the northern parts of the provinces are all considered rural.

16. Several parties in the Northwestel proceeding also testified about importance of reliable and affordable communications services with sufficient bandwidth, and the deficiencies of current satellite-based services to meet *economic and social requirements of users* in the North, such as for health care, education, governance, management of businesses and nonprofit organizations, personal communications, and other uses.

17. We therefore conclude that the CRTC must NOT forbear from regulating FSS in the North, including the northern parts of the provinces.

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[9] *Telecommunications Act* (S.C. 1993, c. 38), section 34(2).
[10] *Telecommunications Act* (S.C. 1993, c. 38), section 34(1).
[11] *Telecommunications Act* (S.C. 1993, c. 38), section 7.

Response to Question 4.1: In its submissions dated 7 July 2014 (pages 2, 13, and 17), the SSi Group of Companies (SSi) proposed that the Commission implement a "Utility Backbone Model", which would offer wholesale customers in the North open access to backbone connectivity services at regulated, cost-based, rates.

a) Comment on whether SSi's proposed model would improve the delivery of transport capacity to satellite-dependent communities.

b) Explain to what extent SSi's proposed model could affect the efficient use of FSS capacity and ground station infrastructure.

c) Explain whether a utility backbone model facilitates a least-cost satellite transport network.

d) In terms of satellite transport, are there other opportunities for the Commission to enable more efficient delivery of telecommunications services to satellite-dependent communities?

18. We agree that a Utility Backbone Model that offers wholesale customers in the North open access to backbone connectivity services at regulated, cost-based, rates is an interesting and potentially useful solution to the challenge of providing satellite-based transport infrastructure. We contend that this system must be owned and managed by a nonprofit entity responsible to the communities that it serves. We identify some key principles that the Commission should consider:

- **Open access:** A publicly-funded Utility Backbone Model must remain open in perpetuity to local service providers, including Indigenous service providers.
- **Tariffed rates:** Rates to access a publicly-funded Utility Backbone Model must be equitable across service areas, regardless of location or population size.
- **Community-Owned and Managed Not-for-for profit Enterprise:** The Northern Indigenous Community Satellite Network (NICSN) is a working example of such an enterprise which ensures that community needs are effectively and appropriately addressed by supporting local capacity and ownership of the network.
- **A Utility Backbone Model must be accompanied with funding opportunities that enable local organizations to build infrastructure and provide services**: Subsidies, such as those made available through the National Contribution Fund, should be made available to Indigenous service providers on an equitable basis, in order to support the provision of local access, infrastructure and services made possible through open access transport infrastructure.

19. We also note our concerns regarding the Utility Backbone Model proposed by SSi Micro. Such an approach suggests that a private-sector provider will receive public dollars to build and deliver backbone infrastructure and services to wholesale customers. However, once this (publicly funded) infrastructure is in place, the private-sector entity can then charge high monopoly rates to its wholesale customers to manage bandwidth and associated services. Our concern is based on evidence of a similar model deployed in Northern Ontario. In that case, a public-private partnership between the federal government and Bell Aliant resulted in the carrier receiving millions of dollars in public funding to build a fibre backbone in Northern Ontario. Once this transport infrastructure was completed – and

subsequently came under that ownership and management of the carrier – the community networks that connect to it have found that the rates they are charged are so high that they can only afford enough bandwidth to deliver minimal service even though the infrastructure can support more bandwidth.

20. We direct the Commission to an alternative Utility Backbone Model supplied by the Northern Indigenous Community Satellite Network (NICSN). NICSN's cooperative approach to the ownership and administration of their network enables communities and their regional partner organizations to retain a greater degree of control of the development and use of transport infrastructure and associated services. In this model, government funds the space segment component of the transport network through one-time capital costs, and ground infrastructure as needed. In NICSN's case, this funding enabled the cooperative to purchase a number of C-Band satellite transponders over the life of a satellite. Space segment is then managed by the three regional NICSN partners on a not-for-profit basis, as directed by their membership of communities. Communities purchase bandwidth from the cooperative at set monthly rates, regardless of location. Revenues support the administration of the NISCN network, the hiring of local technicians, local operation and maintenance of the community network, and other activities associated with the cooperative. This model enables member communities and their regional partners to retain ownership of infrastructure, manage services themselves, and generate local jobs through establishing network technicians and local ISPs. As a non-profit cooperative, NICSN also lacks the financial pressures to remit surplus to shareholders, instead re-investing any excess revenues back into the cooperative to improve service.

21. We concur with Kativik Regional Government's comments in the NICSN filing of August 21, 2014: "In general, the KRG is in favour of the open access model for transport. However, the KRG also strongly favours models that promote aboriginal ownership and control. The two are not mutually exclusive and the Eeyou Communication Network is an example of an aboriginally owned open access transport network. It will be essential that if an entity, private or public, is established essentially as a regulated monopoly controlling transport network infrastructure in aboriginal communities, that this entity be accountable directly to the communities it serves."[12]

22. We also agree with the KRG's concerns that the reverse auction model may lead bidders to sacrifice quality and reliability to win subsidies. We note that the U.S. Federal Communications Commission has used reverse auctions to determine minimum subsidies for rural mobile broadband (3G and 4G) and for the Tribal Mobility Fund in regions including Alaska. However, there was only one bidder for each of the locations in rural Alaska, and therefore no actual competition to provide the service.[13] [14]

[12] NICSN. Re: Second request for information from the Northern Indigenous Community Satellite Network partnership pursuant to Telecom Notice of Consultation CRTC 2014-44, reference 8663-C12-201401041. 21 August, 2014.

[13] Federal Communications Commission. " Auction 901. Mobility Fund Phase I." October 2012. Available at http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=901.

[14] Federal Communications Commission. "Auction 902. Tribal Mobility Fund Phase I." March 2014. Available at http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=902.

23. We agree with NICSN that other factors besides minimum capital costs or rates must be taken into consideration in determining alternative mechanisms for offering FSS services.

Comments on Section 5:

Response to Question 5.3: Refer to Appendix B of the Inquiry Officer's letter dated 2 June 2014, which lists communities that are believed to receive telecommunications services (e.g. voice, wireless, Internet) by way of FSS. In those communities where you use satellite transport services and where providers of telecommunications services (residential or business) also use satellite transport in the provision services to the public, comment on the possibility of sharing or jointly using those satellite transport services in an effort to increase efficiencies, increase bandwidth (i.e. speed) and/or reduce costs for all parties involved. Your response should include a rationale as to why this could or could not be done (e.g. security concerns, technical challenges, access restrictions, space constraints, etc).

24. As noted in our initial submission, purchase of FSS capacity (space segment) managed by the NICSN cooperative has been a successful model that supports and addresses community connectivity requirements at affordable rates. As an alternative to the Backbone Utility Model, this approach treats transport networks as fixed infrastructure that enables communities to plan and operate their local 'first mile' networks in a sustainable manner that meets local and regional development objectives. It also provides a clear measure of accounting for governments, which supply only one-time capital costs to support the transport infrastructure over a period of time.

Comments on Section 6:

Response to Question 6.1: High throughput satellite (HTS) has been proposed as a solution to meet the requirements of remote Canadian communities. Some satellite operators (Thaicom/ipstar and Avanti) have also deployed wholesale HTS service in their service area.

b) Explain whether HTS could be used as a transport solution to feed a terrestrial last-mile network instead of a direct-to-home model.

25. We believe that a direct-to-home model is very inefficient for northern communities. These communities are generally very compact, and can be served by first mile wireless or in some cases, DSL, cable or fibre connections. Also, as noted below, much greater time and expertise are required for individual direct-to-home installations.

26. We do not have sufficient information on any proposed HTS coverage and frequencies to comment on whether HTS could be a viable alternative for FSS service in the Canadian North.

Response to Question 6.5: A certified installer is required to install or repair satellite dishes for homes that subscribe to Xplornet's satellite solution. Explain how Xplornet intends to address the issues related to: scarcity of qualified personnel for installation and repair of equipment, the

high cost of travel for installers, and the high cost of transporting consumer equipment to remote communities.

27. As noted above, a direct-to-home model is very inefficient for isolated northern communities. We therefore disagree with Xplornet that "direct-to-home satellite is more efficient than FSS transport technology." This is not true **for the remote North**. Xplornet states: "Direct-to-home satellite only has the cost of the satellite network" [15] and not the ground distribution system. However, the cost includes the individual satellite terminals for each household. In some rural areas in southern Canada, houses are far apart, and the cost of links to a shared headend could be prohibitive. In the remote North, communities are compact, and can be served by local first mile wireless or in some cases, DSL, cable or fibre networks. In addition, direct-to-home satellite terminals require much more time and skill for installation than that needed to connect customers to a local first mile network. As an example, we wish to point out that it took an Xplornet contract technician four hours to install a single direct-to-home Internet satellite antenna at a rural location in Ontario.[16]

Additional Comments:

28. During our preparation for this intervention, we contacted two other groups representing Indigenous constituents: Nunavut Broadband Development Corporation and IsumaTV. We did this to harmonize our interventions, and as a result note the following points:

    a) Nunavut Broadband Development Corporation supports the Utility Backbone Model to stimulate competition, investment and innovation in the first/last mile. However, they agree with our points (stated in paragraph 18) that the ideal model would be a locally owned, not-for-profit enterprise. They also recognize that current last mileinfrastructure will be a limiting factor in terms of capacity.

    b) IsumaTV provides a clear example of a creative last/first mile approach to delivering local connectivity (in their case broadcast and interactive media). Their model illustrates First Mile innovation with a satellite network. We also note that IsumaTV agreed to revise their position on treating communities north of the 60th parallel as a separate market, given the similar challenges (small, isolated communities without road access) faced by satellite-served First Nations and other communities located south of the 60th parallel.

29. We thank the Commission for the opportunity to participate in these hearings, and would be pleased to provide additional information on the topics addressed above.

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[15] Xplornet. Response to First Round Interrogatories, 7 July, 2014.
[16] We have firsthand knowledge of this installation.