

In the Matter of

Petition to the Governor in Council to Vary

Telecom Regulatory Policy CRTC 2018-377
Development of the Commission's Broadband Fund

Pursuant to Section 12 (1) of the Telecommunications Act

Petition

of

SouthWestern Integrated Fibre Technology Inc. (SWIFT)

19 December 2018

Petition to Governor in Council
Southwestern Integrated Fibre Technology Inc. (SWIFT)
Re: Telecom Regulatory Policy CRTC 2018-377

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Executive summary

In 2016, the Canadian Radio-television and Telecommunications Commission (CRTC) reclassified “high-speed” Internet access as a “basic service” under the *Telecommunications Act* (CRTC 2016-496). The Commission further recognized that private sector incentives are not always sufficient to provide reliable and affordable Internet connectivity of sufficient quality/speeds in rural areas. The Commission therefore determined that it will establish a funding mechanism to complement other public sector initiatives aiming to promote private sector incentives to invest in broadband infrastructure in underserved rural areas and remote communities.

In the CRTC 2018-377 decision issued on September 27, 2018, the Commission has taken a few steps back from its own commitments in the 2016-496 “basic service” decision. In a sharp departure from the more flexible and balanced approach in the 2016-496 decision, the Commission’s approach will make it impractical (if not impossible) for municipal, provincial, and regional initiatives to qualify and access the Commission’s universal service funding mechanism. While restricting access of public sector entities and intermediary organizations, the Commission has also relaxed the standards of eligibility for private sector service providers.

The Commission’s latest decision very much resembles program design strategies of the past that bypassed community engagement in project development, lacked transparency at the assessment stage, and failed to effectively commit subsidy recipients to deliver some minimum level of performance. Repeating mistakes of the past and expecting different results is inconsistent with basic principles of evidence-based decision making. The Commission’s approach jeopardizes the equity and efficiency policy objectives the Parliament has mandated the Commission to pursue under Section 7 of the *Telecommunications Act*.

This Petition is asking the Governor in Council to vary the 2018-377 decision by aligning some of its key elements with the objectives of the *Act*, as well as the Commission’s strategic vision, universal service objectives, and preliminary determinations in the 2016-496 “basic service” decision. In particular, SWIFT is asking the Government to vary the Commission’s decision by:

- Removing restrictions on eligibility of municipal governments and community-based intermediary organizations to apply for accessing the fund by restoring the more flexible approach the Commission had specified in the 2016-496 decision.
- Enhancing the Commission’s commitment to the application of minimum service quality standards.

- Empowering underserved communities and promoting public-private cooperation needed to counteract Canada's growing rural-urban digital divide in Internet access quality and affordability.
- Enhancing the accountability of subsidy recipients for actual speeds/quality of broadband services they ultimately deliver.
- Enhancing the transparency of the Commission's funding decisions by publishing submitted applications.

I. Introduction and overview

1. This Petition is made by SouthWestern Integrated Fibre Technology Inc. (SWIFT) to vary Telecom Regulatory Policy CRTC 2018-377, on the *Development of the Commission's Broadband Fund* (TRP CRTC 2018-377) dated 27 September 2018.
2. **Motivation:** Access to reliable and affordable high-speed/broadband Internet connectivity has become essential to social and economic participation of individuals, competitiveness of businesses, and effective delivery of other essential public services such as education and healthcare. This is particularly the case in rural and remote communities where access to high-quality Internet service is critical for students to study, businesses to increase productivity, consumers to access the goods and services, older people to live independently, and the public sector to deliver other public services in an effective manner in underserved communities.
3. **Who we represent:** SouthWestern Integrated Fibre Technology Inc. (SWIFT) is an initiative by the Western Ontario Warden's Caucus (WOWC) and other communities in Southwestern Ontario and Niagara Region (the "Region") to promote the development of ultra-high capacity fibre-optic connectivity throughout the Region.¹ A list of SWIFT members is provided in the Appendix to this Petition. SWIFT is a non-profit entity that operates under the strategic direction of a Board of Directors consisting of elected municipal officials and other community leaders from across the Region.
4. **Regulatory background:** In 2016 the Canadian Radio-television and Telecommunications Commission (CRTC) finally recognized this economic reality and reclassified "high-speed" Internet access as a "basic service" that should be universally available in both urban and rural parts of Canada under the *Telecommunications Act* (CRTC 2016-496). The Commission further recognized that private sector incentives are not always sufficient to provide reliable and affordable Internet connectivity of sufficient quality/speeds, particularly in rural areas and remote communities. The Commission therefore determined that it was time for it to start developing a national universal service funding mechanism that will complement other public sector funding initiatives trying to promote adoption of scalable broadband technologies required to counteract Canada's growing rural-urban digital divide in broadband service quality and affordability.

¹ For further details see: <http://swiftnetwork.ca/> and www.wowc.ca ; The expected date by which SWIFT will be able to achieve our objective will depend on various factors, including additional public and private capital expenditure commitments to our Region. While SWIFT has already secured and will be allocating around \$200 million to accelerate private investment in South Western Ontario's broadband infrastructure, our estimates based on previous fiber deployment initiatives suggest replacing legacy copper plants with next generation fiber networks in our Region will require at least \$2.7 billion in fixed network capital expenditures. Addressing mobile coverage and capacity gaps will require additional public investments in parts of our Region where private sector incentives to invest in closing these gaps has proven to be limited.

5. **Nature of the policy problem:** The business case to invest in sufficient capacity enhancements and scalable technologies in many rural areas, smaller towns and hamlets, and even some older/lower income urban areas can be extremely weak (or non-existent). Without some form of public sector subsidies or other types of inducements, growing demand for data by consumers can result in systemic and persistently poor Internet service quality in areas prone to private sector underinvestment. Given that Internet connectivity is now essential for social and economic participation, innovation in business, and delivery of other public services (e.g. education, healthcare), the consequent digital divides in terms of Internet service quality and affordability have increasingly broad implications for the equality of opportunity in our information society.

6. **Scope of the problem:** According to information from SWIFT private sector partners serving communities in Southwestern Ontario, there are currently **230,000 premises** (households and businesses) in Southwestern Ontario that lack access to services that meet the universal service aspirational speed targets the CRTC adopted in the 2016-496 “basic service” decision (i.e. at least 50 Mbps download/10 Mbps upload). This translates to over **500,000 of the approximately 3.5 million** people that live and work in our Region. The visualization below provides an overview of areas in SWIFT member communities where broadband services packages with advertised speeds that meet the Commission’s 50/10 Mbps benchmark are currently available (within translucent blue lines), and where they are not. According to our estimates, the Commission’s approach to broadband mapping overestimates the extent of “served” areas and the proportion of underserved population in our Region significantly (by about 100,000 premises/over 200,000 people). This suggests national data on the magnitude of gaps in rural connectivity gaps used by the CRTC (and ISED) substantially underestimate the number Canadians that live and work in areas with sub-standard “basic service” speeds.

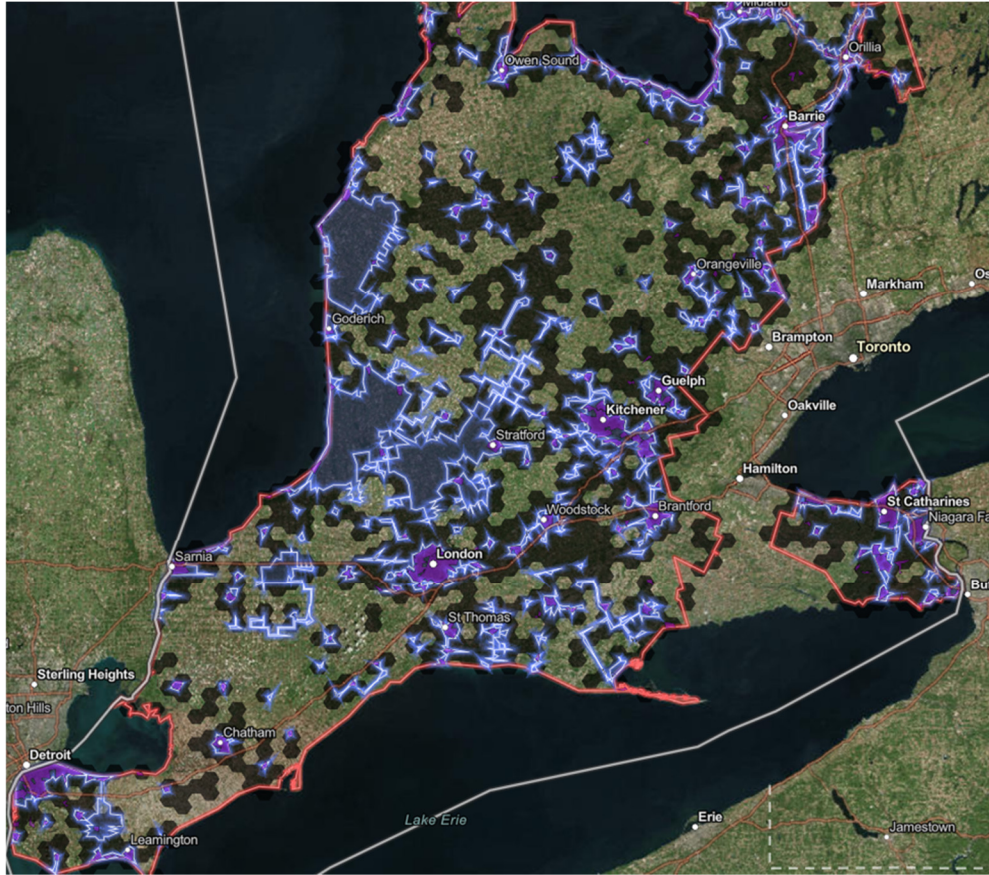


Exhibit: Availability of Basic Broadband Services in Southwestern Ontario

(Bright/translucent lines: Extent of areas where an Internet service provider offers service packages with speeds that meet or exceed CRTC's 50 Mbps download/10 Mbps upload "basic service" target; Purple: Population clusters; Dark hexagons: Areas considered served/ineligible to apply to CRTC fund)

7. **Commission's policy choices:** In Telecom Regulatory Policy CRTC 2018-377, the Commission has made a number of policy choices relating to the implementation of its broadband fund that effectively negate key elements of the CRTC 2016-496 "basic service" policy framework it adopted just two years ago. In a sharp departure from the more flexible and balanced approach in the 2016-496 decision, the Commission's approach will make it impractical (if not impossible) for municipal, provincial, and regional initiatives to qualify and access the Commission's universal service funding mechanism. While restricting access of public sector entities and intermediary organizations, the Commission has also relaxed the standards of eligibility for potential private sector service providers compared to minimum standards for defining what constitutes a "basic service" that satisfies universal service objectives it adopted just two years ago (i.e. 50/10 Mbps link speed, minimum quality of service (QoS) standard in terms of latency, and availability of packages with unlimited data allowances).
8. **Relevance of original sins:** This combination of revisions to the 2016-496 policy framework at the implementation stage of the fund raises serious questions about its potential to evolve as a

universal service fund that is efficient and effective in complementing other public sector initiatives and promoting private sector investments needed to counteract Canada's growing rural-urban digital divide in broadband quality and affordability. On behalf of our stakeholders, SWIFT therefore urges the Government to carefully consider key institutional choices by the Commission about the development of its universal service fund addressed in this Petition, as well as potentially other elements of the CRTC 2018-377 decision we do not discuss here.²

9. **Disempowering communities:** Rather than empowering underserved communities the fund was established to benefit, the Commission's asymmetric approach puts municipalities and regional initiatives at a distinct disadvantage in accessing the fund. It also opens the door for private service providers to bypass effective community engagement and accountability, directly accessing subsidies from the Commission in a manner that circumvents integrated municipal and regional initiatives such as SWIFT. This increases the business risks facing public-private partnerships, exacerbating the already limited business case facing private sector providers to commit to investing in ultra-high capacity fibre and wireless technologies that are needed for ensuring that Canada's rural-urban digital divide does not widen further.³ Instead of complementing other public initiatives trying to promote private sector innovation and investment in our communities, the Commissions' approach to the design of its broadband fund has the potential to actually counteract efforts by lower levels of government and increase the risks facing public-private partnership such as SWIFT.

² e.g. the decision by the Commission in 2018-377 to reverse course on its preliminary view in the 2016-496 decision to establish an independent third-party administrator and/or taking advantage of expertise at ISED in the implementation of the CRTC Broadband Fund.

³ The requirement of consulting, or attempting to consult, per paragraph 223 of the 2018-377 decision is simply insufficient to incentivise private-public cooperation in the development of project proposals and empower underserved communities to hold suppliers receiving public subsidies accountable for the quality of services they ultimately deliver.

10. **Summary of requested variances:**

11. **In broad terms, this Petition is asking the Governor in Council to vary the 2018-377 decision by aligning it with the Commission’s strategic vision, universal service objectives, and preliminary determinations in the 2016-496 “basic service” decision.**

12. The next sections in this Petition provide a detailed analysis of our justifications for these requests, while the last section outlines specific changes to the decision we urge the Government to adopt in order to enhance the capacity of the Commission’s funding regime to complement other public sector initiatives trying to promote private sector incentive to invest in rural areas and remote communities prone to underinvestment and market failures. In particular, this Petition is asking for variances to the following elements of the CRTC 2018-377 decision:

13. **A) Restore the more flexible approach to defining eligible applicants:** In the 2016-496 decision, the Commission adopted a relatively flexible preliminary view of what type of entities should be eligible to apply to the fund:

“legal entities, incorporated in Canada, that already operate or intend to operate broadband infrastructure. These include private sector companies; provincial, territorial, regional, municipal, and First Nations entities; and non-profit organizations. Individuals and federal entities (including Crown corporations) are not eligible.”

14. However, in **paragraph 117 of the CRTC 2018-377** decision the Commission states that it:

“...considers it of fundamental importance that it retain the responsibility and discretion to ensure that funds for broadband service projects are distributed in an appropriate and fair manner, consistent with the telecommunications policy objectives in the Telecommunications Act, to ensure continuing access by Canadians to basic telecommunications services. The Commission therefore considers that providing funding to local governments or intermediary organizations and allowing them to decide how and where funds are to be distributed would not be an appropriate model for managing the Broadband Fund.”

15. To enable the Commission’s fund to function as a viable complement to municipal, regional, and provincial initiatives, SWIFT requests the Governor in Council to:

- **Delete paragraphs 117 and 119 in CRTC 2018-377.**
- **Restore the original language/insert preliminary views of the Commission per Appendix 1 to CRTC 2016-496.**

16. This variation would create a more flexible universal service fund that allows lower levels of government and intermediary organizations in rural areas and remote communities to access the emerging universal service fund and utilize it as a complement to other initiatives.

17. **B) Enhanced commitment to minimum “basic service” quality standards:** SWIFT is particularly surprised and concerned by the Commission’s decision to essentially forget about indicators of actual speeds, minimum quality of service standards and the availability of unlimited data offerings per the 2016 decision in identification of areas and projects that are eligible to apply. In its review of the ISED CTI program, the Auditor General also appears concerned about the lack of minimum standards of service.⁴ This policy choice has multifaceted implications in terms of equitable access to the fund by people in areas where headline speeds that meet the advertised speed targets are perceived to be adequate according to the industry/ISED data on advertised speeds, but actual bandwidth and service quality levels are sub-par due to capacity under provisioning leading to excessive oversubscription that tends to happen where the scope for market competition is relatively limited.

18. **B.1) Minimum standards and eligible areas:** To ensure all regions of Canada with inadequate basic service quality (i.e. actual speeds below the Commission’s 50/10 Mbps targets and round-trip connection delays higher than 50 ms latency standard) have equitable access to the Commission’s universal service fund, we urge the Governor in Council to vary the CRTC 2018-377 decision as follows:

- **Insert at the end of paragraph 83 that “Areas where there is evidence that actual speeds and quality of service (QoS) fall short of the Commission’s universal service objectives will be also eligible to provide evidence demonstrating their eligibility and apply for consideration.”**
- **Delete paragraph 96.**

19. **B.2) Efficient subsidization:** SWIFT recognizes that in some areas, particularly in the North, the 50/10 Mbps advertised bandwidth target or 50 millisecond latency standards may be hard to achieve in the short to medium term. However, this problem could have easily been resolved by the Commission by allowing applicants from Northern and very remote communities the opportunity to justify why they cannot meet the minimum standards supported with relevant evidence in order to demonstrate their eligibility. To filter out old technologies, reduce the scope for the Commission’s fund to promote inefficient investment, and incentivise innovation and

⁴ Recommendation/para 1.37. Independent Auditor’s Report. Office of the Auditor General of Canada. 2018 Fall Reports. Connectivity in Rural and Remote Communities. Available at: http://www.oag-bvg.gc.ca/internet/English/parl_oag_201811_01_e_43199.html#hd4a

investment in new technologies that fit the needs of rural communities, SWIFT requests the Governor in Council to vary the decision as follows:

- **At the end of paragraph 105, add eligibility condition as follows: “To be eligible for funding, proponents proposing projects that would build or upgrade access infrastructure must be willing to commit to offering basic services that meet the Commission’s minimum quality of service thresholds of 50 millisecond round-trip latency as measured per specifications in Telecom Decision 2018-241.**
- **Add an exemption where the 50 ms threshold may not be feasible. Insert: “Proponents proposing projects in areas where this minimum standard is not feasible can provide technical evidence that demonstrates achieving the relevant standard is not feasible in their applications and why their proposed solution is the best possible option.”**

20. **C) Enhanced public-private cooperation incentives and community empowerment:** Under the Commission’s approach, public sector applicants must commit to working with private sector subsidy recipients to be eligible to apply, but private sector applicants are not required to have a public sector partner to qualify. This asymmetry creates tangible business risks for municipal and regional projects such as SWIFT as it allows providers that may not have succeeded in competitive procurement processes to access federal subsidies and compete with private sector partners that have succeeded in our procurement processes.

21. SWIFT recognizes the financial constraints on small municipalities, but this concern could have easily been resolved by just requiring a nominal amount of public funding (i.e. versus more than a nominal amount). Such a solution would ensure private sector applicants have incentives to build cooperative arrangements with underserved communities, without excluding communities where public funds are in short supply from applying to the emerging universal service funding mechanism the CRTC is developing. This more balanced approach would be consistent with the new spirit of collaboration in addressing rural connectivity problems, empower underserved communities, and minimize the risks of situations where different levels of government are funding different providers in the same area. We therefore request the Government to vary the decision as follows:

- **Delete paragraph 139.**
- **Replace with: “Applicants will be required to secure a nominal level of financial support from a government entity to be eligible for funding”**

22. In order to address concerns about a lack of community engagement and cooperation, the Commission does adopt a relatively discretionary and non-binding consult or “attempt to consult”

requirement (paragraphs 216-224). However, this is insufficient and may in fact have the opposite effect of promoting local cooperation and cause unnecessary conflict if different service providers start approaching different “elected officials, community associations, or other representative bodies” for letters of support for their proposals. To remedy this critical error and impose an effective “**duty to consult**” instead, we request the Governor in Council to vary the decision with:

- **In paragraph 223, delete “attempt to consult”**
- **In paragraph 223 add third bullet point to indicate an applicant must “indicate whether the proposed project will affect any established or proposed publicly funded broadband project, and if so, provide proof of consultation and agreement with the proposed application from the relevant funding authority.”**

23. **D) Recipient accountability and enforcement:** In paragraph 308, the Commission has indicated that it will:

*“will impose certain conditions, pursuant to sections 24 and 24.1 of the Telecommunications Act, regarding the offering and provision of broadband services using facilities funded through the Broadband Fund” and that it “**may** require recipients to participate in a broadband performance measurement program to enable the Commission to monitor the quality of the broadband services being provided over the funded infrastructure.”*

24. To develop a more robust ex post monitoring regime and credible contractual remedies for non-performance needed to promote ex post investment incentives of subsidy recipients, SWIFT request the Government to vary the CRTC 2018-377 decision by:

- **Deleting “may” and insert “will” require performance monitoring in paragraph 308.**
- **Insert at the end of para 308: “In addition, the Commission will incorporate expected service performance standards in funding agreements.”**

25. **E) Confidentiality versus secrecy:** In paragraphs 407 and 408 of the 2018-377 decision, the Commission has adopted an approach to interpreting the role of confidentiality in its process which is highly dismissive of basic principles of consultative administrative norms, limits the scope for transparency and competitive bidding, will essentially make applications secret, therefore limiting the potential for any competing applications from the same area:

“Commission considers that the usefulness of public input at the application stage will be minimal and “the Commission determines that applicants will be permitted to file their applications confidentially, and that no public process will be initiated in respect of funding applications.”

26. This approach obviously contradicts basic principles of transparency in government and relying on competition and market forces to drive efficiencies. It also will make it impossible for municipal governments that have not been adequately consulted by the applicant to respond and competing private sector providers to make competing proposals until it is too late. In combination with the Commission’s decision to relax requirements on private sector applicants that would have promoted their cooperation with community as the fund is suppose to benefit, the secretive application process the Commission is developing in the name of confidentiality will further limit the capacity of the funding facility to complement other public sector initiatives trying to promote private sector investment in high-quality broadband networks our communities demand. The Commission’s top-down and secretive plan for what we hope becomes an effective universal service fund goes against the grain of basic principles in good governance. In this light, we request the Governor in Council to vary the decision such that it makes the process more visible to other public sector and private sector entities by:

- **Deleting paragraphs 407 and 408.**
- **Inserting that: “General information about applications under consideration, such as the identity of the applicant, the proposed area, and proposed speeds to be delivered, will be published on the Commission’s website in a timely manner to allow other provider or public sector applicants to challenge the application and/or submit competing proposals.”**

27. All these issues were extensively addressed by parties representing rural and remote communities that participated in the public consultations that led to the CRTC 2018-377 decision. The Commission has dismissed these perspectives. It is SWIFT’s position that the Commission should have known better and its failure to learn from the evidence on the record and experience with rural broadband program design is bordering on the irresponsible.

28. As detailed in this Petition, the Commission’s strategic redirection in the CRTC 2018-377 decision jeopardizes both equity and efficiency objectives the Parliament has mandated should be guiding Canadian telecommunications policy under Section 7 of the *Act* (in particular re equity: subsections (a) on “orderly development” and “enrich and **strengthen social and economic fabric** of Canada and **its regions**”; (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**”; and (h) “to **respond to** the economic and social requirements of **users**” ; re efficiency: subsections

(c) and (f) on enhancing “**efficiency** and competitiveness”, fostering “increased **reliance on market forces**”, and ensuring when required regulation is “**efficient and effective**”).⁵

29. Requested relief outlined above is necessary, but will only partially align the design of the CRTC new funding facility with the statutory objectives the Parliament has specified in the *Act* in recognition of potential market failures in the provision of basic communication services in rural areas and remote communities.

⁵ Emphasis added.

II. Background and motivation

30. **What is SWIFT:** SouthWestern Integrated Fibre Technology (SWIFT) Inc. is a partnership developed by the Western Ontario Warden’s Caucus (WOWC) and various other communities in Southwestern Ontario and Niagara Region (the Region) designed to ensure everybody in the Region has equitable access to high-quality and affordable broadband Internet connectivity by 2040.⁶ Thanks to funding from different levels of government, the objective of SWIFT’s long-term infrastructure development plan is to ensure everyone in Southwestern Ontario has equitable access to ultra-high capacity fibre-optic connectivity and advanced mobile services (i.e. 4G/LTE and emerging high-throughput/low range 5G technologies requiring “deep fibre”), regardless of the size of their community, their geographic location, their age, education, or where they work.⁷
31. SWIFT represents the combined connectivity interests of 15 rural upper and single tier municipalities in Southwestern Ontario. The SWIFT network also includes the City of Orillia, Town of Caledon, Region of Waterloo, the Region of Niagara, City of London and City of Windsor as municipal partners. Additionally, Grey Bruce Health Services, Georgian College, and the Stratford Economic Enterprise Development (SEED) Corporation are non-municipal members. First Nations supporters include:
- Beausoleil First Nation
 - Kettle and Stoney Point First Nation
 - Saugeen First Nation
 - Six Nations of the Grand River
 - Moravian of the Thames (Delaware Nation)
 - Caldwell First Nation
 - Chippewas of the Thames First Nation
 - Munsee Delaware Nation

⁶ For further details see: <http://swiftnetwork.ca/> and www.wowc.ca

⁷ For a discussion of the importance of deploying “deep fibre” in enabling 5G adoption in rural areas see Rajabiun, R. and Hambly, H. (2018) Rural Fibre and 5th Generation Wireless: Substitutes or Complements? Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Attachment 2 to this Petition. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-2-1.pdf>

A full list of current SWIFT members can be found in the Appendix to this Petition. SWIFT is a non-profit entity that operates under the strategic direction of a Board of Directors consisting of elected municipal officials and other community leaders from across the Region.

32. **Lessons of the past and community empowerment:** Communities in rural Ontario have significant experience with previous broadband funding initiatives by the federal and provincial governments. In our experience models that pit underserved communities against each other to compete for scarce funds from higher levels of government lead to the creation of inequities between rural communities. In order to avoid this inefficient competition and counteract these inequities, rural Ontarians have recognized that regional cooperation is necessary and developed organizations such as such as SWIFT and the Eastern Ontario Regional Network (EORN).
33. Previous rural subsidy programs have also generally bypassed community engagement in project development and failed to bind subsidy recipients to service level agreements (SLAs) that warranty they deliver some minimum speed/quality of service to their customers after receiving the public subsidies. Instead, previous programs allocated the public subsidies directly to service providers to make upgrades to legacy technologies that are expensive to scale to demand growth (or are unscalable). These upgrades helped improve headline speeds in some very high cost areas that were targeted, but have left many small towns, hamlets, households, and businesses behind with poor service quality. Lack of SLAs/minimum performance warranties has also meant that gains in headline speeds in many targeted communities were not sufficient to keep up with growing demand for network resources by users that access to improved connectivity enabled.
34. The Commission has abdicated its own minimum service quality standards as a basis for identifying eligible areas and project proposals, adopted a highly discretionary qualitative (i.e. “beauty contest”) assessment strategy, and does not plan to incorporate binding minimum performance standards/warranties in contracts with subsidy recipients. Without the variances requested in this Petition, there is little doubt the CRTC funding facility will be plagued by similar problems as ad-hoc subsidy programs of the past (e.g. the “deferral account” funds, Connecting Canadians). Not incorporating lessons of the past in the design of a new program that is supposed to start complementing other initiatives by lower levels of government trying to achieve the universal service objectives the Commission has specified is patently unreasonable and contrary to basic principles of evidence-based decision making.
35. **Efficient versus inefficient investment:** Rather than supporting private sector incentives to decommission old copper plants and promoting efficient investment in new high-capacity fibre and hybrid fibre/wireless technologies, these ad-hoc programs have actually ended up perpetuating the legacy technology trap many communities find themselves caught in today. Disappointed by the persistent gaps previous ad-hoc targeted initiatives left behind and perverse technological incentives they created for service providers, municipal and regionals stakeholders across all

regions of Ontario, as well as other parts of Canada, have increasingly recognized unless we overcome our collective action problems and develop a coordinated approach to enhance private sector incentives to invest in high capacity/low latency fibre transport and access infrastructure in our communities, it is not going to happen by itself.

36. Collective action and multilevel cooperation: SWIFT has emerged as an integrated regional strategy from more than a decade of collective action by rural and urban communities in Southwestern Ontario, extensive consultations with user groups and telecommunications service providers, and thanks to funding from all levels of government. Starting with growing concerns on the rural edges of the Region by family farmers in the mid 2000s about the limitations poor Internet connectivity places on their ability to innovate by adopting advanced agricultural technologies,⁸ other stakeholders in both rural and urban parts of the Region have increasingly highlighted challenges a lack of access to high-quality and affordable connectivity places on their capacity for social and economic participation, adoption of cloud-based applications and services, and competing with other regions of Canada and globally. In response, Regional stakeholders have prioritized future proofing the Region's broadband infrastructure and working with private sector partners to deploy advanced fibre transport and access facilities as an economic development priority and created SWIFT as a long-term infrastructure plan for achieving this objective over the next 20-25 years. Leveraging nearly \$300 million in initial capital expenditure commitments from all three levels of government and private sector partners, SWIFT aims to stimulate around \$1 billion in additional public and private investments into the Region's broadband infrastructure over the next 2 decades.

37. SWIFT design: As a long-term infrastructure development plan, SWIFT design can be decomposed in two stages. As a first step, we plan to roll out the backbone, middle-mile and last-mile elements of SWIFT over the next 3-5 years, which will be deployed and operated by private sector partners we are currently selecting via competitive procurement processes. SWIFT will retain a small proportion of revenues from traffic on the Regional network (~2-3%) for the Southwestern Ontario Broadband Development Fund (BDF) to cross-subsidize development of next generation fibre-to-the-premises (FTTP) and fixed mobile network assets in high-cost rural and remote communities prone to underinvestment and market failures. In this context, SWIFT can be seen as both an integrated Regional network improvement plan that aggregates demand for next generation broadband technologies and a dedicated financing vehicle for stimulating further investment required to ensure relatively high-cost/low-revenue parts of the Region do not fall further behind in terms of broadband quality and affordability.

⁸ Hambly, H., Fitzsimons, J. Pant, L. & Sykanda, P. (2007). Innovations in Farm Families and Rural Communities: Capacity Development for Broadband Use in Southern Ontario. University of Guelph. Attachment 3 to this Petition. Available at: http://swiftnetwork.ca/Rural_Broadband-final_paper.pdf

38. **Why this Petition:** SWIFT stakeholders recognize that even if we are successful at stimulating our target of \$1 billion in complementary public and private investment in our Region based on our current business plan, this is not going to be sufficient. SWIFT estimates that the long-term transition from copper and legacy wireless to ubiquitous fibre networks (i.e. “deep fibre”) needed to support quality of service on fixed access and emerging high-throughput wireless (i.e. 5G) will require at least three times this amount in the medium to long term.⁹ Equitable access to a universal service funding mechanism that complements our integrated regional approach therefore represents a priority for SWIFT stakeholders that motivated our participation in the CRTC 2017-112 proceeding, as well as this Petition. Rather than complementing our efforts, Commission’s approach can actually counteract other public sector initiatives and allow service providers to bypass our integrated regional plans.

39. **Policy choices we are challenging:** SWIFT detailed the potential risks associated with a funding regime that bypasses community engagement and accountability in our submissions to the original proceeding that led to the 2018-377 decision. The Commission appears to have recognized some of our concerns, noting that

“not requiring this collaboration would pose a significant risk to the continued success of certain broadband service projects.”¹⁰

In addition to making it rather impractical (if not impossible due to competitive bidding requirements on municipal and provincial procurement processes) for lower levels of government to access the funding facility and backing out of using its own minimum “basic service” standards, the Commission chose to ignore our calls for precaution and the importance of multilevel coordination in mitigating these risks. Instead, the Commission has off-loaded the business risks created by its approach to underserved communities the fund is supposed to benefit and other public sector initiatives the fund was established to complement. SWIFT is appealing to the Governor in Council to help correct these errors and to align the design of the Commission’s broadband fund with the statutory objectives under Section 7 of the *Act* the Parliament has specified in order to promote universal access to reliable and affordable basic communication services in rural regions of Canada.

40. **Relevance of requested variations:** SWIFT is not making this Petition lightly. As representatives of underserved communities that hope to benefit from the fund, we would like it be in operation and open for applications as soon as possible. However, this Petition details that in the 2018-377 the Commission has made a set of determinations that effectively undermine the vision that it

⁹ For a discussion of the importance of deploying “deep fibre” in enabling 5G adoption in rural areas see Rajabiun, R. and Hambly, H. (2018) Rural Fibre and 5th Generation Wireless: Substitutes or Complements? Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Attachment 2 to this Petition. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-2-1.pdf>

¹⁰ CRTC 2018-377. Para 135.

adopted in its 2016-496 decision, based primarily on well-known lessons from past rural broadband subsidy programs and recommendations from lower levels of government and parties representing rural communities from across Canada that participated in the proceeding that led to the 2016 “basic service” decision. This course reversal will limit equitable access to the fund and undermine its capacity to evolve as an efficient and effective universal service funding mechanism that complements efforts by lower levels of government to incentivise private sector infrastructure investments in rural areas that are not as profitable to serve as Canada’ urban centres.

41. SWIFT is appealing to the authority of the Governor in Council in this matter because we recognize regulatory agencies such as the CRTC have significant discretion over how they interpret their operative statutory mandates. In addition to the inconsistency with its own preliminary determinations in 2016 and the statutory objectives, it is relevant to note that the key elements of the approach the Commission has adopted and we are challenging in this Petition are broadly similar to issues raised by the Auditor General in its audit of ISED’s Connect to Innovate (CTI) broadband program, particularly with respect to the importance of having some minimum service quality standards and enabling local collaboration to develop larger projects that maximize the value of limited public funds in terms of improved broadband connectivity for a larger number of people within rural regions.¹¹ While our Petition is submitted in order to ensure the Commission does not undermine the economic interests of our stakeholders in Southwestern Ontario and complements our work, key determinations we challenge have broad implications for equality of opportunity and prospects for economic development through information and communication technology (ICT) intensification across all regions of Canada.

42. **Communication and collaboration:** The Commission’s decision to limit the ability of underserved communities to provide evidence such as speed/latency measurements to demonstrate their eligibility to apply and effective restrictions on lower levels of government to access its universal service funding facility goes against the grain of Canada’s cherished and effective tradition of cooperative federalism. The Commission’s approach further contradicts recent commitments of the federal government to adopt a more cooperative/collaborative approach to improving Internet connectivity:

“...we agree to build on existing collaboration and work together to enhance connectivity for all Canadians, along with private sector partners, municipalities, public institutions, Indigenous communities, and non-profit organizations to maximize the impact of our actions.”¹²

¹¹ Independent Auditor’s Report. Office of the Auditor General of Canada. 2018 Fall Reports. Connectivity in Rural and Remote Communities. Available at: http://www.oag-bvg.gc.ca/internet/English/parl_oag_201811_01_e_43199.html#hd4a

¹² ISED Press Release, 26 October 2016, quoting Minister Bains “<https://www.newswire.ca/news-releases/federal-provincial-territorial-ministers-agree-to-the-principles-of-a-canadian-broadband-strategy-that-will-improve-access-to-high-speed-internet-for-all-canadians-698727751.html>”

The Commission evidently has a distinctly different attitude towards working with lower levels of government and community-based and driven initiatives the fund was established to complement:

*“The Commission therefore considers that providing funding to local governments or intermediary organizations and allowing them to decide how and where funds are to be distributed would not be an appropriate model for managing the Broadband Fund.”*¹³

43. **SWIFT guiding principles:** Members of SWIFT have developed our regional partnership based on a set of core principles, which we believe are relevant to consider as the Cabinet contemplates why we are challenging key elements of the Commission’s determinations in this Petition:¹⁴

- Broad public-sector user participation: SWIFT has received broad public sector support from county level and municipal governments, post-secondary educational institutions, health care institutions, broadband networks, and other ‘MUSH’ sector organizations. The support of these users is critical, as these organizations are ‘anchor tenants’ to the system and create the underlying foundation that makes it feasible to extend service to private enterprises, small and medium sized business, farmers and residents;
- Ubiquity and equitability: the network will be physically accessible to everyone and everyone will face the same costs to provide applications and services over the system or use applications and services on the system, regardless of geographic point of ingress/egress;
- Neutrality and open access: there will be no barriers to entry for users and providers to access the network, levelling the playing field and ensuring that contractual mechanisms and oversight are in place to ensure the network is open and accessible to all;
- Competition and affordability: SWIFT will promote competition in services and applications by providing open access, flat-rates, high-availability, and a differentiated system that is affordable to users regardless of population density;
- High availability and scalability: SWIFT will be available at any moment in time, whenever users need it and it will scale to tens of millions of user connections and applications dynamically without requiring any additional capital outlays or causing system delays;

¹³ CRTC 2018-377. Para 117.

¹⁴ Intelligent Communities Forum Canada (ICF Canada) has adopted similar principles as SWIFT in it’s CRTC position paper, which argued for broadband to be considered a basic utility and made the case for widespread fibre diffusion as key to enabling Canada’s competitiveness in the digital economy. Available at: https://d3n8a8pro7vhmx.cloudfront.net/icf/pages/391/attachments/original/1482476784/Broadband_Utility_ICF_Canada_Position_Paper_FINAL.pdf?1482476784 ; also see: <https://icf-canada.com/blogpost-update-on-crtc/>

- Standards-based architecture: the system will interoperate with all other systems and will be easy to support;
- Sustainability: all users will pay fees to access the network, which will be published and publicly available to ensure transparency. These fees will provide the cash flow sustainability required to support ongoing operating and capital costs, and ensure that the network will not be dependent on taxpayer subsidies in the future.

44. These guiding principals have evolved from our recognition that if we don't solve our own broadband infrastructure development problems through collaboration and innovation, they are not going to solve themselves. As in many other regions of Canada, access to high-quality and affordable transport capacity that aggregates traffic from dispersed rural areas has proven to be a critical barrier to the ability of municipal entities and private sector providers to improve quality and affordability of services in areas where large incumbent telecommunications providers are not very interested in serving adequately (due to relatively high cost/low rate of return compared to urban centres). SWIFT is designed to reduce the costs facing all service providers by minimizing the potential for inefficient duplication in the provision of essential network facilities, specifically the high-capacity fibre facilities required to aggregated growing traffic from fixed and mobile access networks serving dispersed rural communities. We recognize that access to affordable fibre to the town/hamlet/"node" may not be sufficient to incentives private sector incentives to improve connectivity for everyone. It is critical for SWIFT stakeholder communities to have access to a sustainable and effective universal access fund that helps support fixed and mobile access network development as we operationalize the regional network with our private sector partners over the next years. The Commission's top-down approach to program design will make it challenging to integrate it as a complement to other public sector initiatives and will allow private sector subsidy recipients to circumvent effective engagement with and accountability to communities the fund was established to benefit.

45. **National policies and rural market failures:** Over the past two decades, the Commission has resisted a multitude of calls from rural communities to impose wholesale access obligations on fibre transport facilities that aggregate traffic from dispersed settlements and enable communities in areas where incumbent providers have limited incentives to invest (e.g. to attract private sector entrants satisfied with a lower rate of return than large incumbents and/or to deploy own cooperative and municipal networks). In various wholesale decisions over the past decade (the CRTC 2008-17 and again in the CRTC 2015-326), the Commission has failed to respond to these calls. This forbearance policy may be an efficient strategy in urban centres where it is economically profitable for multiple transport providers to deploy competing transport and middle mile networks. However, this is definitely not the case in remote, rural, or even suburban areas where building multiple facilities is either not feasible at all without public subsidies and/or leads to

inefficient duplication.¹⁵ The lack of wholesale access/essential facilities obligations on fibre transport facilities partly explains why SWIFT and other initiatives around the country have evolved to support private sector incentives to extend fibre transport and middle mile facilities that can be accessed by multiple parties to offer differentiated services to residential, business, and MUSH sector users in rural areas and remote communities. Requiring infrastructure providers to offer long term Irrevocable Rights of Use (IRU) agreements for access to excess “dark fibre” strands could help mitigate many of the broadband quality and affordability concerns in rural Canada, but does not appear to be a policy strategy the Commission is willing to adopt. In this context, the development of an efficient, effective, and sustainable cross-subsidy mechanism will be particularly important in counteracting market failures and promoting private sector broadband infrastructure investment incentives in rural areas and remote communities.

46. **Regulatory progress:** SWIFT stakeholders were nevertheless pleased to see that in CRTC 2016-496 the Commission recognized that broadband Internet access has in fact become an essential and “basic service” required for social and economic participation under the *Telecommunications Act* and determined that it its time for it to develop a funding mechanism that “will complement” other public sector initiatives and private sector investments in rural areas.¹⁶ We were also encouraged to see that the Commission determined that its aspirational speed targets (of 50 Mbps upload and 10 Mbps download) “are to be the actual speeds delivered, not merely those advertised”¹⁷ and established a process to specify minimum universal quality of service (QoS) standards - which the Commission has more recently defined in terms of a latency threshold of 50 milliseconds (CRTC 2018-241).¹⁸ The adoption of this minimum quality standard is particularly important for consumers in rural communities where the business case to invest in capacity enhancements and new low latency technologies tend to be relatively weak (or non-existent), network resources become increasingly oversubscribed as demand grows, and effective bandwidth available to users can diverge significantly from the maximum theoretical “best effort”/up to xMbps speeds suppliers advertise/specify in retail contracts.

47. **Regulatory regression:** In CRTC 2018-377 the Commission has reversed course and/or made inoperative a number of key determinations in the 2016 basic service decision. In broad terms, it has moved away key elements of the 2016 decision adopted based on the experience and recommendations from lower levels of government and parties representing underserved

¹⁵ See Rajabiun, R., & Middleton, C. A. (2013). Multilevel governance and broadband infrastructure development: Evidence from Canada. *Telecommunications Policy*, 37(9), 702-714. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596113000724>

¹⁶ CRTC 2016-496. Para 135. Stating that “*The Commission expects that governments will continue to fund, and will create new funding programs to support, broadband infrastructure projects in underserved areas. In addition, the private sector will continue to invest in expanding and upgrading its broadband networks, including in underserved areas, to meet the needs of Canadians. As such, the Commission’s broadband funding mechanism will be aligned with existing and future broadband investments and funding initiatives; it will complement and not replace them.*”

¹⁷ CRTC 2016-496. Para 81.

¹⁸ Telecom Decision CRTC 2018-241 – Re CISC Network Working Group – Non-consensus report on quality of service metrics to define high-quality fixed broadband Internet access service

communities, towards a more carrier friendly approach.¹⁹ To a large degree, the Commission's approach to the design of what we hope will be a sustainable universal service fund resembles previous ad-hoc rural broadband subsidy programs; enables private sector subsidy recipients to bypass community engagement and accountability, and lacks clear service performance expectations. This Petition is a narrow one, focusing only on key elements of the decision and requesting the Governor in Council to correct the Commission's errors by restoring its more balanced original determinations in the 2016 decision and require the Commission to effectively apply its minimum service quality standards.

48. **Objectives and scope:** The requested changes to the Commission's decision are intended to empower communities with sub-par Internet connectivity and foster enhanced reliance on "market forces" to incentivise investment in scalable fixed and mobile technologies that are needed to ensure rural Canada does not fall further behind. However, it is important to note that we are only focusing on some of the more fundamental policy errors the Commission has made in this decision. Relief we are requesting is necessary, but will only partially align the design of the CRTC funding facility with the needs of communities it was established to benefit back in 2016. SWIFT does not address elements of the Commission's decision relating to governance and assessment of the fund in this Petition.

¹⁹ For an analysis of positions of the parties in the development of the basic service regime, see Rajabiun, R. (2017). The Rise of Broadband as an Essential Utility and Emergent Concepts in Universal Access in Advanced Economies: Perspectives from Canada. 28th European Regional Conference of the International Telecommunications Society (ITS): "Competition and Regulation in the Information Age", Passau, Germany. Available at: <https://www.econstor.eu/bitstream/10419/169494/1/Rajabiun.pdf>

III. Broadband divergence in Southwestern Ontario

49. **Collaboration and evidence-based decision making:** Collection and dissemination of indicators that offer a realistic picture of the “availability” of access to high speed connectivity represents a critical input into research and development of effective public policies and private sector strategies required to counteract growing inequalities in the quality of broadband infrastructure in both rural and urban communities. While broadband quality and affordability problems are more pronounced in rural Canada, they are also a pervasive problem in many urban communities and small towns. Unfortunately, the traditional manner in which federal agencies have been measuring “availability” both underestimates the magnitude of broadband capacity gaps in rural communities and totally obfuscates them in urban and suburban ones. This is because indicators of availability ISED has put together with provider data from the CRTC, and CRTC plans to use exclusively to identify eligible underserved communities, capture only maximum speeds sellers advertise in particular areas, which is not a good proxy for effective service quality levels they deliver/buyers receive in return for their subscription fees. In order to develop a more balanced picture that incorporates information from both suppliers and consumers, SWIFT has collaborated extensively with user groups (e.g. residents, businesses, farms, MUSH sector, etc.) and providers that serve Southwestern Ontario to develop a “big and better” data approach to evaluating the state of the network and gaps within our Region.
50. **Economics:** “Availability” of shared network capacity is the outcome of dynamic interaction between supply and demand in local and regional markets. A community that might be considered “served” today may become “underserved” tomorrow if growth in user demand for network resources is higher than the rate by which the infrastructure provider is willing to provision additional capacity overtime. The ISED/CRTC approach to measuring availability based on maximum advertised “best effort” rates that is available in a particular area is not capable of accounting for economic dynamics that shape broadband “availability” users experience in mature markets such as Canada where access to some form of “high-speed” connectivity is near ubiquitous.
51. As network coverage issues have been increasingly solved through public subsidies and private investments over the past two decades, quality and affordability of services have evolved as key factors that determine the “availability” of consumers’ access to content and applications that meet their heterogeneous needs. Developing a more economic approach to conceptualizing “availability” and collecting data that is more reflective of the user experience can significantly enhance the value of the national broadband map as a tool for infrastructure capacity gap identification and investment prioritization for all levels of governments, as well as potential private investors/service providers willing to invest in advanced broadband technologies (e.g. fiber-to-the-premises (FTTP), high throughput 4G+/5G wireless) in underserved communities. Construction of more realistic “availability” metrics by federal agencies can provide significant

leverage to municipal and provincial governments trying to convince private sector providers to invest in broadband networks our communities demand. Rather than contributing to the development of a more robust empirical basis for policy development, the Commission instead plans to rely on industry/ISED maps well-known for underestimating gaps in rural communities prone to underinvestment/oversubscription. As our colleagues from Eastern Ontario Wardens' Caucus/Eastern Ontario Regional Network (EORN) put it in the original proceeding:

“Measuring the criteria for eligibility has often, in past programs, been limited to a provider self reporting on their coverage and speeds available. Our experience over the past seven years enforcing contracts with SLA’s has demonstrated that the coverage and capacity projections from ISP’s are overly optimistic - especially in the fringe of coverage areas, or in geographically challenged areas, and especially when dealing with large scale projects. Any application process must allow the applicant the ability to prove that presupposed covered areas are not actually covered.”²⁰

52. In the 2016-496 the decision the Commission actually recognized this problem, stating that its aspirational speed targets of 50/10 Mbps

“are to be the actual speeds delivered, not merely those advertised. That stated, the Commission recognizes that the broadband Internet access service speeds actually experienced by users are affected by a wide range of factors, some of which are outside the control of the network provider.”²¹

53. In addition to halving its bandwidth target and dropping both minimum quality of service and availability of unlimited service packages criteria for eligibility, in the 2018-377 decision the Commission has decided to rely exclusively on industry/ISED data at the exclusion of all other evidence that might reflect actual service levels users in particular areas experience. This decision by the Commission to close communication channels with users that live and work in communities the fund is suppose to benefit before making them ineligible to make an application represents an egregious error. Rather than empowering consumers in underserved communities and benefiting from their knowledge about the actual quality of services they are receiving from suppliers, the one-sided approach of the industry/ISED/CRTC to broadband mapping contributes to creating the misleading impression that the situation is good enough in many areas, where in fact effective speeds/QoS levels people are experiencing may suggest otherwise.

54. To demonstrate why the Commission’s earlier determinations were welcomed by SWIFT stakeholders and why we are making this Petition asking the Governor in Council to ensure the CRTC remains committed to them, Figure 1 provides a high-level overview of average and

²⁰ Pages 13-14. EOWC/EORN First submission to CRTC 2017-112.

²¹ Para 81 CRTC 2016-496.

maximum measured download speeds across 167 upper and lower tier municipal entities and First Nations communities in Southwestern Ontario. Maximum connection speeds detected in the majority of communities in our Region tend to exceed CRTC’s basic service aspirational speed targets. However, average effective Internet connection speeds in most communities tend to fall well below these targets in both rural and urban parts of the Region. The magnitude of broadband infrastructure quality gaps within our Region is substantive, with users in leading communities experiencing effective connection speeds that are **3 to 5 times faster than in the lagging cluster**. In a large number of communities across the Region, average effective bandwidth available for users to access content and applications from the open Internet **remains below 10Mbps**.²² In some places, actual speeds remain **below the 5 Mbps** aspirational target the Commission adopted back in 2011.

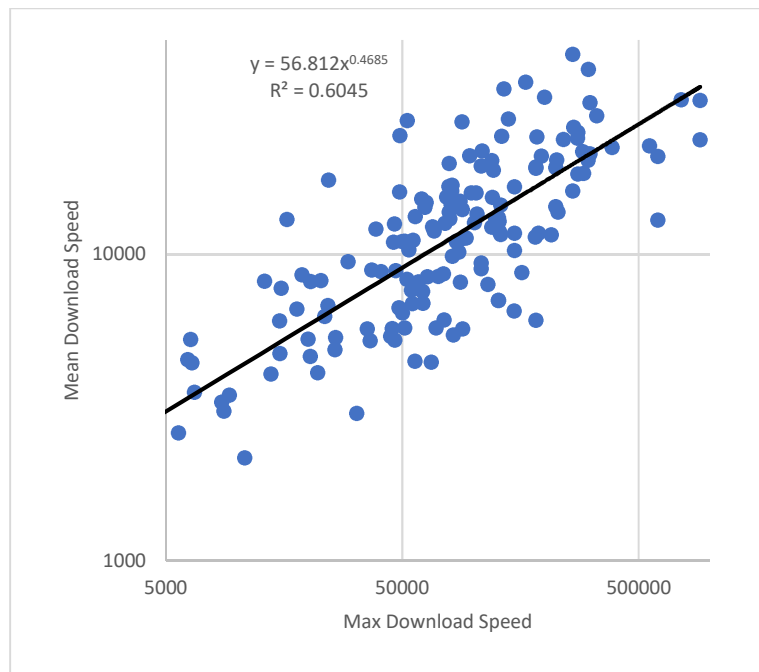


Figure 1. Measured Download Speed in Southwestern Ontario Municipalities (2017)

(in kbps, logs; n = 52,000; Source: CIRA/M-Lab/Google NDT/R2B2. See Attachment 1 to this Petition for details)

55. Figures 2 and 3 provide an overview of the geographic distribution of effective average download and upload speeds as measured by user-initiated tests from Southwestern Ontario to third party

²² i.e. “Off-net” third party test servers located on the “edge of the cloud” in Toronto operated by the Canadian Internet Registration Authority (CIRA). For details of the methodology and analysis underlying the figure see Rajabiun, R. and Hambly, H. (2018). Benchmarking Internet Access Infrastructure Quality Gaps in Southwestern Ontario (2017), Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Attachment 1 to this Petition. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-1-1.pdf>

servicers on the “edge of the cloud” in a nearby city:²³ Outside of areas with access to upgraded cable networks and where some (smaller) incumbent telecom providers have deployed fibre in their traditional territories, average effective bandwidth that is available to users tends to be below the 10 Mbps level. Although long loop DSL and some fixed wireless providers may advertise they offer services that can theoretically meet the Commission’s speed standard for eligibility, actual speeds they deliver tend to be far short of that.

56. Rather than using actual speeds or quality of service indicators such as latency, in 2018-377 the Commission has determined that it will rely exclusively on indicators of maximum “best effort”/up to xMbps advertised speeds that might be available in a particular area (i.e. ISED’s hexagons) to identify those that might be eligible to apply to the fund. This will lead to excluding many rural and remote areas where services with adequate advertised speeds may be on offer, but effective speeds/service quality levels people experience is very poor due to capacity underinvestment/oversubscription. The Commission’s blind trust in information from one side of the market (i.e. providers/seller) and dismissal of indicators that capture speed/service quality levels user/consumers experience raises serious concerns about credibility of the agency’s new commitment to improving connectivity in rural and remote communities.

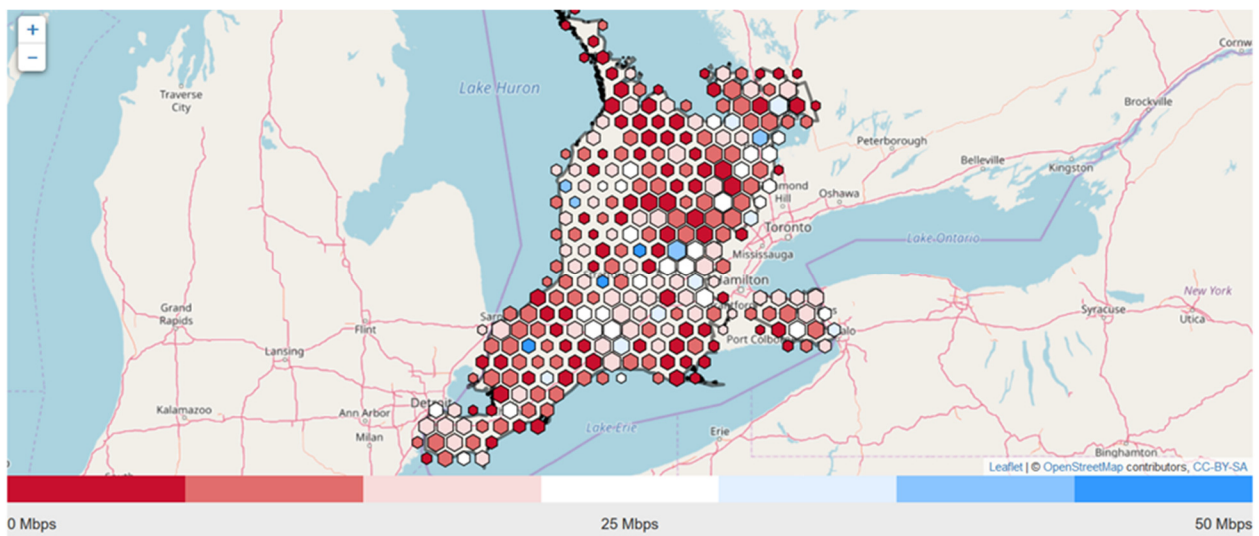


Figure 2: Average measured download speed in Southwestern Ontario. Source: CIRA/SWIFT IPT: n=60,200

²³ In this case CIRA test servers in Toronto running the standard-based M-Lab/Google NDT test.

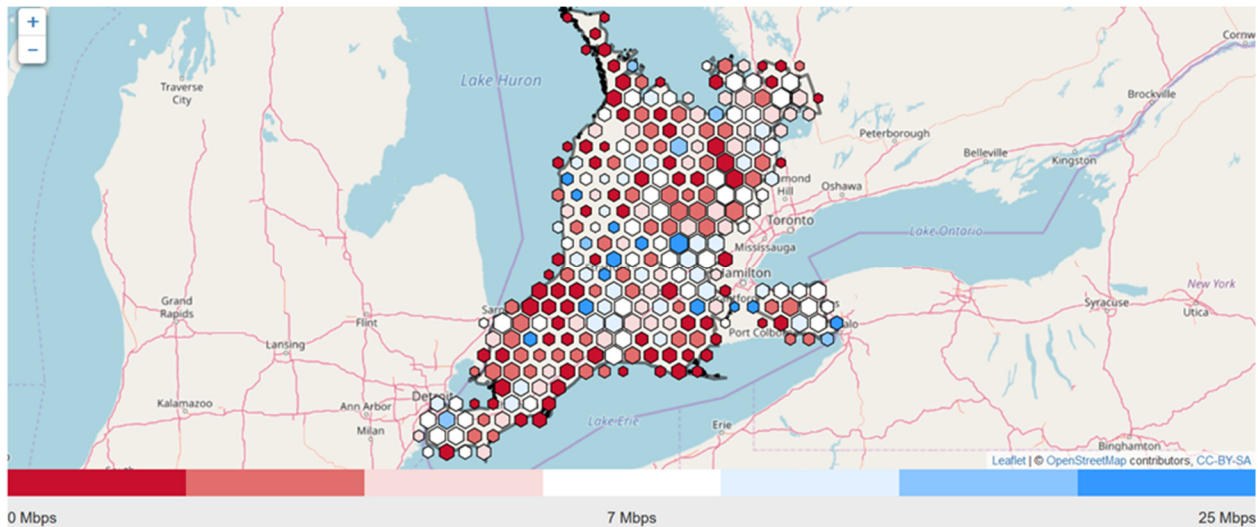


Figure 3: Average measured download speed in Southwestern Ontario. Source: CIRA/SWIFT IPT: n=60,200

57. **Available offers:** In addition to working with users to measure actual service quality levels they experience, SWIFT has collaborated extensively with telecommunications service providers to develop a detailed understanding of services offers at the level of individual premises (households, businesses) throughout Southwestern Ontario. According to supplier data on service offers, there are currently around **230,000 premises** where services packages that meet the Commission’s 50/10 Mbps aspirational speed target are not currently offered. This translates to over **500,000 out of the nearly 3.5 million** people that live and work in Southwestern Ontario lacking access to basic broadband services as defined by the Commission.
58. Geospatial analysis of gaps in broadband offers in our Region is particularly relevant for understanding the Auditor General’s strong critique of the Connect to Innovate (CTI) program, particularly with respect to its failure to maximize value for money through projects that covered a larger number of people. Both the CTI and the Commission’s proposed approach consider everybody in 25 kilometre squared hexagonal areas to be “served”, even when only one person in the area may have access to service offers advertising speeds at the relevant threshold (e.g. those near a fibre node, or clusters in relatively low-cost part of the hexagonal area). The assumption that these hexagons are covered leads to substantial underestimation of the magnitude and distribution of gaps relative to universal service objectives and helps create rose coloured headline statistics, such as the Commission’s claim that “*fixed broadband Internet access service that meets the download speed target of the universal service objective was available to 84% of Canadian households as of 31 December 2016.*”²⁴ Statistics like this can be misleading when the Commission is well-aware that the number is not realistic as it is based on advertised speeds that

²⁴ Para 6. CRTC 2018-377.

might be theoretically available to some users in a hexagon and that ISED's hexagonal approach exaggerates the geographic extent of areas considered covered/ineligible.

59. **Equity:** According to SWIFT's (rather conservative) estimates based on data from our service provider partners, in Southwestern Ontario there are around **100,000 out of the 230,000** premises without service offers that meet the Commission's 50/10 Mbps aspirational target are located in areas the Commission's approach defines as "served" and therefore ineligible. This proportion is substantive. Although the situation might be different in other regions of Canada due to local geographical, supply, and demand condition, scaling our estimates to the national level suggests that the Commission will be excluding nearly 1 million underserved premises, or between **2 to 3 million people**, that live and work in Canada's underserved communities from being eligible to apply for support to the fund (given that Southwestern Ontario has about a 10th of Canada's population and assuming there are about 2 to 3 people per household).
60. Figure 4 provides a high-level visual depiction of the manner in which CRTC's eligibility maps based on ISED's hexagonal data overestimate access coverage to service offers meeting the 50/10 Mbps basic service speed targets relative to the distribution of actual offers based on SWIFT's more fine-grained analysis of data from providers serving SWIFT member communities. The Commission's approach grossly underestimates the magnitude of Canada's rural-urban broadband divide.

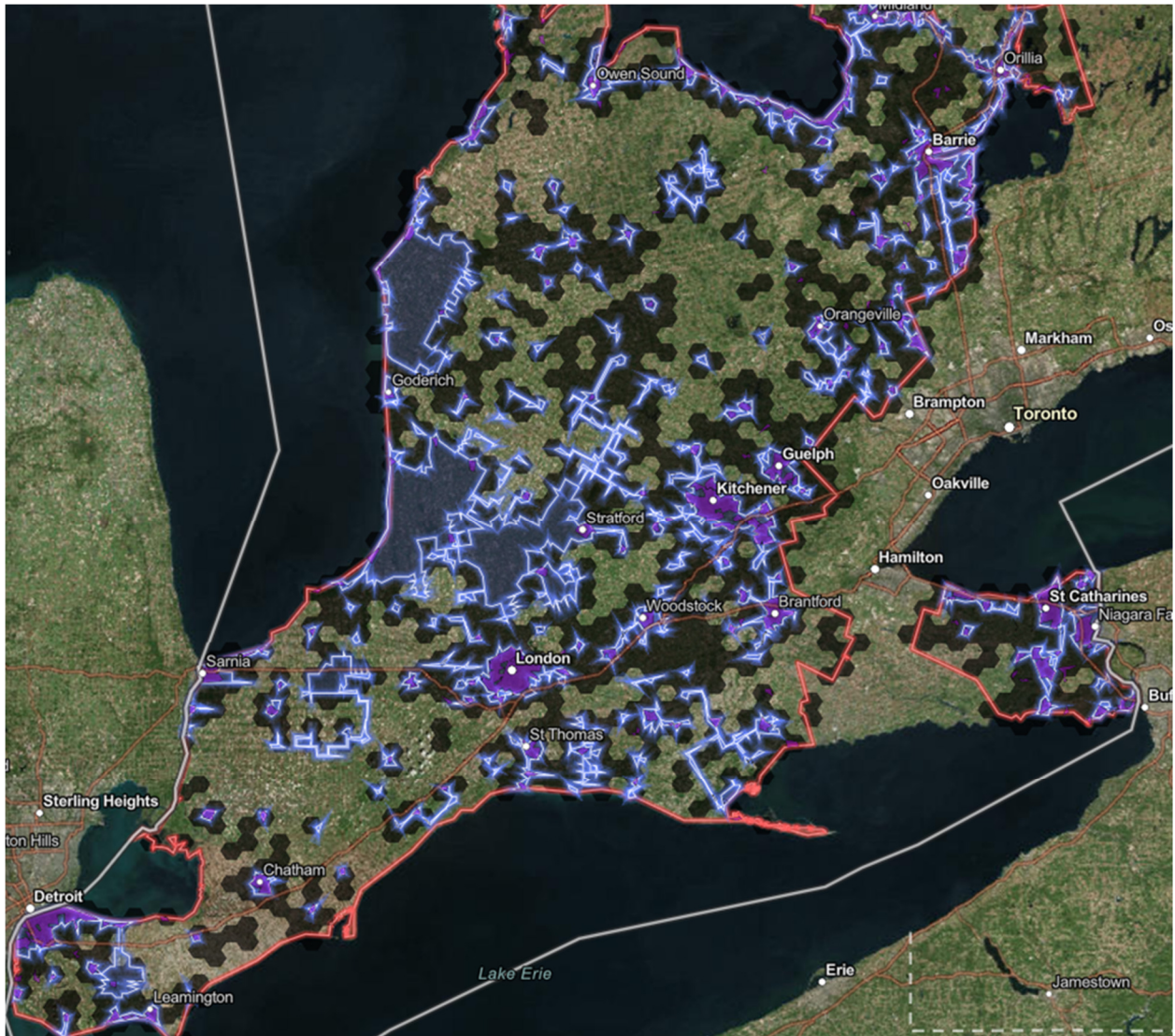


Figure 4. Availability of Basic Broadband Services in Southwestern Ontario

(Bright/translucent lines: Extent of areas where an Internet service provider offers service packages with speeds that meet or exceed CRTC's 50 Mbps download/10 Mbps upload "basic service" target; Purple: Population clusters; Dark hexagons: Areas considered served/ineligible to apply to CRTC fund)

61. Figure 5 provides a micro-level visual depiction of this problem in one partially serviced 25 square kilometer hexagonal area based on our mapping of available service provider offers that should demonstrate both equity and efficiency implications of considering areas that are not adequately served to the Commission's standards to be covered and therefore excluded from the scope of funding mechanism. Everybody in such hexagonal areas without access to service offers meeting the objective is excluded from the high-level national statistics of having "access" and will not be eligible to apply. The Commission justifies its decision to consider everybody in partially served hexagons on the grounds that "market forces" will somehow improve in the future and bring

improved connectivity to users in areas it assumes are covered and excludes from being eligible to even apply.²⁵

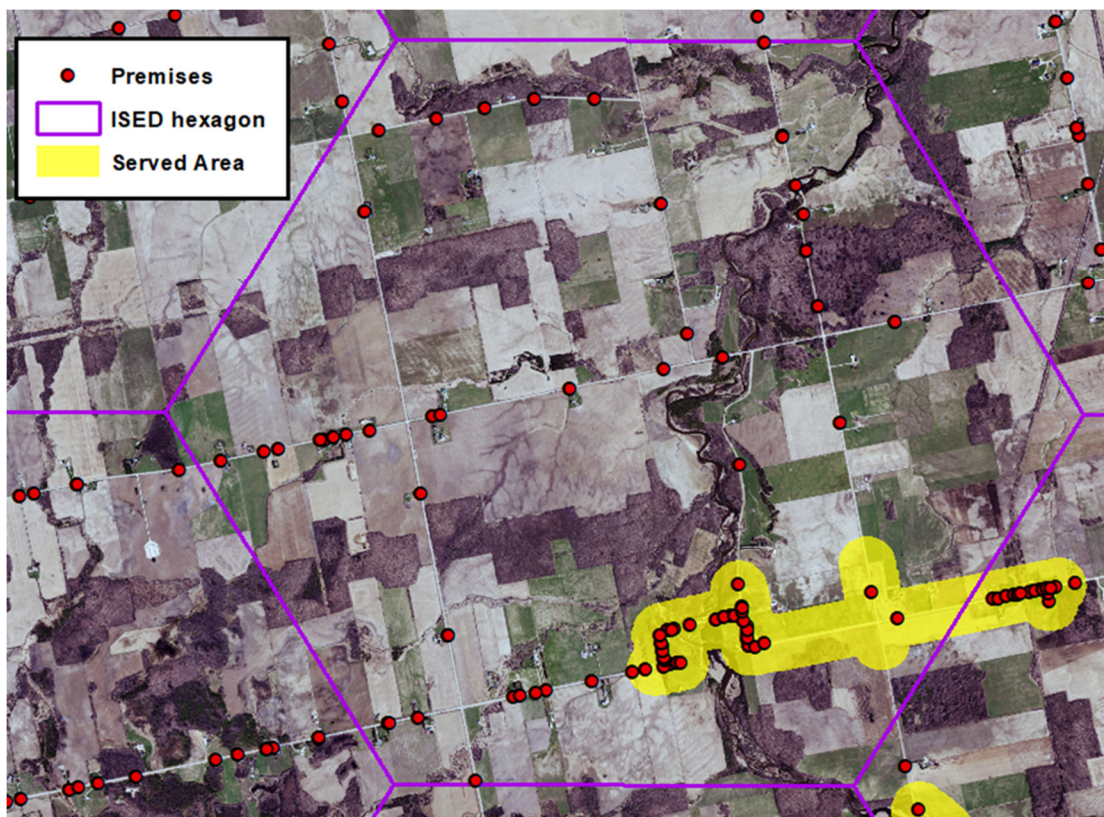


Figure 5: Overlay of ISED hexagons with premises and served areas.

62. **Economic efficiency:** While equity implications of excluding partially served hexagons may be obvious, what may be less obvious is the implications of attempt to arbitrarily ration access to the fund on the efficiency and effectiveness of proposed projects and maximizing value for money. What ISED and the Commission do not appear to recognize, and the Auditor General apparently has, is that restricting the scale of potentially eligible projects in space across underserved communities that are in proximity to each other reduces the scope for fixed cost sharing and cross-subsidization enabled by larger projects that cover multiple hexagons. Previous program design strategies that ignored this basic economic insight resulted in a patchwork of relatively small and expensive projects targeting very high cost areas on the remote edges of the network. Rather than supporting local collaborations between underserved users, communities, and service providers that are committed to them, the Commission appears keen to be repeating the same old mistakes. In addition to leaving many behind, these small-scale projects are unlikely to attract much complementary private investment compared to larger ones that cover multiple fully unserved and partially unserved hexagons in the vicinity. Lack of accounting for these basic economic principles

²⁵ Para 85 CRTC 2018-377.

in program design is precisely why the Auditor General has raised concerns about value for money and perverse private sector investment incentives associated with previous ad-hoc and top-down federal rural broadband subsidy initiatives. It is not clear why the Commission wants to repeat the same basic mistakes.

63. Underserved population clusters: In addition to users along the rural roads, there are many population clusters (hamlets, villages, towns) around our Region with poor Internet connectivity. As documented above in Figure 1, maximum speeds in some of these are below the 50 Mbps benchmark and average speeds below 10 Mbps. Given the insistence of the Commission to rely exclusively on indicators of advertised speeds and limits the ability of underserved communities to demonstrate the poverty of their circumstances using standard speed measurements, many of these communities will not be eligible to access the funding facility. Figure 6 illustrates the size of underserved settlement clusters within the SWIFT region, based data from service providers offerings. The majority of the clusters without services with advertised speeds of 50/10 Mbps are “hamlet” and “small-village” sized, but a handful of “large-villages” (501-1000 premises) and “towns” (>1000 premises) remain underserved based on this standard. If size and density could be used to predict the likelihood of investment by service providers, then market forces would have helped expand basic services availability to these communities. SWIFT’s analysis of the Commission’s broadband eligibility maps based on industry/ISED data suggests that many of these underserved communities are not going to be eligible to apply. Figures 7 illustrates the problem more concretely with two lower-level perspectives from areas of our Region where the Commission’s approach erroneously defines various underserved communities/population clusters as served/covered at the 50/10 Mbps advertised speed target standard, and therefore ineligible for support from the Commission’s new universal service funding facility.

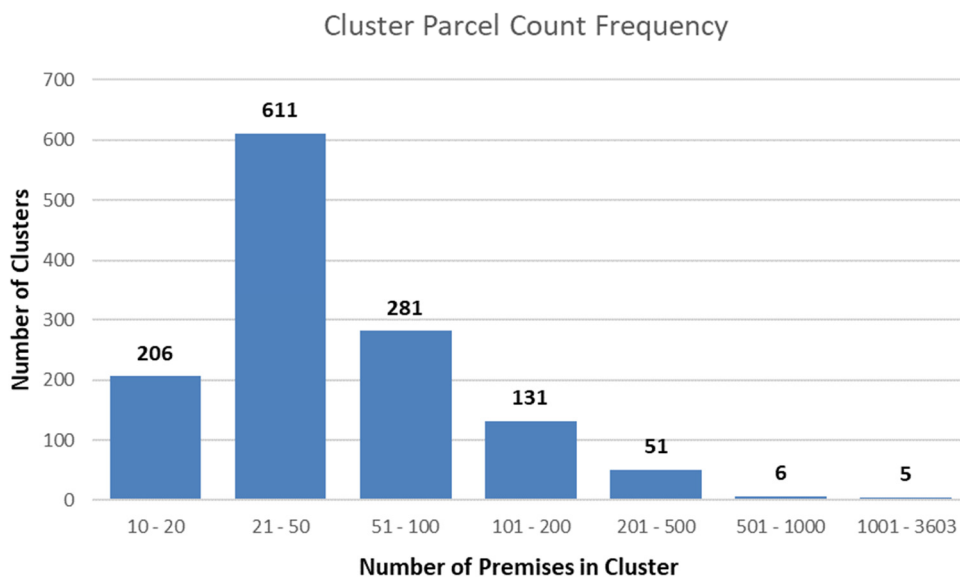


Figure 6: Size of underserved settlement clusters in Southwestern Ontario

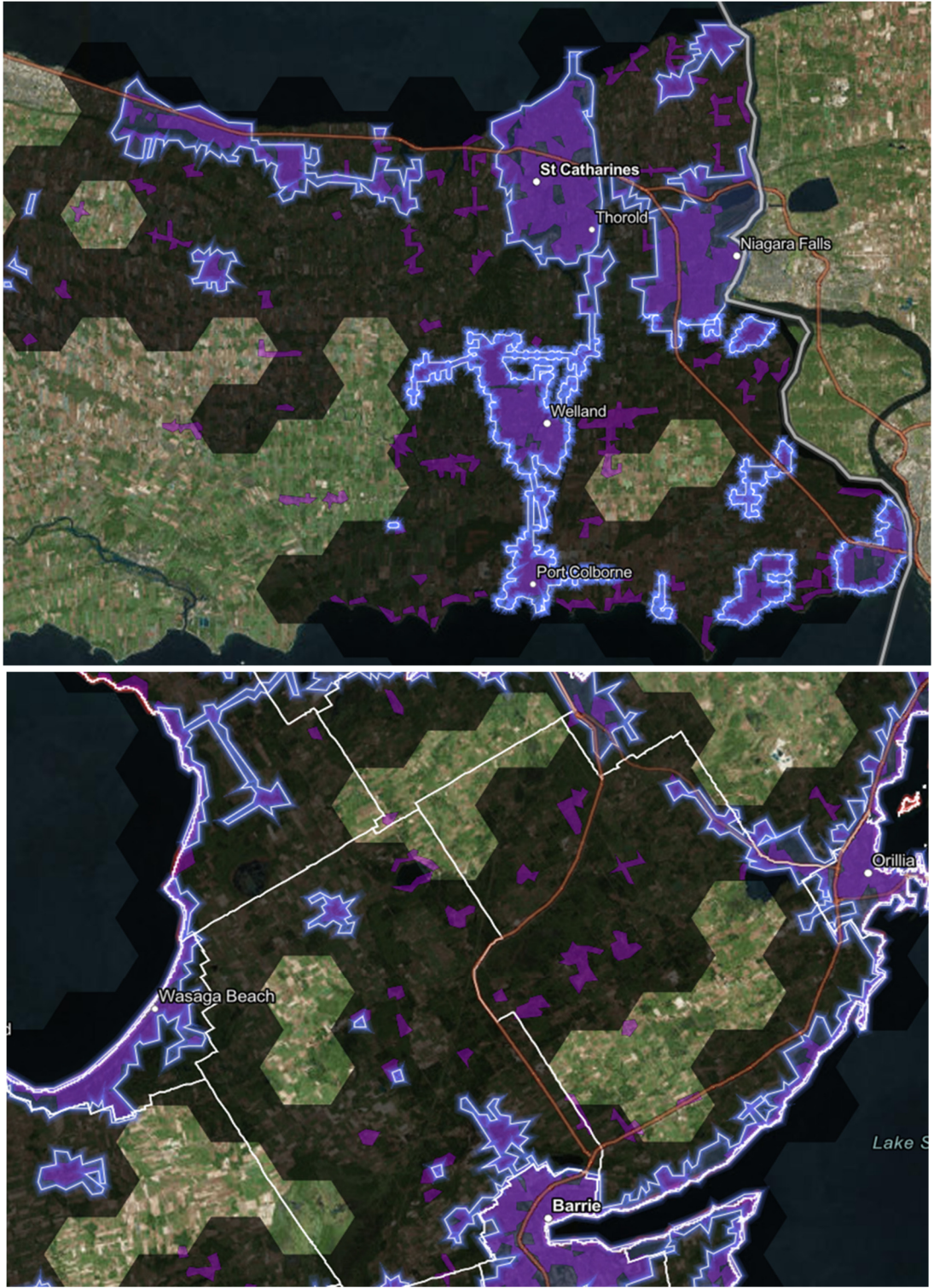
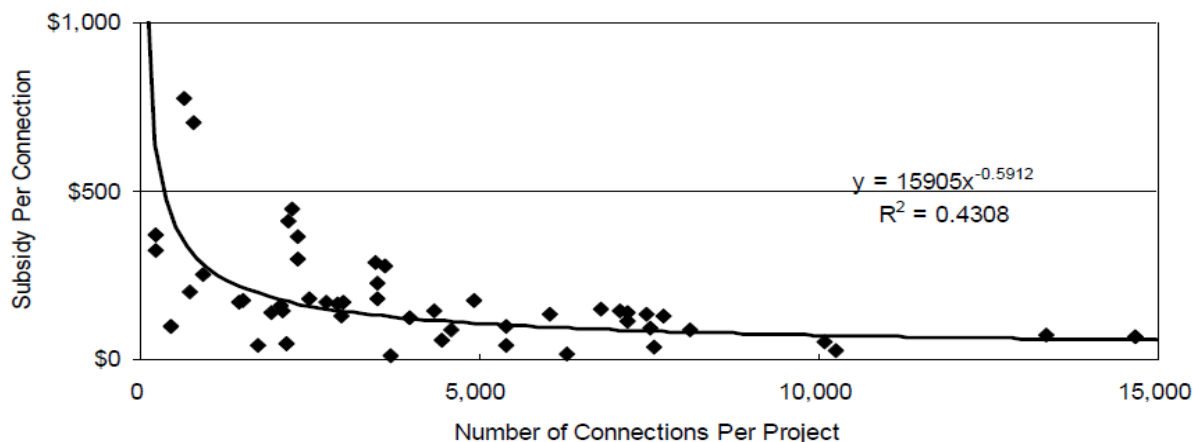


Figure 7: Example of underserved rural communities in SWIFT Region

(Bright/translucent lines: Extent of areas where an Internet service provider offers service packages with speeds that meet or exceed CRTC's 50 Mbps download/10 Mbps upload "basic service" target; Purple: Population clusters; Dark hexagons: Areas considered served/ineligible to apply to CRTC fund)

64. The key point here is that compared to the usual program design strategies focusing only on very high-cost rural edges of the network around population clusters (i.e. fully unserved (lighter) hexagons), projects that target larger areas containing groupings of high and low cost premises deliver better value for money in maximizing the impact of limited public subsidies and promoting complementary private sector investments in that community. At least in Ontario, the economies of scale and efficiency gains from cross-subsidies that attract complementary private sector investments in rural broadband infrastructure policy development have been well understood and have prompted regional projects such as EORN and SWIFT. Figure 8 provides an empirical illustration of the rapid decline in required subsidy as the size of broadband improvement initiative grows based on an earlier initiative by the Government of Ontario which was implemented in a flexible manner allowing for both very targeted and larger projects.²⁶ Project level data from this program clearly documents the rapid decline in required subsidy per household to reach a particular speed target as the number of people/premises a project cover grows. At the regional level, value maximization involves working with service providers to invest in capacity and new technologies across population clusters of various sizes with relatively low cost of improving connectivity to cross-subsidize all the higher costs households, businesses, and smaller settlements along rural roads that connect villages and towns.



Source: Ontario Ministry of Agriculture, Food, and Rural Affairs; own estimates

64. Figure 8. Cost Estimates per Project to increase link speeds to 1.5 Mbps. Ontario Rural Connections Broadband Program. Rajabiun & Middleton (2013)

65. The economies of scale and efficiency gains from cross-subsidies that attract complementary private sector investments in rural broadband infrastructure policy development have been a key reason for the emergence of larger, more coordinated, regional public private approaches (EORN in the east, Blue Sky in the North, and now SWIFT in the Southwestern Ontario). The Government of Ontario has also recognized this, lending significant financial and technical support to efforts

²⁶ For details see Rajabiun, R., & Middleton, C. (2013). Rural Broadband Development in Canada's Provinces: An Overview of Policy Approaches. *The Journal of Rural and Community Development*, 8(2), 7-22. Available at: <http://journals.brandonu.ca/jrcd/article/download/1004/231>

of rural municipalities and regions to coordinate with each other and the private sector to develop larger, more cost effective, projects (see Table 1). The Auditor General’s critique of the CTI program and calls for a better data and a more coordinated approach to help maximize value for money suggest there is increasing recognition of the basic economic principles of broadband infrastructure development at the federal level. CRTC’s restrictive approach to defining eligible communities and public sector organizations will make it practically impossible to utilize the fund in a manner that will maximize the impact of the public subsidies in terms of complementary private sector investments.

Table 1. Average rural connectivity subsidy	
EORN cost for households served in all zones	\$108
EORN cost for per Northern households	\$331
Rural Connections (Ontario)	\$250
Connecting Rural Canadians (Federal)	\$900
Source: EORN, First Submission to Telecom Notice of Consultation CRTC 2015-134 leading to the 2016-496 “basic service” decision. Rajabiun & Middleton (2013).	

66. From the text of the Commission’s 2018-377 decision, it is evident that the Commission appears keen to replicate well-known deficiencies of previous ad-hoc federal initiatives that created a patchwork of small and unsustainable initiatives, leaving many behind along the way. The Commission does not really offer a tangible justification for its approach in the decision, beside that it considers that using ISED hexagons will reduce administrative burden and improve communications with industry as the indicators are familiar and hope that “market forces” will somehow be enhanced in the future to solve the partial hexagon problem.²⁷ These determinations may help reduce the administrative burden of administering the fund by the Commission, but are based on unrealistic assumptions and a flawed economic logic. Even if the assumptions are valid to some extent and in some areas, it was not necessary or prudent for the Commission to adopt such an inflexible approach that does not allow for corrections based on evidence from underserved communities the fund was established to benefit. These issues were raised extensively in the original proceeding by various parties representing lower levels of government and rural communities from all regions of Canada and the Auditor General appears to have discussed them with the Commission/ISED as well in preparing its recent report. It is SWIFT’s position that the Commission should have known better and its failure to learn from the evidence on the record and experience with rural broadband program design is bordering on the irresponsible.

²⁷ Para 81-87. CRTC 2018-377.

IV. Minimum universal service quality standards

67. **Ex post/ex ante:** Advertised and actual speeds are important, but do not necessarily reflect an accurate picture of the quality of service consumers experience on congestion prone broadband networks.²⁸ Another key point of regulatory progress in the 2016-496 basic service decision, based on recommendations from the Media Access Canada/Access 2020 Coalition of Canadians with disabilities and our colleagues from Eastern Ontario rural communities, was the recognition by the Commission that speed isn't everything and that:

*“In rural and remote communities, high-quality broadband Internet access service is essential for accessing services that may not otherwise be available due to distance (e.g. health services via videoconferencing and education). Further, increasing reliance by banks and governments on virtual services requires reliable broadband Internet access services in all areas, including in rural and remote areas.”*²⁹

68. Given SWIFT's origins in the needs of family farms and rural communities in Southwestern Ontario, SWIFT would like to add that “high-quality” broadband is also critical for the adoption and reliable use of precision agriculture technologies and telecommuting (see Attachments 3 and 4 to this Petition on efficiency gains/cost savings enabled with better broadband in these areas).

69. Although it did not establish specific quality of service (QoS) standards in the 2016 decision, the Commission started a process through its Interconnection Steering Committee (CISC) to identify levels for latency, jitter, and packet loss to define:

*“high-quality fixed broadband Internet access service that would achieve the broadband portion of the universal service objective”.*³⁰

70. After nearly two years of deliberation, in Telecom Decision CRTC 2018-241, dated 13 July 2018, the Commission finally adopted a round-trip latency threshold of 50 milliseconds (and a packet loss threshold of 0.25%, both based on measurement during peak times) as part of its universal service objectives. In the 2018-377 decision we are challenging in this Petition, the Commission fails to operationalize the critical 50 ms latency threshold standard as a basis for identifying underserved communities (in its broadband mapping), qualifying applicants (to motivate higher quality proposals), or as a basis for the minimum service quality levels to which subsidy recipients may ultimately be held accountable ex post via service level agreements (SLAs).

²⁸ Stocker, V., & Whalley, J. (2018). Speed isn't everything: A multi-criteria analysis of the broadband consumer experience in the UK. *Telecommunications Policy*, 42(1), 1-14. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596116302142>

²⁹ Para 104. CRTC 2016-496.

³⁰ Para 106. CRTC 2016-496.

71. The Commission only suggests that latency and other QoS indicators will be used as one of the many considerations in the rather complex and discretionary assessment phase of the funding process it plans to implement. We do not discuss the likely challenges with the qualitative “beauty contest” like approach to project assessment the Commission has adopted in this Petition.
72. The 50 ms standard was first proposed to the Commission by our colleagues from Eastern Ontario Warden’s Caucus (EOWC)/Eastern Ontario Regional Network (EORN) back in the proceeding that led to the 2016-496 “basic service” decision.³¹ It is not clear why the Commission has decided to adopt it two years later in the 2018-241 decision and then abandon it in the 2018-377 decision in the implementation of its funding mechanism. This is particularly the case given the Auditor General’s strong critique of the lack of minimum service quality standard as a key impediment to the effectiveness of previous rural broadband funding programs in generating value for money in terms of network quality improvements people experience in targeted areas.
73. As documented in Figure 9, at least in terms of median measured latency rates delivered by providers that rely on different technologies, the 50 ms latency threshold suggested by EOWC/EORN was readily feasible in 2016 and likely remains so today.³² This is the case even for rural providers that rely on slower capacity constrained wireless and satellite technologies to serve consumers that live and work in relatively high cost areas (e.g. Xplornet), or legacy long loop DSL service providers serving rural provinces (e.g. SaskTel and MTS; which is now part of Bell Canada Enterprise (BCE)). Notably, large and small providers that have decided to accelerate fibre deployment (e.g. Bell Aliant in Atlantic Canada (also now part of BCE) and Fibrenoire) and cable companies that have invested heavily in scaling their network capacity (e.g. Cogeco and Rogers) appear to be able to significantly exceed the 50 ms threshold according to these measurements.

³¹ See EOWC/EORN response to interrogatories from Rogers regarding CRTC Review of Basic Telecommunications Services Telecom Notice of Consultation CRTC 2015-134, 9 April 2015, and CRTC 2015-134-1, 3 June 2015. September 10, 2015.

³² For a discussion of different approaches to speed and QoS measurement see Rajabiun, R., & McKelvey, F. (2017). Complementary Realities: Public Domain Internet Measurements in the Development of Canada’s Universal Access Policies. Research Conference on Communications, Information and Internet Policy, TPRC45. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2943054

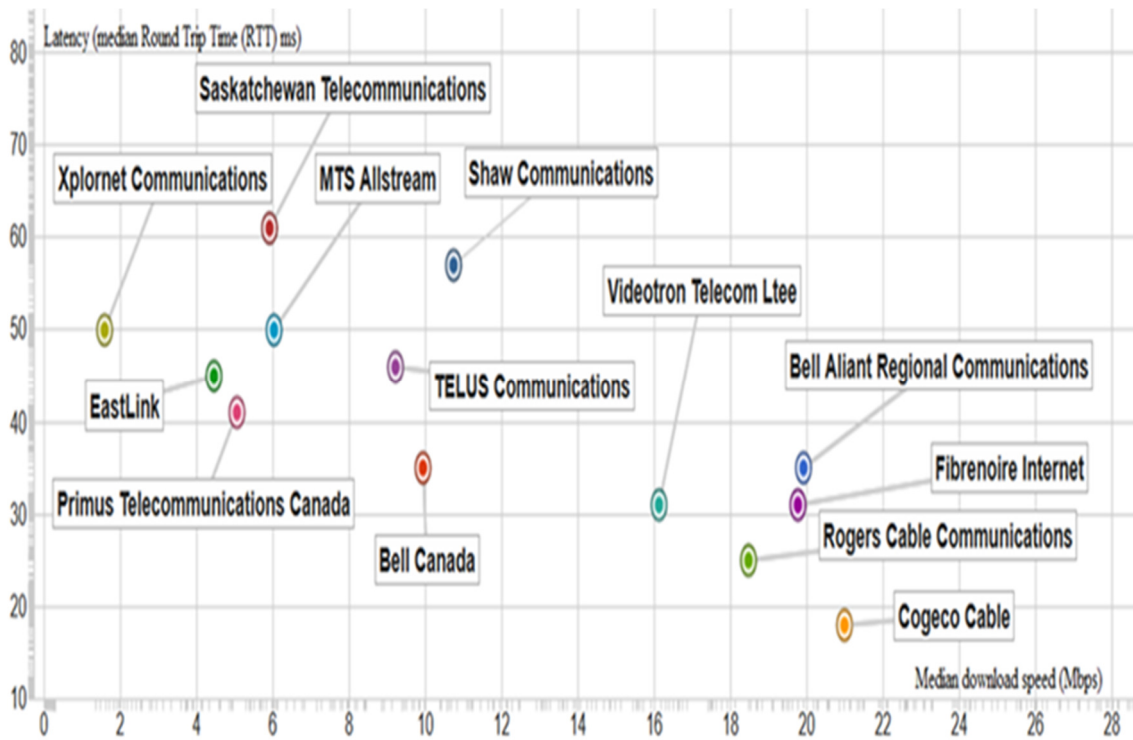


Figure 8. Effective Bandwidth and Latency in Selected Service Provider (2016).

(Source: M-Lab/Google Public Data Explorer. (Rajabiun & McKelvey, 2017)

74. After years of debate, and given the apparent feasibility of the 50 ms threshold as a minimum quality standard for defining what is a “basic service”, it is not clear why the Commission has decided not to apply it:

(a) as an empirical benchmark for identifying areas with poor service quality that are eligible to apply. This will unreasonably limit access to the fund by people in areas where headline speeds per industry/ISED hexagonal indicators might appear adequate, but actual service quality levels users are experiencing are poor. Consequently, it contradicts Section 7 (a, b, and h) equity objectives of the *Act*.

(b) filtering out low-quality/low-impact applications to the fund and incentivising applicants to put together proposals that try to reach higher. Lack of clear minimum service quality levels to which applicants are expected to commit to in developing their proposals will have negative impact on the quality of proposals that will be submitted and available to the Commission to select from in the assessment stage of the complex multistage process it has created. This will cast doubt on the overall value for money from projects the Commission ends up funding, contradicting the fostering “market forces” and implementing regulations that are required in an “efficient and effective” manner per S. 7 (c and f) of the *Act*.

(c) empirical baseline for monitoring the performance of subsidy recipients and holding them accountable for the quality of service they deliver. This will limit the incentives of private sector providers to reinvest in network capacity once the initial improvements have been implemented, user demand for network resources grows due to improved network quality, and local links and routers start to get congested again. Without binding and verifiable service level agreements (SLAs) that incorporate expectations of some minimum performance standard from private providers of access to public broadband infrastructure in high cost communities with limited competition, quality improvements from any projects that are funded are unlikely to be sustainable.

75. In negating the application of the latency standard it just adopted as conditions of eligibility to the fund, the Commission has opened the door to subsidizing old and slow long loop DSL and legacy fixed wireless systems. This will enable scarce public subsidies to be allocated to upgrading old technologies that are expensive (or impossible) to scale as demand for network resources from users grows over time. Cheap upgrades to these legacy technologies might help increase headline speeds to the Commission's new 25/5 Mbps eligibility threshold for service providers, but is myopic and inefficient. In the medium to longer term, it will be cheaper to decommission these plants and replace them with new fibre and next generation hybrid fibre/wireless (i.e. 5G) technologies that can deliver much higher bandwidth and lower latency than the Commission's basic service/universal service objectives.
76. The Commission justifies its failures to keep up with its own speed target and minimum latency standards on the grounds of technological and competitive neutrality per the 2006 Policy Direction (a.k.a. the Bernier Directive). In addition to demonstrating a lack of commitment to its own policy framework, the Commission's approach is somewhat puzzling in that the 50 milliseconds latency seems to be more than reasonable for enabling providers with different technological endowments to apply.
77. As a national regulatory agency responsible for establishing minimum standards of quality and reliability of basic communication services, it is critical for the Commission to credibly signal its own commitments to the minimum universal service standards it has determined are appropriate. Otherwise, it becomes increasingly difficult for all levels of government to incentivise service providers to do better. SWIFT believes the Commission has made a serious error in not qualifying eligible areas or applicants based on its own 50 ms threshold, an opinion that is consistent with the Auditor General's concerns about the lack of minimum standards in previous ad-hoc rural subsidy programs.³³ There is no reason to repeat the same mistake in the design of what all parties hope will be an efficient and effective universal service subsidy mechanism.

³³ Para 1.37. Independent Auditor's Report. Office of the Auditor General of Canada. 2018 Fall Reports. Connectivity in Rural and Remote Communities. Available at: http://www.oag-bvg.gc.ca/internet/English/parl_oag_201811_01_e_43199.html#hd4a

78. **Northern/remote communities:** Some incumbent service providers have argued that the 50 ms minimum QoS threshold may not be feasible in Northern and other remote communities. In response to the CRTC 2018-241 decision in particular, Northwestel (also a subsidiary of Bell Canada Enterprise (BCE)) has filed an appeal with the Commission, arguing:

“Northwestel is concerned that, based on the Commission's 50 ms round-trip threshold, even the southernmost Northern communities become edge cases and some communities will never be able to achieve what the Commission deems to be a basic level of service.”³⁴

Rather than making a ruling on the merits of this claim, the Commission suspended this request pending the release of the CRTC 2018-377 decision, on the grounds that:

“parties would be better positioned to comment on possible implications noted in the above application, following the release of the Commission’s broadband funding regime”.³⁵

79. Now that the Commission has issued a decision where it has abrogated utilizing its own the 50 ms threshold for gap identification, project selection, and ex post monitoring, the Commission’s suspension of the Northwestel/Bell appears less puzzling. Regardless, the Commission was correct to state that the parties would be in a position later to comment on the feasibility of the 50 ms standards thanks to data provided by Northwestel/Bell to undermine the application of minimum service quality standards.

80. Table 2 reproduces data submitted to the CRTC by Northwestel/Bell in support of its argument that the 50 ms minimum standard can “never” be achieved. These latency indicators from the North are based on various tests with distinct methodologies and between different points. With the exception of a couple of outliers, most of the latency measurements indicate that actual latency rates today even in the North are just about the 50 ms benchmark, or slightly higher. Again, this data supports the reasonableness of a potentially very valuable standard that has emerged following a long series of public consultations and extensive discussion at the CRTC over the years.

³⁴ Para 2 and 3. Part 1 Application Requesting the Commission to Review and Vary Telecom Decision CRTC 2018-241, CISC Network Working Group – Non-consensus report on quality of service metrics to define high-quality fixed broadband Internet access service (Decision 2018-241). 13 August 2018.

³⁵ Telecom Procedural Letter Addressed to Northwestel. 12 September, 2018. Available at: <https://crtc.gc.ca/eng/archive/2018/lt180912.htm>

Table 2: Measured Latency in Northern and Remote Communities

(Source: Northwestel/BCE CRTC Part 1 Application to Review and Vary Telecom Decision CRTC 2018-241)

Test Origin ISP	Test Origin City	Off Net Server	Server Host	Server City	Latency RTT
Northwestel	Whitehorse	Ookla	University of Alberta	Edmonton	76.00 ms
Northwestel	Whitehorse	Ookla	University of Alberta	Edmonton	69.00 ms
Northwestel	Whitehorse	Ookla	Telus	Calgary	43.00 ms
Northwestel	Whitehorse	Ookla	Shaw	Calgary	65.00 ms
Northwestel	Whitehorse	CIRA mLAB	CIRA	Calgary	60.00 ms
Northwestel	Whitehorse	CIRA mLAB	CIRA	Calgary	61.00 ms
Northwestel	Whitehorse	CIRA mLAB	CIRA	Calgary	63.00 ms
Northwestel	Whitehorse	Ookla	Axia	Calgary	53.00 ms
Northwestel	Whitehorse	Ookla	Shaw	Vancouver	52.00 ms
Northwestel	Whitehorse	Ookla	Telus	Vancouver	65.00 ms
Northwestel	Whitehorse	CIRA mLAB	CIRA	Vancouver	50.00 ms
Northwestel	Whitehorse	CIRA mLAB	CIRA	Vancouver	50.00 ms
Northwestel	Whitehorse	Ookla	TekSavvy	Vancouver	137.0 s

81. **A balanced compromise:** Not having clear expected minimum standards of service quality against which applicants develop project proposals and commit to delivering if they are selected would be both imprudent and inefficient for a universal service fund established to help improve access to services with some minimum level of reliability in places where “market forces” are not sufficient and need to be stimulated. Latency measures can also be very valuable for identifying underserved communities where headline speeds may seem to be good enough, but actual service quality levels users are experiencing are poor due to underinvestment in capacity/large oversubscription ratios of suppliers. Even if Northwestel/Bell are correct and the 50 ms threshold is not feasible in some places in the North or other remote communities, this is not sufficient reason to abandon the standard everywhere else in the country where it is perfectly feasible and would be prudent to have in place to identify eligible underserved communities, filter out low quality proposals, and hold subsidy recipients accountable for their performance. To account for these cases, the program administrator (i.e. the CRTC itself in this case) can simply include a provision in the application guidelines that provides proponents from areas where meeting the 50 ms minimum QoS standard is not feasible due to technological reasons the opportunity to provide evidence that demonstrates why they cannot do better and still qualify for consideration. This more balanced approach would preserve the benefits of clear minimum standards in terms of gap identification, incentivising higher quality proposals that are more scalable, and ensuring ex post accountability of subsidy recipients in terms of service quality levels they deliver, while

maintaining some measure of flexibility that ensures Northern communities and remote areas where achieving the 50 ms standard may be challenging today have equitable access to the fund.

V. Summary and requested variances

82. SWIFT is not filing this Petition carelessly. SWIFT stakeholders recognize the importance of access to a national funding facility that complements our efforts to counteract the growing rural-urban digital divide in terms of “high-speed” Internet access quality and affordability. The Commission has however made a number of fundamental errors in this important initial stage in the development of this first federal universal service funding mechanism for broadband development in rural areas and remote communities. It is precisely because of our hope that the CRTC funding regime evolves to become an effective funding facility that empowers underserved communities and promotes efficiency enhancing cooperation between public and private sector needed to counteract Canada’s growing rural-urban digital divide that we are appealing to authority of the Governor in Council to vary certain key elements of the Commission’s determinations in CRTC 2018-377.
83. As documented in this Petition, communities in Southwestern Ontario have had significant experience with previous federal and provincial rural broadband subsidy programs, understanding the state of the network in our Region, and building cooperative arrangements with each other and private sector service providers committed to our community. In order to assist the Commission to develop a universal service fund that is effective in maximizing value in terms of network improvements for the largest possible number of people in Canada’s underserved communities and to complement our efforts, we participated in the CRTC 2017-112 proceeding that led to the 2018-377 decision we are challenging in this Petition. We also hoped to convince the Commission not to replicate mistakes of the past associated with top-down/ad-hoc rural broadband subsidy programs that involved little engagement with or accountability of subsidy recipients to the underserved communities the public funds were suppose to benefit. Rather than fostering local cooperation among underserved communities in proximity to each other and incentivising efficient investment in scalable technologies, previous ad-hoc approaches pitted small underserved communities against each other to compete for limited funds in some form of a “beauty contest” lacking meaningful transparency and accountability.
84. Previous ad-hoc rural subsidy programs by the federal government resulted in a patchwork of small-scale projects in very high-cost areas targeted areas, but ultimately left many gaps behind across Canada’s expansive rural Regions. Consequently, they were not very effective in helping achieve the equity objectives of Canadian telecommunications policy (under Section 7 a, b and h of the Act). At the same time, due to a lack of scale and targeting of small very high-cost areas, previous federal programs have not been very effective in attracting complementary private sector capital expenditures needed to ensure “maximum expansion for the public money spent” as noted

by the AG and to “foster increased reliance on market forces” as stipulated by the Parliament under Section 7 of the *Act*. Submissions by other parties representing rural communities and lower levels of government to the CRTC 2017-112 proceeding generally corroborated similar concerns about equity and efficiency implications of previous programs and outlined a broadly consistent set of recommendations for the Commission to avoid such pitfalls in the design of its new funding mechanism.³⁶

85. In the CRTC 2018-377 decision, the Commission has taken a few steps back from its own commitments in the 2016-496 “basic service” decision in terms of designing its funding mechanism as complement to other public sector initiatives, encouraging community engagement and accountability, and applying minimum service quality standards in defining eligible underserved areas and projects it will subsidize. The Commission’s approach very much resembles program design strategies of the past that bypassed community engagement in project development, lacked transparency at the assessment stage, and failed to effectively commit subsidy recipients to deliver some minimum level of basic service quality in the very high cost areas they targeted. Repeating mistakes of the past and expecting different results is inconsistent with basic principles of evidence-based decision making.

86. From a legal perspective, the Commission’s approach is inconsistent with achieving the primary equity and efficiency policy objectives the Parliament has mandated the Commission to pursue under Section 7 of the *Act* as detailed above. As well, relaxing aspirational speed and abdicating minimum quality of service standard the Commission has just adopted appears inconsistent with stipulations in the 2006 Policy Direction (para 1.b.ii) that telecom regulations should be designed such that they:

“neither deter economically efficient competitive entry into the market nor promote economically inefficient entry,”

87. Abdication of various elements of the 2016 basic service objectives (e.g. halving of the 50/10 Mbps aspirational speed targets, latency threshold, availability of unlimited services) enhances the likelihood that the fund be accessed by proponents of relatively low-quality proposals. This can promote economically inefficient entry, perpetuating the legacy trap in underserved rural communities that motivated the Commission to establish the fund in the first place. Moreover, allowing legacy service providers to apply directly to the fund without consent of municipal, regional, and provincial initiatives that may be targeting the same general areas will create substantive risks of coordination failures, potential for inefficient duplication, and risks to public-

³⁶ For analysis of this emerging consensus and remaining differences in the positions of the parties, see SWIFT reply comments and final submission to CRTC 2017-112. Available at: <https://services.crtc.gc.ca/pub/ListeInterventionList/Documents.aspx?ID=240760&en=2017-112&dt=i&lang=e&S=C&PA=t&PT=nc&PST=a>

private partnerships led by municipal and regional authorities such as SWIFT. The Commission recognizes the tangible nature of these risks, but has apparently decided to off-load them to lower levels of government and intermediary organizations already taking the lead on these issues. This is inconsistent with the Commission's stated objective of complementing other initiatives and the federal government's enhanced recognition and new commitments to rural connectivity based on a more "cooperative" approach with lower levels of government.

88. SWIFT agrees with federal and provincial ministers that "*collaboration is essential to address the scope of the challenge and maximize the effect of our actions*", but the Commission apparently does not.³⁷ In ignoring recommendations from lower levels of government and representatives of underserved communities, the Commission's approach goes against the spirit of cooperative federalism that has helped Canadians overcome geographic challenges in the development of essential public infrastructure before.³⁸
89. In justifying its determinations, the Commission emphasizes competitive neutrality element of the 2006 Policy Direction (in para 1.b.iii) to effectively vacate key elements of the 2016-496 basic service decision. It does not however address economic efficiency and effectiveness considerations that are stipulated in both the Policy Direction and Section 7 (c and b) of the *Act*. Given that the Commission is prioritizing a Policy Direction with dubious origins and controversial record of impact on policy development over the will of the Parliament and statutory commitments to the provision of basic communication services in rural Canada is patently unreasonable and casts serious doubt about the correctness of related determinations.
90. In the decision the Commission addresses a wide range of issues, including those relating to its governance, operating, and accountability frameworks, as well as eligibility and assessment criteria for proposed projects. Without prejudicing our positions on other elements aspects of the Commission's determinations, SWIFT's requests in this Petition have a narrow focus on some of the key elements of the CRTC 2018-496 decision. Variations we are requesting the Governor in Council to adopt are intended to prevent a repeat of previous errors and enhance the likelihood that the Commission's fund evolves as an effective complement to other public sector initiatives trying to promote efficient private sector investments in broadband infrastructure our residents, businesses, and public sector workers demand. As is, the Commission's approach is actually more likely to counteract efforts by municipal and provincial governments to stimulate efficient investment into scalable technologies required to achieve the Commission's own universal service

³⁷ See: <https://www.newswire.ca/news-releases/federal-provincial-territorial-ministers-agree-to-the-principles-of-a-canadian-broadband-strategy-that-will-improve-access-to-high-speed-internet-for-all-canadians-698727751.html>

³⁸ For an analysis of tensions and complementarities between different levels of government in broadband infrastructure development under Canada's unique federalist constitutional arrangements see Rajabiun, R., & Middleton, C. A. (2013). Multilevel governance and broadband infrastructure development: Evidence from Canada. *Telecommunications Policy*, 37(9), 702-714. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596113000724>

objectives.³⁹ The requested revisions outlined below will empower underserved communities and promote cooperation by essentially asking the Governor in Council to restore some key elements of the 2016-496 framework and commit the Commission to the application of perfectly feasible and reasonable minimum standards of “basic service “quality it has recently adopted after years of debate and discussion:

91. **A) Eligible applicants:** In the 2016-496 decision, the Commission adopted a relatively flexible preliminary view of what type of entities should be eligible to apply to the fund:

“legal entities, incorporated in Canada, that already operate or intend to operate broadband infrastructure. These include private sector companies; provincial, territorial, regional, municipal, and First Nations entities; and non-profit organizations. Individuals and federal entities (including Crown corporations) are not eligible.”

92. As the Commission acknowledges in paragraphs 113-114 of the CRTC 2018-377 decision, many parties representing lower levels of government and rural communities supported an approach in which funds are distributed through public-private partnerships with local governments or intermediaries, which would then direct the funds to companies that committed to addressing service quality and affordability gaps across the country (e.g. Governments of Ontario, Nunavut, Yukon, SWIFT, Eastern Ontario Wardens’ Caucus/Eastern Ontario Regional Network (EOWC/EORN), Cybera, Open Media, First Mile Connectivity Consortium, etc.). However, in **paragraph 117 of the CRTC 2018-377** decision the Commission argues that it:

93. *“...considers it of fundamental importance that it retain the responsibility and discretion to ensure that funds for broadband service projects are distributed in an appropriate and fair manner, consistent with the telecommunications policy objectives in the Telecommunications Act, to ensure continuing access by Canadians to basic telecommunications services. The Commission therefore considers that providing funding to local governments or intermediary organizations and allowing them to decide how and where funds are to be distributed would not be an appropriate model for managing the Broadband Fund.”*

94. This determination suggests that the Commission has better information and incentives that lower levels of government and underserved communities the fund is suppose to benefit to solve their problems. Given the fundamental errors in the Commission’s approach to rural broadband gap identification, there is substantive doubt about these key assumptions underlying the Commission’s restrictive top-down approach to program design. In light of this determination, the

³⁹ For an analysis of the role played by various public sector and private stakeholder groups in reclassification of broadband as a “basic service” see: Rajabiun, R. (2017) The Rise of Broadband as an Essential Utility and Emergent Concepts in Universal Access in Advanced Economies: Perspectives from Canada. 28th European Regional Conference of the International Telecommunications Society (ITS): "Competition and Regulation in the Information Age", Passau, Germany. Available at: <https://www.econstor.eu/handle/10419/169494>

Commission goes on to adopt a complex set of eligibility requirements (in paragraph 119) that make it practically impossible for lower levels of government and intermediary organizations to access the CRTC fund as a complement to other sources of public and private sector funding. As detailed in this Petition, this top-down carrier friendly approach undermines achieving both equity and efficiency objectives under Section 7 of the *Telecommunications Act* compared to the more decentralized model lower levels of government and parties representing rural communities from all regions of Canada had recommended in the original proceeding. The Commission's approach goes against the grain of Canada's cherished and effective tradition of cooperative federalism that empowers communities to work together and solve their own problems in a manner that fits local needs and conditions. It is also inconsistent with the recommendations from the AG CTI audit calling for a more collaborative approach and discussions about the development of a national strategy in a collaborative manner with provincial and municipal governments already taking the lead in trying to promote private sector incentives to invest in our communities. To enable the Commission's fund to function as a viable complement to municipal, regional, and provincial initiatives, SWIFT requests the Governor in Council to:

- **Delete paragraphs 117 and 119 in CRTC 2018-377.**
- **Restore the original language/insert preliminary views of the Commission per Appendix 1 to CRTC 2016-496.**

This variation would create a more flexible universal service fund that allows lower levels of government and intermediary organizations in rural areas and remote communities to access the emerging universal service fund and utilize it as a complement to other initiatives.

95. **B) Credible commitment to minimum standards and market expectations:** SWIFT is particularly surprised and concerned by the Commission's decision to essentially forget about indicators of actual speeds, minimum quality of service standards and the availability of unlimited data offerings per the 2016 decision in identification of areas and projects that are eligible to apply. In its review of the ISED CTI program, the Auditor General also appears concerned about the lack of minimum standards of service. As detailed above, this choice has multifaceted implications in terms of equitable access to the fund by people in areas where headline speeds that meet the advertised speed targets are perceived to be adequate with the industry/ISED data on advertised speeds, but actual bandwidth and service quality levels are sub-par due to capacity under provisioning leading to excessive oversubscription that tends to happen where the scope for market competition is relatively limited.

96. **B.1) Minimum standards and eligible areas:** To ensure all regions of Canada with inadequate basic service quality (i.e. actual speeds below the Commission's 50/10 Mbps targets and round trip connection delays higher than 50 ms latency standard) have equitable access to the

Commission's universal service fund, we urge the Governor in Council to vary the CRTC 2018-377 decision as follows:

- **Insert at the end of paragraph 83 that “Areas where there is evidence that actual speeds and quality of service (QoS) fall short of the Commission’s universal service objectives will be also eligible to provide evidence demonstrating their eligibility and apply for consideration.”**
- **Delete paragraph 96.**

97. **B.2) Efficient subsidization:** SWIFT recognizes that in some areas, particularly in the North, the 50/10 Mbps advertised bandwidth target or 50 millisecond latency standards may be hard to achieve. However, this problem could have easily been resolved by the Commission by allowing applicants from Northern and very remote communities the opportunity to justify why they cannot meet the basic service speed and latency thresholds supported with relevant evidence in order to demonstrate their eligibility. Instead, the Commission has halved headline speeds that potential applicants claim they can deliver to 25/5 Mbps, as well as abandoning its 50 ms quality of service/latency standards and commitment to including unlimited data service offerings as conditions of eligibility of service providers to apply to the fund. Backtracking on aspirational speed targets and minimum universal service quality thresholds sends a counterproductive signal to market participants about expectations of consumers and the government.

98. Even though the Commission has noted it will consider scalability, latency, and other key factor established in the 2016 “basic service” decision in the assessment stage of its funding process, not keeping up with its own standards as conditions of eligibility will have a negative impact on the quality of applications the Commission will receive to assess later and opens the door to inefficient allocation of scarce public on old hard (or impossible) to scale technologies versus high-capacity/low latency fibre and high-throughput hybrid fibre/wireless networks. To filter out old technologies, reduce the scope for the Commission’s fund to promote inefficient investment, and incentivise innovation an investment in new technologies that fit the needs of rural communities, SWIFT requests the Governor in Council to vary the decision as follows:

- **At the end of paragraph 105, add eligibility condition as follows: “To be eligible for funding, proponents proposing projects that would build or upgrade access infrastructure must be willing to commit to offering basic services that meet the Commission’s minimum quality of service thresholds of 50 millisecond round-trip latency as measured per specifications in Telecom Decision 2018-241.**
- **Add an exemption where the 50 ms threshold may not be feasible. Insert: “Proponents proposing projects in areas where this minimum standard is not feasible can provide**

technical evidence that demonstrates achieving the relevant standard is not feasible in their applications and why their proposed solutions is the best possible option.”

99. This combination of variations would help limit the scope for wasting scarce public subsidies and overinvesting in old technologies where it is feasible to do better and deploy scalable new ones with a bit more upfront private sector capital commitments, but also leave the flexibility that might be needed to allow for applications from places where meeting the minimum “basic service” quality standard may not be technically feasible today. Importantly, adopting these variations would help align the design of the Commission’s broadband fund with lessons from previous ad-hoc rural broadband improvement initiatives and recent recommendation by the Auditor General about the importance of defining and applying:

“the minimum level of reliable and high-quality Internet service to be made available to Canadians and to monitoring “whether the improved access leads to the adoption of those Internet services.”⁴⁰

100. Without clear, realistic, and measurable minimum service quality standards that suppliers are willing to commit to, project proponents will have little incentive to develop “high-quality” and scalable projects the Commission plans to attract and assess in later stages of the complex multistage funding process it has adopted. The sum of lower quality applications where there is little commitment from the applicants to minimum service quality levels they deliver will inevitably have an adverse impact on the overall effectiveness of CRTC’s funding mechanism in translating limited public funds into broadband quality and affordability improvements in underserved communities in all regions of Canada.
101. **C) Cooperation incentives and community empowerment:** Under the Commission’s approach, public sector applicants must commit to working with private sector subsidy recipients to order to be eligible to apply, but private sector applicants are not required to have a public sector partner to qualify. This asymmetry creates tangible business risks for municipal and regional projects such as SWIFT as it allows providers that may not have succeeded in competitive procurement processes to access federal subsidies and compete with private sector partners that have succeeded in our procurement processes. This would reduce the expected take-up rates facing our partners in particular areas, reducing their expected rate of return and willingness to invest in underserved communities local, regional, and provincial initiatives may be targeting.
102. To minimize the potential for this type of bypass, inefficient duplication, and enhance the capacity of its fund to function as a complement to other initiatives, in CRTC 2016-496 the Commission

⁴⁰ Recommendation/para 1.37. Independent Auditor’s Report. Office of the Auditor General of Canada. 2018 Fall Reports. Connectivity in Rural and Remote Communities. Available at: http://www.oag-bvg.gc.ca/internet/English/parl_oag_201811_01_e_43199.html#hd4a

had determined that applicants would be required to secure a minimum level of financial support from a government entity, which must be more than a nominal amount and must be commensurate with the nature of the project. In paragraph 135 of 2018-377, the Commission recognizes our concerns that:

“without the requirement for government funding, there is little incentive for private operators to work with local organizations to meet local needs” and that “not requiring this collaboration would pose a significant risk to the continued success of certain broadband service projects.”

103. Unfortunately, in the CRTC 2018-377, the Commission reverses course on this requirement from the 2016 decision as well on the basis that:

“since some municipalities may be unable to provide financial support for broadband projects, certain regions could be excluded from Commission funding simply because their local government lacks broadband funding at the time of the Commission’s call for applications.”⁴¹

104. The Commission’s course reversal in this matter is highly problematic for local and regional initiatives such as SWIFT as it can lead to situations in which different levels of government end up subsidizing different private sector providers to serve the same areas with different levels of service. This would represent a case of competitive, rather than cooperative, federalism and an inefficient use of limited public resources for promoting efficient private investment in high cost/low return rural where the business case for doing so is already weak (or non-existent).

105. SWIFT recognizes the financial constraints on small municipalities, but this concern could have easily been resolved by just requiring a nominal amount of public funding (i.e. versus more than a nominal amount). Such a solution would ensure private sector applicants have incentives to build cooperative arrangements with underserved communities, without excluding communities where public funds are in short supply from applying to the emerging universal service funding mechanism the CRTC is developing. This more balanced approach would be consistent with the new spirit of collaboration in addressing rural connectivity problems, empower underserved communities, and minimize the risks of situations where that different levels of government are funding different providers in the same area. We therefore request the Government to vary the decision as follows:

- **Delete paragraph 139.**
- **Replace with: “Applicants will be required to secure a nominal level of financial support from a government entity to be eligible for funding”**

⁴¹ Para 138.

106. In order to address concerns about a lack of community engagement and cooperation, the Commission does adopt a relatively discretionary and non-binding consult or “attempt to consult” requirement (paragraphs 216-224). However, this is insufficient and may in fact have the opposite effect of promoting local cooperation and cause unnecessary conflict if different service providers start approaching different “elected officials, community associations, or other representative bodies” for letters of support for their proposals. To remedy this critical error and impose an effective “**duty to consult**” instead, we request the Governor in Council to vary the decision with:

- **In paragraph 223, delete “attempt to consult”**
- **In paragraph 223 add third bullet point to indicate an applicant must “indicate whether the proposed project will affect any established or proposed publicly funded broadband project, and if so, provide proof of consultation and agreement with the proposed application from the relevant funding authority.”**

107. As detailed in our submissions to the original proceeding, SWIFT stakeholders believe that the best way of maximizing the value of Commission’s new funding mechanism would involve, at least for now, prohibiting private sector providers from directly applying in order to encourage cooperation and to utilize limited available funds to make small contributions to a large number of projects across all regions of Canada. The Commission did not adopt our proposed approach, but we are not challenging this aspect of its decision in this Petition. The requested variance noted above would empower smaller rural communities to overcome their collective action problems, work together, and build partnerships with service providers that are committed to investing in broadband infrastructure people that live and work in Canada’s rural areas and remote communities require for social and economic participation.

108. In order to complement efforts by local governments and communities who are already taking the lead in counteracting Canada’s growing rural-urban digital divide in Internet access quality and affordability, it will be critical for the design of the Commission’s new universal service funding regime to centralize local accountability and control along all stages of the process (i.e. gap identification, project design, ex post monitoring and performance verification). Simply subsidizing service providers without community input and oversight, has been one of the critical shortcomings of previous federal rural funding programs.

109. **D) Recipient accountability and enforcement:** In paragraph 308, the Commission has indicated that it will:

“will impose certain conditions, pursuant to sections 24 and 24.1 of the Telecommunications Act, regarding the offering and provision of broadband services using facilities funded through the

Broadband Fund” and that it “may require recipients to participate in a broadband performance measurement program to enable the Commission to monitor the quality of the broadband services being provided over the funded infrastructure.”

110. Although SWIFT agreed that administrative enforcement provisions under Section 24 of the Act may be useful for enabling ex post accountability of funding recipients, this is not sufficient and it is essential to incorporate relevant conditions in service level agreement (SLA) that can be enforced through the courts as well. The statement that the Commission “may” require performance monitoring is also rather weak and provides the resource constrained agency with too much discretion not to develop a systematic approach to collect independent speed and quality of service measurements needed to verify if subsidy recipients are in fact delivering on their commitments to service quality improvements. To develop a more robust ex post monitoring regime and credible contractual remedies for non-performance needed to promote ex post investment incentives of subsidy recipients, SWIFT request the GiC to vary the CRTC 2018-377 decision by:

- **Deleting “may” and insert “will” require performance monitoring in paragraph 308.**
- **Insert at the end of para 308: “In addition, the Commission will incorporate expected service performance standards in funding agreements.”**

111. **E) Confidentiality versus secrecy:** In paragraphs 407 and 408 of the 2018-377 decision, the Commission has adopted an approach to interpreting the role of confidentiality in its process which is highly dismissive of basic principles of consultative administrative norms, limits the scope for transparency and competitive bidding, will essentially make applications secret, therefore limiting the potential for any competing applications from the same area:

“Commission considers that the usefulness of public input at the application stage will be minimal and “the Commission determines that applicants will be permitted to file their applications confidentially, and that no public process will be initiated in respect of funding applications.”

112. This approach obviously contradicts basic principles of transparency in government and relying on competition and market forces to drive efficiencies. It also will make it impossible for municipal governments that have not been adequately consulted by the applicant to respond and competing private sector providers to make competing proposals until it is too late. In combination with the Commission’s decision to relax requirements on private sector applicants that would ensure their cooperation with communities the fund is suppose to benefit, the secretive application process the Commission is developing in the name of confidentiality will further limits the capacity of the

funding facility to complement other public sector initiatives trying to promote private sector investment high-quality broadband networks our communities demand.

113. The Commission's rather secretive approach in the name of protecting the confidentiality of applicants further has the potential to lead to rather perverse results, such as different levels of government ending up subsidizing different private sector providers or funding a patchwork of small scale/expensive projects in the same area. More cooperative solutions that allow for scaling infrastructure improvement initiatives are usually superior as they enable efficiency gains through complementary actions. Importantly, inducing cooperation requires transparency so different stakeholders in the ecosystem can respond to each other in a mutually beneficial manner. The Commission's top-down and secretive plan for what we hope becomes an effective universal service fund goes against the grain of basic principles in good governance. In this light, we request the Governor in Council to vary the decision such that it makes the process more visible to other public sector and private sector entities by:

- **Deleting paragraphs 407 and 408.**
- **Inserting that: "General information about applications under consideration, such as the identity of the applicant, the proposed area, and proposed speeds to be delivered, will be published on the Commission's website in a timely manner to allow other provider or public sector applicants to challenge the application and/or submit competing proposals."**

114. Requested relief outlined above is necessary, but will only partially align the design of the CRTC new funding facility with the needs of communities it was established to benefit back in 2016. SWIFT does not address elements of the Commission's decision relating to governance and assessment of the fund in this Petition. These variances should nevertheless address some of the key equity and efficiency concerns of residents, businesses, and public sector stakeholders in rural Canada that have encouraged the CRTC to develop an effective and efficient universal service funding mechanisms that complements our ongoing efforts to serve the needs of rural communities we represent and to counteract Canada's growing rural-urban digital divide in Internet access quality and affordability.

Respectfully submitted.

Appendix: List of SWIFT Members

As of December 2018

City of Barrie
Lambton College
Lambton County
Lambton Kent District School Board
Municipality of Chatham-Kent
St. Clair Catholic District School Board
City of Sarnia
1 Connecting Windsor Essex
Conseil scolaire de district des écoles catholiques du Sud-Ouest
Essex County
Essex County Libraries
Greater Essex County District School Board
St. Clair College
University of Windsor
Victoria Order of Nurses
Windsor-Essex Catholic District School Board
City of Windsor
Essex Lower Tiers
Dufferin County
Dufferin County - Grand Valley
Dufferin County - Town of Melancthon
Dufferin County - Town of Mono
Dufferin County - Town of Shelburne
Dufferin County - East Garafraxa
Dufferin County - Township of Amaranth
Beausoleil First Nation
Kettle and Stoney Point
Saugeen First Nation
Six Nations
Moravian of the Thames (Delaware Nation)
Caldwell First Nation
Chippewas of the Thames First Nation
Munsee Delaware Nation
Grey Bruce Health Services

Intermarket Real Estate Group
LARG*net - LDCSB
LARG*net - TVHPP and LWHA Hospitals
LARG*net - LONDON HYDRO
Mulmer, Township of
District School Board of Niagara
Niagara Catholic District School Board
Innovate Niagara
Niagara College
Niagara Health System
Niagara Regional Police Services
Region of Niagara
Ontario Federation of Agriculture
Orillia, City of
Oxford County
1 Simcoe County Access Network
Barrie Police Services Board
Georgian Bay General Hospital
Georgian College
Headwaters Health Care Center
Orillia Soldiers Memorial Hospital
Royal Victoria Hospital
Simcoe County District School Board
Simcoe County
Simcoe Muskoka Catholic District School Board
Simcoe Muskoka District Health Unit
Simcoe Muskoka Family Connexions
Waypoint Centre Mental Health
Thames Valley District School Board
Grey County
Ascent LLP
Beyond Air Networks Ltd.
Beyond Air Networks Ltd.
FTC Data
Huron Perth Catholic District School Board
Avon Maitland District School Board
Lone Canoe

Bruce Power
WREPnet
WRDSB
WCDSB
City of Cambridge
City of Kitchener
City of Waterloo
Conestoga College
Kitchener Public Libraries
Waterloo Public Libraries
Region of Waterloo
Grand River Hospital
Family & Children's Services
Women's Crisis Services
Wellington County
Centre Wellington
Mapleton
Puslinch
Town of Erin
Town of Minto
Wellington North
Guelph-Eramosa
North Perth
Huron County
Caledon
Brant County

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