# NORTHERN POLICY INSTITUTE

# INSTITUT DES POLITIQUES DU NORD

**Briefing Note No. 11 | April 2020**

# Long Distance Physical Distancing: Working from Home during Covid-19

By: Sean Rosairo

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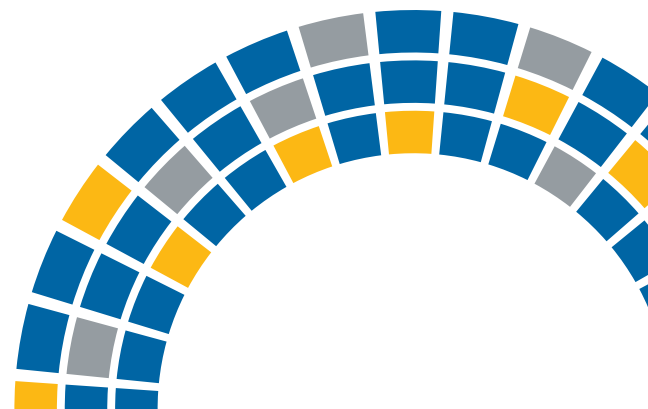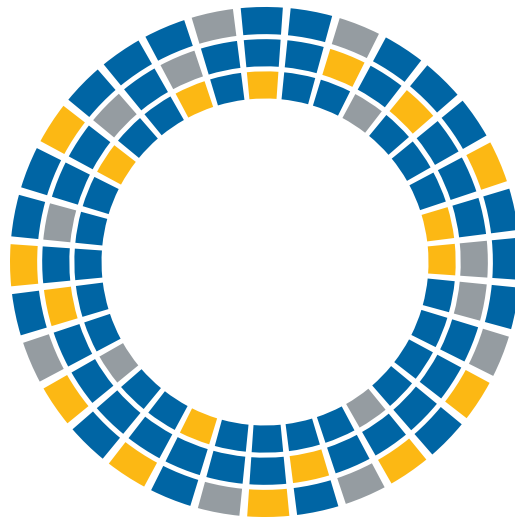
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# About the Author

## Sean Rosairo

Sean Rosairo was born in Thailand to Sri Lankan parents and then did most of his growing up in the Toronto suburb of Mississauga with lots of street hockey being played.

Sean recently graduated from Laurentian University with a B.A. specialization in Economics. In this program he gained insight into the importance of Northern Ontario communities, and how they operate within the framework of the Canadian economy. Sean hopes to take these statistics and relate it to real people to make Northern Ontario even better.

In his free time Sean enjoys hiking or mountain biking and using photography and videography to capture the beauty of landscapes.
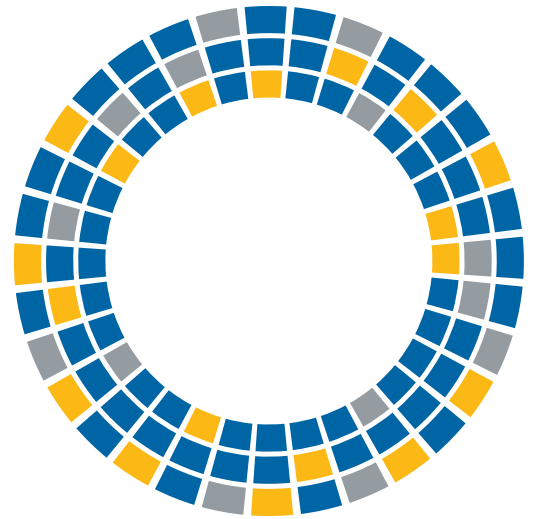
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# Introduction

On the 11th of March the World Health Organization (WHO) declared COVID-19 as a pandemic (Adhanom Ghebreyesus, WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020) and the Federal and Provincial governments across the country urged Canadians to take up physical distancing to slow the spread of the virus. Students were encouraged to study from home if they can, with coursework scheduled to continue online (CBC News 2020), while employers and other leaders encouraged individuals to work and stay at home if possible (Tumilty 2020).

For Canadians who can work from home and have strong broadband or fibre optic internet connections at home, one of the biggest challenges is abstaining from snacks. For other Canadians, especially for those in rural and northern communities, the internet infrastructure can be lacking and working from home can become frustrating or impossible depending on two factors: access to internet, and types of work that can be done remotely.

The current situation is that in Northern Ontario districts such as Parry Sound, with parents and children all working from home, the existing internet networks cannot keep up (Posadzki 2020). Subscribers note that the situation has not been optimal for regular internet usage and has only become worse as more subscribers and their children work from home and need to share the little bandwidth they already have. As such, this paper will focus on internet access and working from home in Northern Ontario during COVID-19.

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# Access to Internet

Students and remote workers need access to high speed internet to load two-way video streaming for online lectures, or conference calls and presentations. Popular video conference apps like Zoom require up to 6 Mbps of constant bandwidth to run smoothly (Zoom Video Communications 2019); lessons and tutorials can also be uploaded to YouTube or classroom management software like Blackboard and Brightspace. Other online tools such as remote hard drive servers and data centres like Microsoft Azure[1] (Microsoft Docs 2019), and Enterprise Resource Planning (ERP) platforms like SAP also require higher bandwidth internet that has to be fast and maintains a consistent speed for hours at a time to allow for remote work (HXM Suite End User System Requirements n.d.). These are all components of the digital economy[2] that will be seeing increased usage due to COVID-19.

The Canadian Radio-television and Telecommunications Commission (CRTC) states a target bandwidth of 50 Mbps (megabits per second) download speeds and 10 Mbps upload speeds to smoothly participate in the digital economy (CRTC 2019).

In Northern Ontario, there is a significant lack of access to this target speed. In fact, 15.5 per cent of the population still suffer from bandwidth speeds below the 50/10 Mbps target through any delivery method. That is 120,932 residents out of 780,140. For these households, their main options are DSL, cable modems, and/or fixed wireless, as shown in figure 1 below.

Breaking it down further, for Northwestern Ontario, a total of 35,931 households are without 50/10 Mbps while the Northeast total is 85,001 (Cartovista and CRTC 2018). Additionally, of the dwellings that do not have 50/10 Mpbs, over 90 per cent are considered rural households (ibid 2018).

**Figure 1: 50/10 speeds in Northern Ontario, 2018**

## Total dwellings lacking 50/10 Mbps speeds, 2018
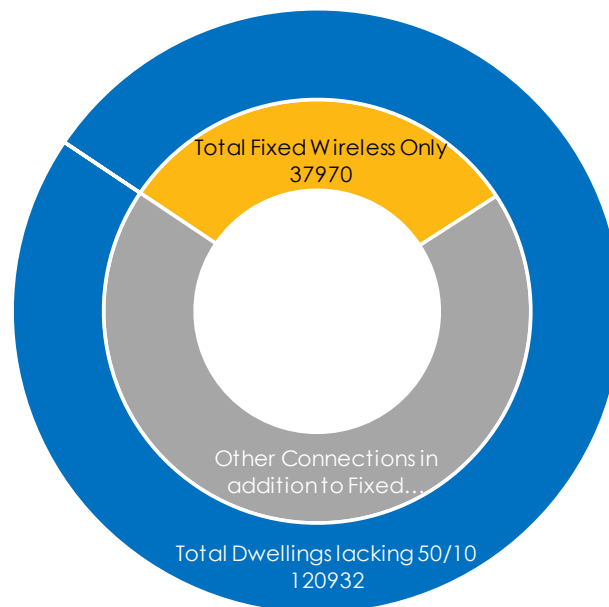


Source: CRTC Broadband fund Fixed Internet and Transport Maps
https://crtc.gc.ca/cartovista/fixedbroadbandandtransportye2018_en/index.html

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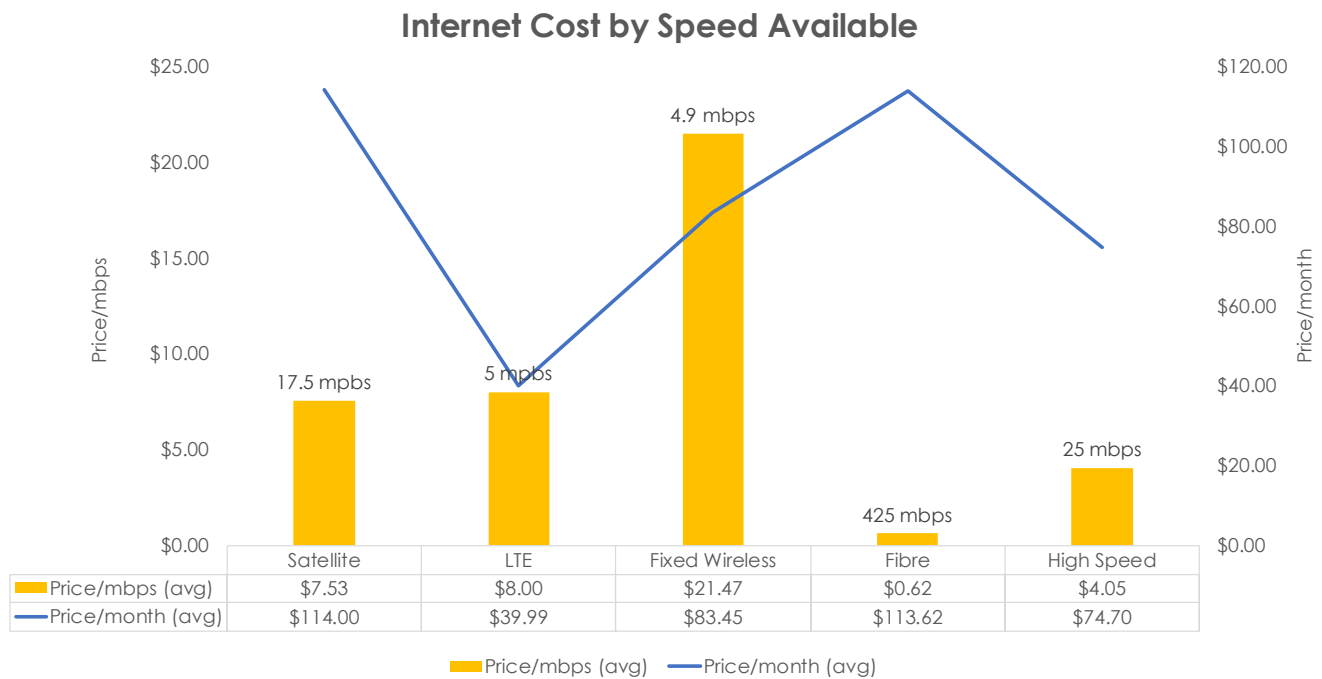[1] Recommends 5-15Mbps for heavy and power user workloads.

[2] Formally, the digital economy "refers to a broad range of economic activities that use digitized information and knowledge as key factors of production" (ADB Institute 2018).

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DSL or a Digital Subscriber Line works by sharing bandwidth on copper phone lines while cable works by sharing bandwidth on existing copper cable TV lines. These lines are being converted to fiber optic networks in select markets and are counted in both DSL/Fibre in broadband assessments, however there are various northern communities without the DSL/Fibre connections (Government of Canada n.d.). These copper lines don't have the speed and bandwidth that fibre does, and the pricing for these systems are also much higher and vary on the distance the subscriber is from the "Node" or hub of the network (Gary 2010).

Fixed wireless internet networks run on cellphone networks where there is a physical connection to a cell tower, and a receiving antenna carefully placed on the subscriber's property for maximum reception (Netspectrum 2020). This method offers very slow speeds and low usage limits with that price. In addition, if a home internet connection is being shared by other family members working or studying from home, the lack of bandwidth gets compounded for each user.

In addition to these three delivery methods, there are also some communities that rely solely on satellite. In total, there are seven and they are located in Ontario's Far North (Cartovista & CRTC 2018). Satellite connections are not offered by any of the "Big 3" Canadian carriers (Bell, Rogers, Telus, or their subsidiaries), but rely on smaller specialty carriers such as Xplornet that don't benefit from the economies of scale that a coast-to-coast carrier would. Furthermore, satellite prices are much more expensive for what the average Canadian pays (for other connections); at $130 a month a subscriber gets only 25 Mbps upload where the speeds slow down after 100 GB of usage (Xplornet n.d.). For comparison, for $115 a month, a Canadian with access to a Big 3 carrier can access 1000 Mbps speeds with no limit on usage (Bell Canada 2020; Rogers Communications 2019; Telus 2020).

**Figure 2: Average Internet Cost by Speed, Northern Ontario, 2019**



### Internet Cost by Speed Available

|  | Satellite | LTE | Fixed Wireless | Fibre | High Speed |
|---|---|---|---|---|---|
| Price/mbps (avg) | $7.53 | $8.00 | $21.47 | $0.62 | $4.05 |
| Price/month (avg) | $114.00 | $39.99 | $83.45 | $113.62 | $74.70 |

*Source: Author's Calculations from: Xplornet, Netspectrum, TBayTel Prices. Notes: Average was taken for the NE and NW. The data labels above each yellow column indicate average internet speed for that connection type.*

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# Work that cannot be done remotely

Unfortunately, not everyone can work from home. In 2019, there was a total of about 350,000 individuals that were employed in Northern Ontario. Of these individuals, over 60,000 were employed in one of three occupations: service support and other service occupations; maintenance and equipment operation trades; and industrial electrical and construction trades. In other words, the individuals in these occupations made up 17 per cent of the employed northern workforce (see figure 3 below). Occupations related to service supports and related occupations made up the biggest percentage of workers in Northern Ontario at 22,800 people (Statistics Canada 2020).

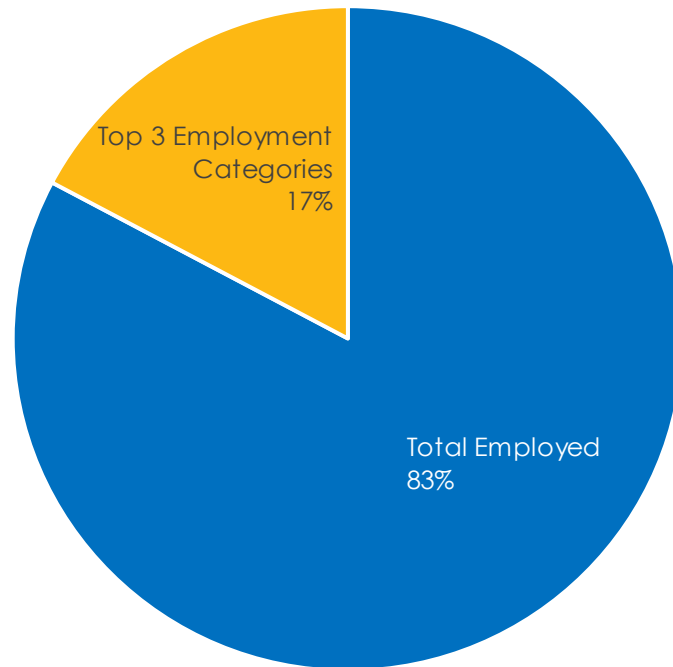**Figure 3: Employment in Northern Ontario by 2-Digit NOC, 2019**

## Total Employed in Northern Ontario

**Top 3 Employment Categories:**

Service support and other service occupations

Maintenence and equipment operation trades

Industrial electrical and construction trades

Top 3 Employment Categories
17%

Total Employed
83%

*Source: Author's calculations, Statistics Canada Employment by Economic Regions and Occupations, Table: 14-10-0312-01 (formerly CANSIM 282-0157).*

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Ontario has created a list of essential workers (Government of Ontario 2020) that includes supply chain distribution, retailing and wholesaling (e.g. wholesalers and retailers of medical supplies), and food services and accommodations. The occupations identified above fall under that essential businesses list and therefore remain open (at the time of writing). As illustrated in the next few paragraphs, these include occupations that are unable to be performed at home via the internet.

Service support and other service occupations include[3] food counter attendants and kitchen helpers, as well as porters, housekeepers custodians, laundry and dry cleaners. With everyone staying at home and not travelling or eating out (save for takeout), employers and employees in this sector are being impacted.

Maintenance and equipment and operation trades include service technicians for machinery and vehicles, mechanics, as well as train crew operators. These are jobs that still need to take place even with physical distancing. These employees keep supply chains running and keeps production of essential goods moving forward.

Industrial electrical and construction trades include electricians, and telecommunications line and cable installers. These employees are essential for keeping the economy running since they enable others to work from home.

Given the divide of those who can work from home and those who cannot, what now? When answering such a question, some have posed that we may be seeing a change in the nature of work going forward (Vincent n.d.; Harris n.d.; Cohen 2020). Indeed, this could be from shifting how we communicate with our coworkers (or the public) to revising policies around travel (Dignan 2020). Now is the time to strategize and experiment by asking questions about not only how to conduct business internally, but externally as well.
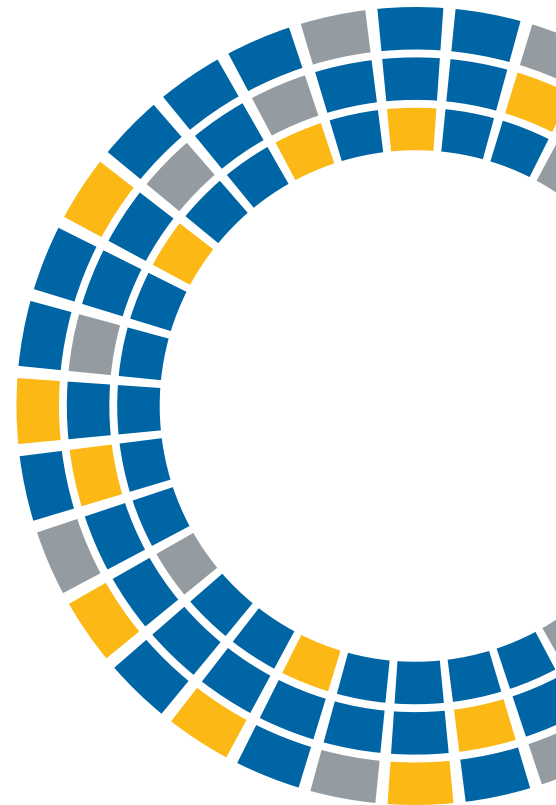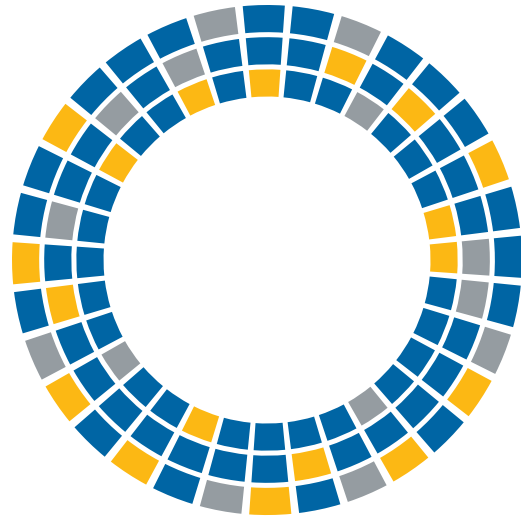
[3]  (Statistics Canada 2018)

# Conclusion

Physical distancing is important to prevent the spread of COVID-19, but the opportunity to work from home is not available to a proportion of Northern Ontarians. Whether that reason is due to bandwidth restrictions, or the type of work that requires employees to work on location.

The call to work from home has exposed the vulnerabilities of our economy, infrastructure and certain occupations. Physical distancing may be the stress test needed to help continue highlighting the need to improve digital infrastructure in Northern Ontario.

"Overall, we were told that the ability to use a safe, secure, affordable and quality internet connection is a prerequisite to significant economic development"

- Prosperity and Growth Strategy for Northern Ontario

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*Northern Policy Institute is Northern Ontario's independent think tank. We perform research, collect and disseminate evidence, and identify policy opportunities to support the growth of sustainable Northern Communities. Our operations are located in Thunder Bay and Sudbury. We seek to enhance Northern Ontario's capacity to take the lead position on socio-economic policy that impacts Northern Ontario, Ontario, and Canada as a whole.*

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Christina Zefi

**Connecting Our Communities: the Comparative Costs of Highway Construction**
Winter Lipscombe

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