

The background of the cover features a blurred image of a road winding through a landscape, with motion blur effects in shades of blue and green, suggesting speed and connectivity. The text is overlaid on a dark blue horizontal band.

BROADBAND CONNECTIVITY

A MUNICIPAL PRIMER



Rural Ontario
Municipal Association

Contents

The Purpose of the Connectivity Primer	3
About the Rural Ontario Municipal Association (ROMA)	3
Acknowledgements	3
Introduction	4
Municipal Leaders Can Be Agents of Change	5
Closing the Digital Divide Requires Both Public and Private Investment	6
Municipalities Building a Community-Business Case for Connectivity	7
Recommendations for Action	8
Conclusion	9
Appendix A: The Digital Divide	10
Appendix B: The Regulatory Landscape of Telecommunications in Canada	13
Appendix C: Types of Municipal Models	17

November 2020

The Purpose of the Connectivity Primer

This Primer provides a foundational briefing for municipal elected officials and their staff on the regulatory and funding regimes for telecommunications in Canada. It describes how these regimes have resulted in a digital divide between communities that are connected and those that struggle to get online. Given this context, it outlines actions that local governments can take to bring connectivity to their communities.

To accompany the Primer, the Rural Ontario Municipal Association (ROMA) has developed a *Municipal Connectivity Roadmap* to help municipal governments implement tangible steps and initiatives around connectivity, if councils choose to do so. It is important to remember that municipal governments do not have a mandated role in telecommunications. While ROMA recognizes that municipal elected officials are facing increasing pressure to act, there is no obligation or requirement to take action in this area.

Note that this Primer does not provide legal advice. ROMA encourages its members to engage with their staff and legal counsel as it considers the advice provided.

About the Rural Ontario Municipal Association (ROMA)

ROMA is the rural municipal voice of the Province of Ontario. It promotes, supports, and enhances strong and effective rural governments. ROMA members work closely with the Association of Municipalities of Ontario (AMO). AMO is a non-partisan, non-profit association that advocates for Ontario's 444 municipal governments. Together, these associations work together to achieve shared goals and meet common challenges, one of which is connectivity.

Acknowledgements

ROMA extends its gratitude for the expertise and contributions made by members of the Municipal Technical Working Group on Broadband, and External Peer Reviewers in the development of this Primer.

Introduction

In the 21st century, access to reliable, high-speed, and affordable internet (i.e. broadband) and long-term evolution (LTE) mobile (i.e. cellular) connections are a necessity, not a luxury. Connectivity has become almost as vital to a community's economic prosperity and quality of life as traditional infrastructure, such as clean drinking water, electricity, and well-maintained roads.

Municipal governments, including elected officials and staff, know first-hand how critical connectivity is for students, families, businesses, and seniors in their communities. They have also seen the global health and financial crises brought on by the coronavirus pandemic (COVID-19) make connectivity even more important. This has only exacerbated the “digital divide” between individuals that can access and afford reliable broadband, and those who still struggle to get online.

This is a familiar concept to municipal leaders across Ontario. That is because while rural, remote, and northern communities are disproportionately affected by gaps in connectivity, it is not just a rural issue. Across the province pockets of urban and suburban centres face similar connectivity challenges of availability, reliability, and affordability. For more information on the digital divide in Ontario, see [Appendix A](#).

Municipal governments do not have a mandated role in telecommunications, as connectivity is not considered a core municipal service. Telecommunications is largely dictated by the regulatory and funding landscapes at the federal and provincial levels, as outlined in [Appendix B](#).

That said, municipal councils across Ontario are facing increased pressure from their communities to put connectivity needs on the agenda. As a result, many municipal governments are contemplating whether a role in telecommunications is possible and feasible, whilst also advocating to federal and provincial governments who are responsible for regulating and funding telecommunications.

What is clear is that no one government can solve this challenge alone. It will take a collective effort to find solutions.

Municipal Leaders Can Be Agents of Change

Municipal governments have a high level of concern about connectivity, even though the sphere of influence over the regulatory and funding responsibilities for telecommunications is comparatively low. That is because local governments are the closest to students, families, businesses, and seniors who are demanding solutions for connectivity.

This complex reality highlights the important role that municipal elected officials play in advocating for better connectivity from the “ground-up.”¹ For example, some Ontario municipalities have built Connectivity Taskforces within their community, while others have conducted surveys to collect information on the level of connectivity experienced by their residents and businesses. Other longer-term initiatives include, but are not limited to:

- Wardens’ Caucuses who have built economies of scale through the Southwestern Integrated Fibre Technology (SWIFT) and the Eastern Ontario Regional Network (EORN);
- Northern Ontario which has commissioned geographic information system (GIS) mapping data coverage and other services through Blue Sky Net;
- Municipalities such as the Town of Caledon that have created an Internet Levy to assist with financing broadband projects;
- Intra-regional networks which have connected individual sites within their communities such as the Waterloo Region Education and Public Network (WREPNET); and
- Municipal governments which have built their own networks and operate through separate corporations such as YorkNet and Rhysome Networks.

More information on municipal initiatives, can be found in [Appendix C](#).

¹ Canadian Rural Revitalization Foundation (CRRF). Rural Insights Series: COVID-19. [“Addressing the Digital Divide: COVID-19 and the Importance of Connecting Rural Canada.”](#) S. Ashleigh Weeden & Wayne Kelly. June 2020.

Closing the Digital Divide Requires Both Public and Private Investment

For decades, telecommunications policy has been largely dictated by market forces whereby Telecommunications Service Providers (TSPs) and Internet Service Providers (ISPs) (together, industry), determine where to build connectivity according to market demand. That is because TSPs and ISPs respond to market signals to provide value to their shareholders and seek to achieve the highest return on investment as possible.

Typically, these returns on investments are found in relatively more densely populated and wealthier neighbourhoods. It has resulted in competition which drives prices down and improves offerings and options for residents of those areas.

However, many rural, remote, and northern communities (and certain suburban and urban areas) do not have these favourable market conditions and will not offer a rate of return in either the short or long-run. That is why investments by the public sector (i.e. funding subsidies) are needed to build a palatable business case for TSPs and ISPs to respond to.

Funding from the public sector has historically been the incentive TSPs and ISPs have needed to build in areas where infrastructure has been stalled, or not moved fast or substantially enough to close the ever-widening digital divide. The summary below shows why it cannot be left to the private sector alone to build the needed infrastructure and improve connectivity in areas that are subject to market failure:

1. Private telecommunications companies (TSPs and ISPs) respond to market signals to provide value to their shareholders and seek to achieve the highest return on investment as possible.
2. TSPs and ISPs will respond to public sector funding (i.e. subsidies) if there is a business case for them in doing so.
3. The demand for public funding for connectivity infrastructure has been limited despite decades of public announcements of substantial sums. Connectivity needs have grown while program plans, and implementation have been delayed. Not by design, but because of the accountability and transparency required to use taxpayers' dollars. These programs can also be burdensome for applicants, especially smaller municipalities, to access.²
4. Public funding is only one part of the necessary solution. Technological advancements and demand for better services will always outweigh the public funding available. Many smaller TSPs and ISPs are responsible locally but cannot scale up their impact on connectivity. Municipally owned and/or operated utilities can leverage opportunities for better broadband. Economies of scale will bring the highest rate of return on these investments.

Therefore, it will take all levels of government to work with the private sector to close the digital divide and engage the public and their communities in building connectivity for 21st century life, livelihoods, and economies.

² For example, the 2018 Auditor-General's report made a clear statement that lack of evidence and evaluation of past programs has failed to change the dysfunctions of broadband investment and planning. Office of the Auditor General. 2018 [Report 1 – Connectivity in Rural and Remote Areas](#). Accessed October 2020.

Municipalities Building a Community-Business Case for Connectivity

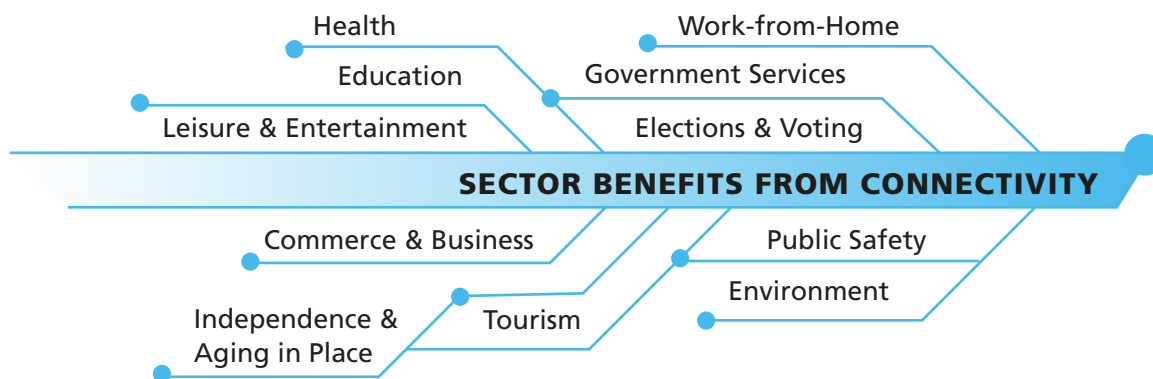
The need for better connectivity (i.e. broadband) has been building steadily for decades, and the pandemic has been only the latest catalyst for change. The difference today is that communities have thrust the issue to the top of the political agenda with the seismic shift towards working-from-home and the necessity for e-commerce and e-learning, given the lockdowns across the globe.

As such, municipal governments are looking for both short-term and long-term solutions to help bridge the digital divide within and across their communities and regions. Increasingly, these solutions include making financial investments in connectivity and collaborating with area municipalities if those investments are not feasible given other priorities for taxpayer dollars.

Access to reliable, high-speed, and affordable broadband is what facilitates economic recovery and growth in Ontario, and Canada. Broadband is paramount to being able to compete in regional and global markets. Investing in broadband improves economic prosperity and quality of life to the students, families, businesses, and seniors in a community. Unlike the private sector, the public sector (including municipal governments) can assign values on the direct and indirect economic, social, and environmental benefits that would help build the case for connectivity funding.

As shown below, these benefits span across multiple provincial and federal Ministries. In some cases, investing in broadband could alleviate the pressure for funding from other Ministries (e.g. Ministry of Education, Ministry of Health, OMAFRA, Ministry of Energy, etc.).

Figure 1: Benefits from Greater Connectivity (ROMA, 2020)



Therefore, municipalities should build a community-based case for connectivity funding and reflect the unique opportunities that broadband connectivity could bring. These considerations should also be discussed as councils consider whether to play a role in funding connectivity.

Recommendations for Action

Municipal governments cannot close the digital divide on their own. At the end of the day, it will take a collective and coordinated effort with all parties rowing in the same direction. All levels of government are facing pressure from communities across Ontario to work together to build better broadband.

Note that in early November, the Province of Ontario took action to provide an additional \$680 million in funding to expand and improve broadband and cellular infrastructure.³ This investment was followed shortly after by the federal government announcing it was expanding its Universal Broadband Fund (UBF) to \$1.75 billion.

The following chart captures recommended actions for stakeholders that are outside of the municipal sphere of influence, but critical to help break down barriers to broadband deployment.

	Recommended Actions on Telecommunications
Innovation, Science and Economic Development, Canada (ISED)	<ul style="list-style-type: none"> • Leverage \$1.75 billion in announced broadband investment and support its successful rollout (e.g. Universal Broadband Fund). • Continue to support the deployment of Low Earth Orbiting satellite technology to connect communities in which wired connections are challenging and impractical. • Match funding to policy goals and ensure sustainable improvements in services that can serve residents' needs as technologies evolve. • Undertake initiatives from the Broadcasting & Telecommunications Legislative Panel (Jan 2020). • Recognize the diverse and specific place-based contexts⁴, needs, and aspirations of different types of rural, remote, or other underserved communities when developing funding programs and policy initiatives (i.e. focus on digital agriculture vs. tourism).
Canadian Radio-television and Telecommunications Commission (CRTC)	<ul style="list-style-type: none"> • Provide a consistent and fair environment to incent investment in connectivity services that meet consumer needs at an affordable rate. • Reflect the importance of equity in its positions on acceptable service levels so that rural, northern, and remote residents are not left behind in the growing digital divide. • Strengthen regulatory frameworks that emphasize broadband as a basic right, and that protect public interest objectives in service level determination. • Institute minimum levels of constant service for all packages offered by TSPs and ISPs, even during peak periods. Currently, paying for an "up to" plan is expensive, and has no guarantee that at peak times the service will be close to as fast.
Province of Ontario (Ministry of Energy, Ontario Energy Board, and Ministry of Infrastructure)	<ul style="list-style-type: none"> • Continue to advocate to the federal government to support its successful rollout of broadband funding. • Continue to leverage the nearly \$1 billion provincial broadband investments, wherever possible. • Continue to work across Ministries and with AMO, ROMA, and local municipalities to identify solutions for increased connectivity as a mechanism for economic recovery and growth.

³ Government of Ontario. [News Release](#). "Ontario Investing Nearly \$1 billion to Expand and Improve Broadband Cellular Access." November 4, 2020.

⁴ For ideas, see CRRF. Rural Insights Series: COVID-19. "[Addressing the Digital Divide: COVID-19 and the Importance of Connecting Rural Canada](#)." S. Ashleigh Weeden & Wayne Kelly. June 2020.

	Recommended Actions on Telecommunications
Province of Ontario (Ministry of Energy, Ontario Energy Board, and Ministry of Infrastructure)	<ul style="list-style-type: none"> • Identify additional supports for municipal governments to improve their digital literacy & capacity building in their communities (e.g. youth and experts). • Explore innovative partnerships to help bridge funding gaps and/or develop policy initiatives that are focused on capacity building and digital learning. • In accordance with Mandate Letter⁵, modernize the Ontario Energy Board (OEB) by improving organizational governance and consider how expanding broadband and cellular access can align with a modernized and efficient energy sector. • Review provincial assets such as towers, buildings, land and utility poles (and their attachment rates) to optimize connectivity and lower costs of deploying technology to encourage private sector investment.
Utility Companies	<ul style="list-style-type: none"> • Build better relationships with municipal governments; share information more consistently and where possible, coordinate strategic plans on connectivity. • Educate and inform municipal councils early and often about the rationale for utility pole attachment rates. Share what the barriers are and discuss what municipal governments and utility companies could each do to improve the relationship (e.g. permitting, Rights-of-Way).
Telecommunications Service Providers (TSPs) & Internet Service Providers (ISPs) Companies	<ul style="list-style-type: none"> • If too cost-prohibitive to build in areas of need, do not inhibit other companies or technologies from providing this service (e.g. smaller TSPs and ISPs operating in nearby municipalities). • Develop and sustain relationships with municipal governments in a meaningful and ongoing way. • Continue to invest in and fund robust infrastructure that can be upgraded in the future and that can provide high-quality telecommunications services.

Conclusion

The time has passed to study whether the digital divide exists and justify the need for connectivity. This Primer has provided an overview of the regulatory and funding landscapes for telecommunications in Canada. It also introduces some examples of models that municipal governments in Ontario have put together in recognition that better connectivity provides an opportunity for everyone in their communities to enjoy economic prosperity and a high quality of life.

If municipal councils are looking for tangible steps to consider implementing similar measures as the examples in this document, ROMA encourages its members to read the companion document, *Broadband Connectivity: A Municipal Roadmap*.

⁵ Ministry of Energy. [Mandate Letter](#). October 1, 2020.

Appendix A: The Digital Divide

The Digital Divide in Ontario

This concept is familiar to municipal leaders across Ontario, as many regions face similar connectivity challenges of availability, reliability, and affordability. However, the data shows that rural, remote, and northern communities and First Nations communities are disproportionately affected by gaps in connectivity.

The Province estimates that 12% of Ontarians live in communities with insufficient or no connectivity, and 9% of Ontario's roads are not covered by the latest mobile technology.⁶ Further, approximately 30% of rural households rely on fixed wireless services.⁷

ROMA believes that this is unacceptable and that it will take considerable changes to the regulatory and funding landscapes to close the digital divide. The following sections capture some recent trends in the digital divide that will be all too familiar context for municipal governments – broadband speeds, service quality, and affordability.

The Digital Divide in Canada

Availability of Broadband by Speed

Broadband refers to high-speed internet access that is always “on” and faster than the traditional dial-up access. Broadband is commonly measured by two speeds:

- **Download Speed** – how fast you can download information from the internet
- **Upload Speed** – how fast you can upload information from the internet

In 2016, the CRTC established a universal or ‘basic’ service standard to close the connectivity gap. Think of these as minimum internet speeds for Canadians – in rural and remote areas as well as in urban centres:

- Speeds of 50 megabits per second (Mbps) download / 10 Mbps upload for fixed broadband services with an unlimited data option; and,
- The latest mobile wireless technology (cellular) available not only to all homes and businesses, but also along major Canadian roads.⁸

The goal is to have 90% of Canadian homes and businesses meeting that target by the end of 2021, 95% in 2026, and 100% by 2030.⁹

The CRTC's Monitoring Report 2019 determined that across Canada, 97.7% of urban households have access to 50 Mbps/10 Mbps in 2018. By contrast, only 40.8% of rural households do and that number is even lower when looking at First Nations communities (31.3%).¹⁰

⁶ Province of Ontario. “[Up to Speed Action Plan](#).” July 2019.

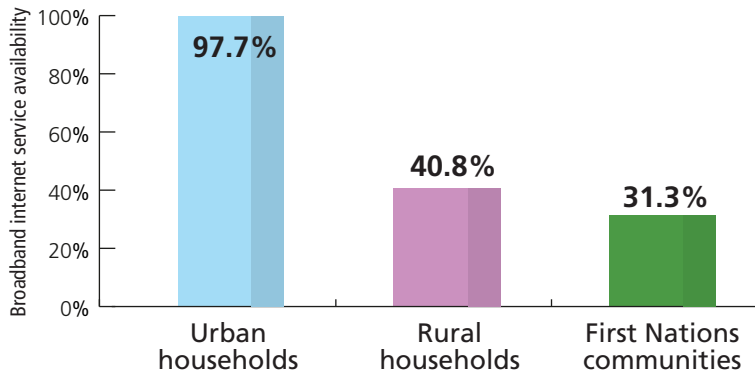
⁷ CRTC Monitoring Report 2019.

⁸ Government of Canada. CRTC. “[Telecom Regulatory Policy CRTC 2016-496](#).” Ottawa, December 21, 2016.

⁹ Government of Government. ISED Canada. “[High-Speed Access for All: Canada's Connectivity Strategy](#).” 2019.

¹⁰ CRTC. “[Communications Monitoring Report 2019](#).” p. 274.

Figure 2: Broadband Internet Service Availability (50/10) in Various Canadian Communities (2018)

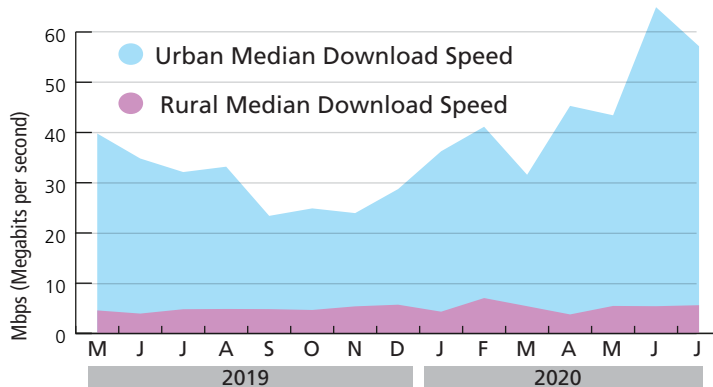


This disparity in access highlights the importance of having the CRTC basic standard as it incentivizes TSPs and ISPs to build up communities and connect households that are not able to access it otherwise. Without public funding, TSPs and ISPs will not have a palatable business case, and it is likely these areas will remain in need.

The Canadian Internet Registration Authority (CIRA) has been studying the discrepancy of speeds since the pandemic began using data from its voluntary Internet Performance Test.¹¹ The latest release from August 2020 shows that between March and July, urban internet users saw an average download speed increase of about 25 Mbps, while rural speeds had not notably improved.¹²

As the chart below shows, rural internet users have experienced a median download speed of 5.5 Mbps since the pandemic began, compared to urban download speeds which have nearly doubled since the start of March (26.16 Mbps in March, to 51.54 Mbps in July).¹³

Figure 3: The Urban-Rural Digital Divide Across Canada, May 2019 to July 2020



¹¹ Municipal governments are encouraged to work with CIRA to integrate the use of the Internet Performance Test as a tool on municipal websites. <https://performance.cira.ca/>. Accessed November 2020.

¹² CIRA Press Release. “[New internet performance data shows urban speeds improving while rural speeds plateau.](#)” August 2020.

¹³ CIRA Press Release. August 2020.

As municipal governments in rural, remote, and northern communities know all too well, the disparity in download speeds has significant impact on daily productivity and competitiveness. However, what remains to be studied is whether the higher speeds experienced are because Canadians in urban areas are buying larger plans, and if so, why rural communities have not (or cannot) followed suit.

Service Quality

Quality of service is also a problem in areas of need. Low levels of latency, jitter, and packet loss are important concepts when measuring the quality of broadband service.

- **Latency** – the delay that occurs between when a file or signal is sent, and when it is received at its destination (the lower the latency, the better).
- **Packet** – a sequence of bits arranged in a specific format that contains user data, that is separated and regathered together to move information faster.
- **Jitter** – the variation in time between packets arriving at their destination, caused by network congestion, timing draft, or route changes.
- **Packet loss** – the failure of a packet to travel through the network to its destination.

Real-time communications services (i.e. videoconferencing-type services, telemedicine, etc.) are not possible if the connection is not sufficient or reliable. The quality and stability of a connection will also depend on network congestion, server load, and end-user device capability.

While urban Canadians have been given options to upgrade their homes, many rural areas served by satellite or wireless service that had been 'oversubscribed' experienced a decline in their internet service quality due to the high demand.

Affordability of Services

The 2019 CRTC Monitoring Report shows that on average, households in rural communities have increased spending per month for internet by 8.7% since 2016, compared to urban centres that have only increased by 4% over the same period. Generally, this price disparity is to pay for inferior service compared to urban areas (e.g. only 40.8% of rural Canadian households can access 50/10/unlimited service).

One factor that affects affordability is the number of choices that communities can choose from. As of 2015, there were between three (3) and nine (9) competing ISPs, and between two (2) and six (6) wireless service providers in most urban centres in Canada.¹⁴

The lack of competition outside urban areas means fewer options and less choice in rural areas. This coupled with the choice of data cap options, often leads to bill shock in these areas. Customers in these areas who do not have an unlimited option, must limit their internet use. That is, unless they are willing to pay additional overage fees, which can be in the range of \$0.50 to as much as \$3 per GB (2016).¹⁵ In other cases, rural residents pay for more than one service to avoid going over on data caps in any of their options.

¹⁴ CRTC. [Telecom Regulatory Policy 2016-496](#). Ottawa, December 21, 2016.

¹⁵ CRTC. [Telecom Regulatory Policy 2016-496](#). Ottawa, December 21, 2016.

Appendix B: The Regulatory Landscape of Telecommunications in Canada

The following outlines the different roles that the federal and provincial governments play in connectivity.

The Government of Canada

Telecommunications regulatory and oversight powers lie primarily with the federal government. The Government of Canada regulates the industry through the *Telecommunications Act*, *Broadcasting Act*, and the *Radiocommunications Act*.

The Innovation, Science and Economic Development (ISED) Canada, and the Canadian Radio-Television and Telecommunications Corporation (CRTC) play the most important roles at this level.

Innovation, Science and Economic Development Canada (ISED)

The purpose of ISED Canada is to improve conditions for investment and build a fair, efficient and competitive marketplace. ISED has three key functions regarding telecommunications:

1. Approves the placement of transmission antennas for cellphone services and other consumer and commercial applications.

Today, there are approximately 13,000 wireless antenna towers across Canada. While ISED is not involved in the specifics of tower installations, they set the law through the Radiocommunication Act. More information, antenna siting protocols, and facts about towers and safety, can all be found on ISED's website.¹⁶

2. Provides access to the radiofrequency (RF) spectrum.

ISED provides access to this spectrum by issuing authorities for its use, minimizing interference, securing Canada's access to it through international negotiations, and by ensuring its safe and efficient use.¹⁷ In light of the COVID-19 pandemic, the 3500 MHz spectrum auction has been delayed until June 15, 2021.¹⁸ Both the 3500 MHz and 3800 MHz bands are considered key due to their ability to transport data at 5G – or fifth generation – speeds at a reasonable range.

3. Is responsible for the National Broadband Internet Service Availability Map.

The map is created and updated through ongoing consultation with ISPs, the CRTC, industry associations, provinces and territories, and other partners and stakeholders.¹⁹ Mapping is discussed in further detail in the *Municipal Roadmap* document.

¹⁶ Government of Canada. ISED Canada. "[Facts about Towers](#)." Accessed October 2020.

¹⁷ Government of Canada. ISED Canada. "[Spectrum Management and Telecommunications](#)." Accessed October 2020.

¹⁸ Government of Canada. ISED Canada. "[Key Dates – Policy and Licensing Framework for Spectrum in the 3500 MHz band](#)." Updated June 5, 2020.

¹⁹ Government of Canada. ISED Canada. "[National Broadband Internet Service Availability Map](#)." Accessed October 2020.

The Canadian Radio-Television and Telecommunications Commission (CRTC)

The CRTC is mandated by the Minister of Heritage to regulate and supervise broadcasting and telecommunications in the public interest. It is an administrative tribunal which means it operates at arm's length from the federal government.²⁰

Their role regarding the internet is to regulate the wholesale rates charged by large telephone and cable companies to competitors who want to offer services but depend on having access to these large companies' networks. Note the CRTC does not regulate retail rates charged by ISPs to their retail customers.

In 2016, the CRTC established a universal or 'basic' service standard to close the connectivity gap. Think of these as minimum internet speeds for Canadians – in rural and remote areas as well as in urban centres:

- Speeds of 50 megabits per second (Mbps) download / 10 Mbps upload for fixed broadband services with an unlimited data option; and,
- The latest mobile wireless technology (cellular) available not only to all homes and businesses, but also along major Canadian roads.²¹

The goal is to have 90% of Canadian homes and businesses meeting that target by the end of 2021, 95% in 2026, and 100% by 2030.²²

This policy change was substantial, as until 2016, local landline telephone service was the only service deemed "basic" or essential by the CRTC. That said, there was substantial feedback to CRTC/ISED consultations that the federal government must do more.

Federal Government Resources for Reference:

- [Telecom Notice of Consultation CRTC 2019-406](#)
- Rural Economic Development's [Rural Opportunities, National Prosperity: An Economic Development Strategy for Rural Canada](#) (2019)
- ISED's [High-Speed Access for All: Canada's Connectivity Strategy](#) (2019)
- Office of the Auditor General of Canada Report 1 – [Connectivity in Rural and Remote Areas](#) (2018)
- Parliament of Canada, [House of Commons Broadband Connectivity in Rural Canada: Overcoming the Digital Divide](#) (2018)

²⁰ Government of Canada. CRTC. "[Internet – Our Role](#)." Accessed October 2020.

²¹ Government of Canada. CRTC. "[Telecom Regulatory Policy CRTC 2016-496](#)." Ottawa, December 21, 2016.

²² Government of Government. ISED Canada. "[High-Speed Access for All: Canada's Connectivity Strategy](#)." 2019.

The Province of Ontario

While the provincial government does not directly regulate the telecommunications industry, it does have a vested role and interest in broadband infrastructure because of its responsibility for economic development, COVID-19 recovery, and building economic prosperity for all Ontarians. Several ministries make directed investments in broadband deployment including the Ministry of Education, Ministry of Health, Ministry of Agriculture and Rural Affairs, Ministry of Energy and Ministry of Infrastructure.

To that end, the Province has coordinated broadband policy and planning initiatives through (currently) the Ministry of Infrastructure and (in the past) the Ministry of Community and Government Services. Generally, the Province has more flexibility in how and where any federally or municipally matched, or its line ministries directed, funding is used. A few of the key ministries and agencies influencing broadband deployment are discussed here:

Ministry of Energy, Northern Development & Mines (MENDM) and the Ontario Energy Board (OEB)

The MENDM sets the overall policy for the energy sector. The Ontario Energy Board (OEB) is an independent regulator of the electricity and natural gas sectors in Ontario. The Chair of the Board of the Directors of the OEB is accountable to the Ministry for the effective delivery of its mandate.

The goal of the OEB is to promote a sustainable, reliable energy sector that helps consumers get value from their natural gas and electricity (hydro) services.²³ The OEB's relevance to the telecommunications industry is through wireline pole attachment charges, or rates.

These rates dictate the charges that telecommunications and cable companies (carriers) must pay to electricity distributors (hydro) companies to attach their wires to hydro poles and access their network of electricity poles. Ontario has a network of more than 200,000 km of low voltage distribution lines available, and the rates vary.

These charges make revenue which help to offset the full cost of the poles. Without those revenues, the OEB states the cost would have to be embedded in electricity distribution rates.

Three utility, or local distribution companies (LDCs) – Toronto Hydro, Hydro Ottawa, and Hydro One – collectively own roughly 90% of the electricity poles in Ontario.²⁴

²³ Ontario Energy Board. "[Ontario's Energy Sector](#)." Accessed October 2020.

²⁴ Province of Ontario. Report of the Ontario Energy Board. "[EB-2015-0302 Wireline Pole Attachment Charges](#)." March 2018.

Ministry of Infrastructure

The Ministry of Infrastructure (MOI) is responsible for guiding investments into built infrastructure including schools, hospitals, roads, bridges, transit, and other critical services that affect people's daily lives. More recently, part of its mandate has been to expand broadband and cellular services across the province. Connecting rural, northern, and Indigenous communities has become one of the top priorities in the past two years.

The MOI has played a strategic role in keeping broadband top of mind and has been working with other Ministries as well as AMO and ROMA to find solutions that close the digital divide in a meaningful way. For example, the Ministry announced it would be investing nearly \$1 billion to expand and improve broadband and cellular access.

Provincial Government Resources for Reference:

- Ministry of Infrastructure's [Up to Speed: Ontario's Broadband and Cellular Action Plan](#) (2020)
- Building Ontario – Broadband projects (map) <https://www.ontario.ca/page/building-ontario>
- Ministry of Infrastructure's "<https://news.ontario.ca/en/release/57537/ontario-expanding-access-to-the-modern-digital-economy>" Improving Connectivity for Ontario program (ICON)

Appendix C: Types of Municipal Models

There are various municipal models across Ontario that municipalities should consider and learn from as councils consider what role they wish to play in connectivity.

Blue Sky Net – www.blueskynet.ca

- Provides service for Nipissing District, East Parry Sound, Sudbury East, Almaguin Highlands Manitoulin Island and points in between, GIS mapping data coverage for all of Northern Ontario.
- Facilitates enhancement of broadband access to unserved/underserved areas. They develop and implement ICT applications and offer training, education and awareness of technologies to surrounding communities.
- Incorporated in 2002 as Blue Sky Economic Growth Corporation; shifted to technology development in 2005.
- Have facilitated deployment of broadband technologies to over 150 communities predominantly in the districts of Nipissing, Parry Sound, and Sudbury East through the creation of new broadband Points of Presence (Pops) outside of urban centres.
- [Public Portal for Northern Ontario](#)

Eastern Ontario Regional Network (EORN) – www.eorn.ca/en/index.aspx

- Created by the Eastern Ontario Wardens' Caucus (EOWC); works with ISPs to build a 5,500-km network of new and existing fibre optic, with 160 new access points.
- Between 2010 and 2014, EORN helped improve broadband access to nearly 90% of eastern Ontario. As a result, 423,000 homes and businesses are now able to access services of up to 10 Mbps download.
- Current projects include improving and expanding cellular services across the region, and the EORN Gig Project.
- EORN Toolkits Series: www.eorn.ca/en/eorn-resources/resources.aspx

Rhysome Networks – www.rhyzome.ca

- Formed to manage the more than 50km grid of fibre optic infrastructure in the City of Stratford and Town of St. Marys and is wholly owned by the City of Stratford
- Constructed a city-wide Wi-Fi system in Stratford with more than 300 wireless access points.

Southwestern Integrated Fibre Technology (SWIFT) – www.swiftruralbroadband.ca

- Comprised of 20 municipal members
- Initiated by the Western Ontario Wardens' Caucus (WOWC) in 2014; established to strategically leverage public funding to incent broadband expansion across Southwestern Ontario's underserved communities
- SWIFT aims to invest \$209 million to connect over 50,000 premises to broadband services across 20 upper-tier municipalities.
- The model is flexible to variable ISP sizes and ensures that funds are only allocated to projects that would not have otherwise occurred in the absence of government subsidy.
- SWIFT is currently seeking federal and public funding to supply gigabit services to 95% of the population in Southwestern Ontario.
- SWIFT Project Map & On-going Surveys: www.swiftruralbroadband.ca/resources

Waterloo Region Education and Public Network (WREPNET) – www.wrepnet.on.ca

- Initiated by the School Board in Waterloo Region in 1999 – initial fibre was provided by local hydro companies. It is now a shared-wide-area network for all regional sector entities (e.g. school boards, local governments, public libraries, post-secondary institutions, hospitals and social service agencies).
- It currently connects 326 individual sites across Waterloo, with fibre optic cable connected to 10,200 hydro poles.
- The offering does not directly benefit the public or private sector except where members provide public WiFi.

YorkNet – www.york.ca/wps/portal/yorkhome/yorkregion/yr/yorknet

- A wholly-owned Regional corporation that operates and manages expansion of the Region of York's fibre optic network
- Council endorsed the creation of YTN Telecom Network Inc in 2016. YorkNet was incorporated as a separate municipal services corporation in 2017 and began operations in January 2018.
- Provide private-sector open access to the network to drive economic and social benefits that will give residents, businesses and public-sector customers enhanced service, better pricing, or both, particularly in rural areas of the Region.
- Key difference in the model is that they own the fibre as an asset and manage it like other municipal assets.

Regional Technology Development Organizations

- Knet – Sioux Lookout - www.knet.ca
- NeoNet – Timmins - www.neonet.on.ca
- Parry Sound Muskoka Community Network – Gravenhurst - www.pmcn.ca
- Northwestern Ontario Innovation Centre - www.nwoinnovation.ca
- The Sault Ste. Marie Innovation Centre - www.ssmic.com

International Examples

- [Broadband for Rural North](#) (B4RN) is a community owned company started by volunteers in Lancashire, England to provide hyper-fast (1000 Mbps/1 Gig) symmetric broadband to every property in the community, at a cost of 30 pounds/month. It is described as the fastest residential network in the world.



Rural Ontario
Municipal Association

www.roma.on.ca