B.C. Connectivity Report 2022

PREPARED BY MINISTRY OF CITIZENS' SERVICES

BRITISH COLUMBIA | Ministry of Citizens' Services

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Photo credit: Connected Coast

MESSAGE FROM LISA BEARE, MINISTER OF CITIZENS' SERVICES

I am pleased to present the Ministry of Citizens' Services' B.C. Connectivity Report for 2022, highlighting the state of connectivity in British Columbia.

This report monitors the progress of significant provincial and federal funding contributions, as well as investment from the private sector and other sources, to expand connectivity throughout the province. It charts progress and compares B.C. with other jurisdictions in Canada, giving us the information required to develop effective policies to expand connectivity for the benefit of everyone in British Columbia.

Working to connect all people in B.C. to high-speed connectivity – regardless of where they live – is a priority for our government. We know connectivity is a key driver for the growth and economic development of our communities and the continued success of our province. Connectivity is also vital for British Columbians to be able to learn and work from anywhere, as the province adapts to meeting the job demands of the future.

That is why we've committed to expanding high-speed internet services to all remaining households in B.C. by 2027, allocating over $500 million in provincial funding since 2017, and leveraging federal investment to support connecting all households to high-speed internet through the Connecting Communities BC funding program. This commitment is outlined in the government's StrongerBC Economic Plan and the Declaration Act Action Plan and supports providing reliable high-speed internet services to empower British Columbians with opportunities to succeed and contribute to the future in all corners of the province.

Our Ministry continues to work with all levels of government, as well as with service providers, to meet this goal. Expanding connectivity levels the playing field for British Columbians and ensures every community has better access to jobs, education, training and health care.

Honourable Lisa Beare
Minister of Citizens' Services

ABOUT THE REPORT

The last B.C. Connectivity Report in 2019 benchmarked the status of connectivity in the province and compared B.C. to peer jurisdictions in Canada and the United States. This year's Connectivity Report compares B.C. to other provinces in Canada, providing a baseline to measure the B.C. government's progress to connect all households to high-speed internet services by 2027.

The report focuses on three factors of connectivity: access, affordability, and speed, for both high-speed internet and cellular services. These factors allow us to explore the connectivity services available to households across the province, the actual speeds experienced in the home or business, and service affordability.

LIMITATIONS

Data reflected in this report is from the Canadian Radio-television and Telecommunications Commission 2022 Communications Market Reports, which analyse data from 2020 and 2021. In addition, the report uses Canadian Internet Registration Authority (CIRA) Internet Performance Test data 2022, and cellular speed data from Speedtest 2022.

Please note that data in this report is presented as a snapshot in time for connectivity, allowing for comparison between other jurisdictions across Canada. Progress in connectivity has been made across jurisdictions since this data was collected.

PRIMARY RESOURCES

The report uses data compiled by the federal telecommunications regulator – the Canadian Radio-television and Telecommunications Commission (CRTC), as well as internet speed data from CIRA and cellular speed data from Speedtest.

Resources include:

- CRTC Communications Market Reports
    - 2022 Communications Market Reports – Current trends – Mobile wireless | CRTC
    - 2022 Communications Market Reports – Current trends – High-speed broadband | CRTC
    - 2022 Communications Market Reports – Open Data | CRTC
- CIRA Internet Performance Test data, 2022
    - 2022 – Rural internet download speeds slowly closing the gap to urban speeds, but they still fall well below the CRTC's universal service objective | CIRA
- Speedtest mobile speed data
    - 2022 – Speedtest Global Index

METHODOLOGY

The Connectivity Division within the Ministry of Citizens' Services has collected quantitative data from federal government reports, CIRA and Speedtest.

This report benchmarks connectivity for B.C. compared to other provinces across Canada which operate under a shared operating and regulatory environment. It should be noted, however, that every province is different and has unique challenges for connectivity expansion. For example, B.C. has particularly challenging terrain like mountains, lakes and extensive forested areas, which can make the expansion of services to rural and remote areas difficult and costly.

Further context, definitions and updates on current funding programs are included in highlight boxes throughout the report. These are intended to provide background information, as well as current statistics from B.C. government funding programs.

National universal service objective

In Canada, telecommunications are federally regulated by the Canadian Radio-television and Telecommunications Commission (CRTC). In 2016, the CRTC established a universal service objective that Canadians in urban areas, as well as in rural and remote areas, should have access to voice services and broadband internet access services on both fixed and mobile wireless networks.

To measure the achievement of this objective, the CRTC established criteria, including:

- Canadian residential and business fixed broadband internet access service subscribers should be able to access speeds of at least 50 Megabits per second (Mbps) download and 10 Mbps upload, and be able to subscribe to a service offering with an unlimited data allowance; and
- The latest generally deployed mobile wireless technology should be available not only in Canadian homes and businesses, but on as many major transportation roads as possible in Canada.

EXECUTIVE SUMMARY

The B.C. Connectivity Report uses data to focus on three factors of connectivity for broadband and cellular services: access, affordability and speed.

This report provides a snapshot in time of the landscape of connectivity in British Columbia and how B.C. compares to other provinces in Canada.

Broadband internet

Providing access to internet services of at least 50/10 Mbps to every household, inclusive of urban centres, rural areas and Indigenous communities, is a CRTC universal service objective which the B.C. government has committed to achieve in the province by 2027. Broadband internet service highlights include:

- B.C. is a leader compared to other provinces for access to internet speeds of 50/10 Mbps, 200+ Mbps and 1 Gigabit.
- B.C. is a leader within Canada for providing access to higher internet speeds in rural areas and First Nations reserves.
- Urban areas are nearly completely served in B.C., while many rural areas and First Nations reserves remain under-served with high-speed internet services.
- B.C. has the lowest minimum price in Canada for a 50/10 Mbps internet service subscription with a data cap at $40/month. These minimum subscription prices are typically only available in urban areas.

Cellular

Cellular is becoming increasingly important as the world becomes more mobile, allowing us to work, connect and play on the move, as well as being able to respond to emergency situations. Cellular service highlights include:

- Prices for cellular plans have decreased in B.C. since 2017. However, cellular plan prices in B.C. are above the Canadian average.
- Cellular speeds in B.C. remain on par with the Canadian average.
- B.C. is below the Canadian average in providing access to wireless LTE (Long-Term Evolution) services.
- Cellular coverage on major B.C. highways is below the Canadian average due in part to challenging terrain, population distribution and lack of available power on large sections of highway in the province.
- While 5G technology is available in urban areas, B.C. is making strides in 5G expansion in rural areas and First Nations communities.

Conclusion

Since the last B.C. Connectivity Report in 2019, there has been an increase in access for broadband internet and cellular services. Both affordability and speed have also seen positive changes that benefit subscribers of both internet and cellular services.

Overall, B.C. has been a leader in Canada in providing access to higher speeds for cellular and internet services, but work is still required to improve access in First Nations communities and rural areas. There is also a difference in affordability and available speeds between urban centres, rural areas and First Nations communities.

Significant strides have been made to advance connectivity in the province since the data captured in the 2022 CRTC Communications Market Report, through government funding programs, as well as funding from the private sector and other sources. Government funding programs, like Connecting Communities BC, support improving both access and speed for internet services to all areas of the province by 2027.

Connecting British Columbia program and Northern Development Initiative Trust

The Connecting British Columbia program is a B.C. government connectivity funding program, administered by Northern Development Initiative Trust (NDIT) The Connecting British Columbia program began in 2014 to support the expansion of high-speed internet in the province, and the last funding intake closed in 2022.

As of publication of this report, NDIT has approved over 184 connectivity projects for funding from the program since 2017, that will benefit over 72,000 households when all projects are complete.

Connecting Communities BC

The B.C. and the federal governments signed a memorandum of understanding in March 2022 to invest up to $830 million to expand high-speed internet services to all households in the province by 2027.

B.C.'s new funding program, Connecting Communities BC, is open for funding applications from eligible applicants to support the expansion of broadband internet infrastructure in the province.

BROADBAND

Broadband is defined as a high-speed connection to the internet through the facilities of an internet service provider that provides download speeds of 1.5 Mbps or greater.

The CRTC's universal service objective is for all households in Canada to have access to high-speed internet services of 50/10 Mbps or above and have the ability to subscribe to an unlimited data plan. An unlimited data plan means consumers of internet services do not have a data limit for usage, which gives subscribers the freedom to use as little or as much data as they like or need.

This section looks at broadband access, as defined in the CRTC's universal service objective, as well as affordability and speed.

The speed and quality of internet connectivity in homes depends, in part, on the capacity of the broadband internet infrastructure connecting the user to the wider internet. This infrastructure consists of two main components – backbone or transport, and last mile. Investment in both backbone and last mile infrastructure is required to bring high-speed internet to rural, remote and Indigenous communities.

Note: This report tracks numbers related to 50/10 Mbps access for any plan – which includes unlimited plans as well as those with a data cap.

Access, affordability and speed

Access, affordability and speed are three main factors for measuring the status of connectivity in B.C. They are defined as follows:

- **Access**: The ability of a residence to subscribe to an internet service with a certain download and upload speed threshold.
- **Affordability**: The comparable cost of internet service plans.
- **Speed**: The measurement in bits per second broken out by download and upload speed. Here, a common unit is, "Megabits per second" or Mbps (one million bits per second).
  - Download speed is the speed at which data (e.g., files, pictures and movies) is delivered from the internet to users.
  - Upload speed is the speed at which data travels from users to the internet.

Defining backbone and last mile

Backbone (or transport) infrastructure consists of high-capacity lines (generally fibre optic lines) that can transmit large amounts of data from Internet Exchange Points in major cities, such as Vancouver, Calgary or Seattle, to community points.

Last mile infrastructure connects from the service provider's community point of presence to households. Last mile can be achieved using multiple technologies including both wired and wireless methods, such as fibre, digital subscriber lines (DSL), coaxial cable and fixed wireless.

Examples of backbone and last mile projects

B.C. has made progress extending its backbone network in recent years due to government funding programs. Examples of backbone network projects part-funded by the province include the Connected Coast project, Tahltan Nation Development Corporation's transport fibre project, and Shaw Communications' Whistler to Cache Creek transport project. Transport projects like these expand fibre to areas that need it and increase resiliency to the broadband internet network, providing an alternative path for high-speed internet from central Internet Exchange Points.

The Connected Coast project, a partnership between CityWest and the Strathcona Regional District, and funded by the provincial and federal Government, uses sub-sea fibre optic cable along the seabed to bring high-speed internet to 139 remote communities, including 48 Indigenous communities along the coast. This project will enable many last mile connections that provide high-speed internet to thousands of households.

Tahltan Nation Development Corporation's transport fibre project will bring increased broadband capability to 12 communities in the northwest, and the Whistler to Cache Creek project, led by Shaw, is a transport project along Highway 99, bringing much-needed internet capacity to the region.

B.C. funding programs have also supported many last mile projects to bring internet to the home, such as a TELUS fibre project to provide high-speed internet services to 10 communities in the Similkameen area, a Rogers Communications project to improve internet speeds in Alert Bay, and a Tough Country Communications project to improve fixed wireless services to five communities in the East Kootenays.

A word on internet speeds

As many British Columbians and their families work and learn from home, stream entertainment services and manage many smart devices in one household, the amount of internet speed available in the home becomes important and can determine the usability of the service.

The extent to which a home is connected to high-speed internet for all users is a function of download and upload speeds that are available. The chart below broadly captures the capability of various internet speeds in the home.

Note: These use cases assume a latency of at least 50 milliseconds. Latency is a measure of the time it takes for your device to communicate with a server and receive a response back. A low latency provides a smoother user experience.

Minimum download speed/ upload speed	Use cases
25/5 Mbps	• 1-3 devices should be able to stream in HD and 4K video, stream music and work from home.
50/10 Mbps	• 2-4 devices should be able to stream in 4K – meaning 2-4 tablets, laptops or TVs should be able to enjoy ultra-high-definition videos and shows. • 3-5 smart devices should be able to run. Online games with multiple players should function with little to no delay. • Big files from 500Mb to 2Gb should be downloaded quickly. • Video conferencing calls should take place easily and with little to no delay.
100/100+ Mbps	• 5+ devices should be able to stream in 4K, and 5+ smart-home devices can be supported as well. • Online games with multiple players should function with little to no delay. • Larger files over 2Gb should be downloaded quickly. • Video conferencing calls should take place very easily with little to no delay.

* Note: Minimum speed requirements are subjective, applications may technically work with lower speed connections but user experience is poor.

Source: CIRA Web Application Connection Minimums

The National Broadband Internet Service Availability Map

The National Broadband Internet Service Availability Map is published by Innovation, Science and Economic Development Canada. The map shows broadband availability across the country based on reported speeds by service providers.

Broadband access

Access is defined in this report as the ability for a household to subscribe to high-speed internet services.

Broadband internet access highlights

- B.C. is a leader compared to other provinces in overall access to internet speeds of 50/10 Mbps, 200+ Mbps and 1 Gigabit per second (Gbps).
- Rural areas and First Nations reserve areas remain under-served compared to urban areas within B.C.
- B.C. is a leader within Canada for providing access to higher speeds in rural areas and First Nations reserves, but these areas still have significantly less access to higher speeds than their urban counterparts.
- Low Earth Orbit (LEO) satellite services are evolving rapidly.

Photo credit: Connected Coast

Access to broadband speeds of 50/10 Mbps over time

Access to internet speeds of 50/10 Mbps has increased for Canada over time as service providers expand their networks, and provincial and federal government funding programs work with service providers to expand connectivity into more remote and difficult-to-reach areas.

B.C. has been a leader in access to 50/10 Mbps in Canada since 2016, and continues to remain above the Canadian average with 95 per cent of households overall with access to 50/10 Mbps in 2020.
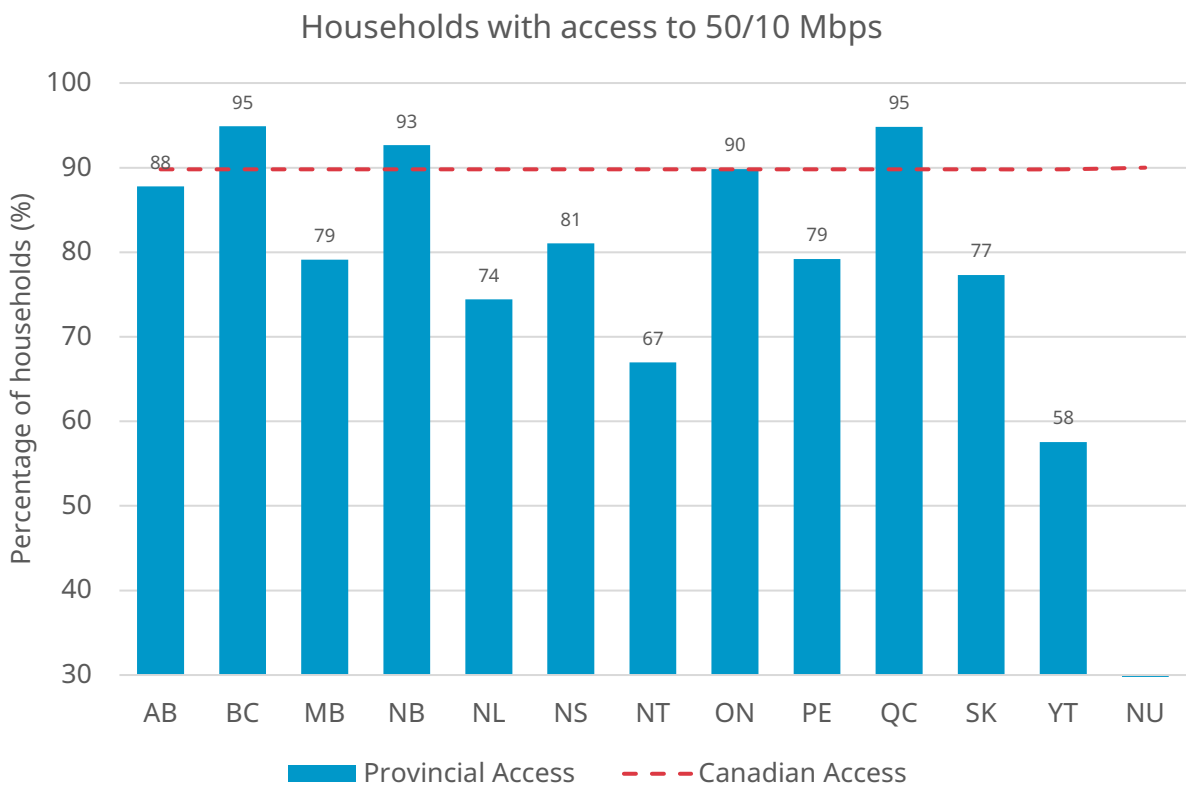
Households with access to 50/10 Mbps over time
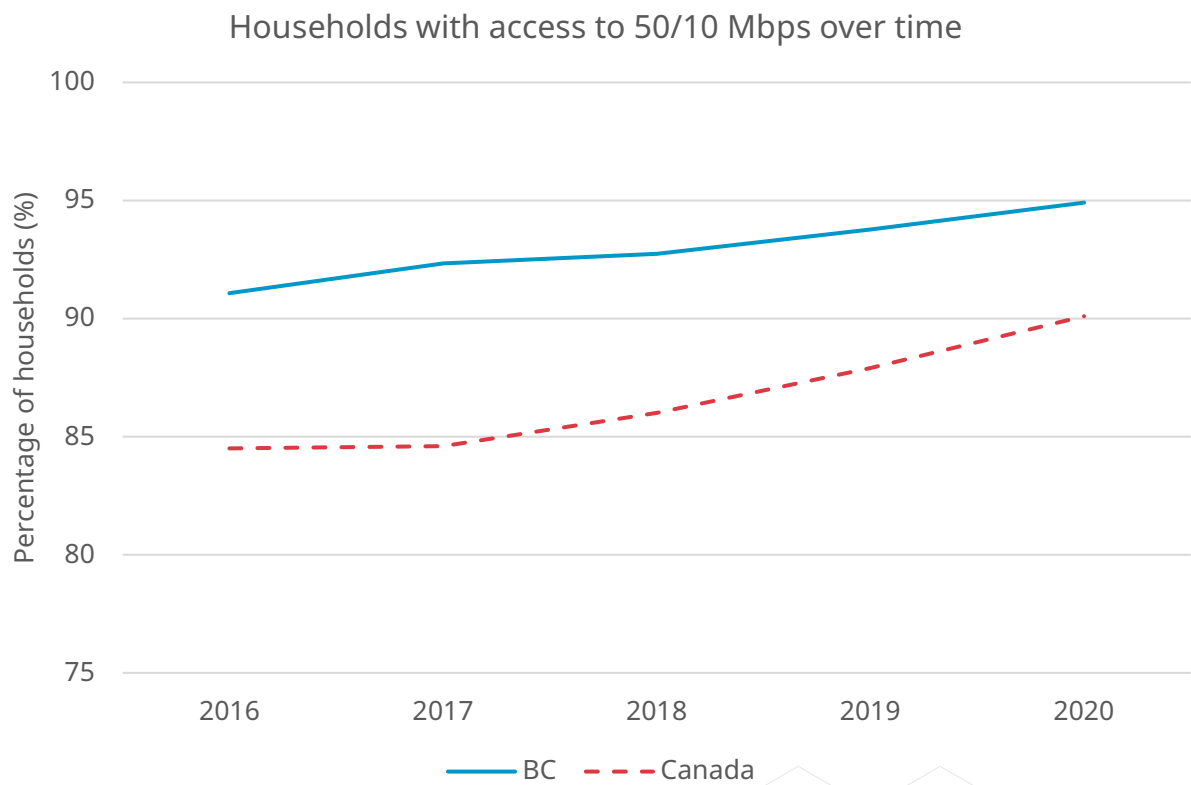
Source: CRTC Communications Market Report 2022

Access to broadband speeds of 50/10 Mbps

B.C. and Quebec lead other provinces in Canada for access to 50/10 Mbps overall, at 95 per cent of all households able to subscribe to these internet speeds. This trends above the Canadian average, where 90 per cent of households have access.

Households with access to 50/10 Mbps

Source: CRTC Communications Market Report 2022

Access to broadband speeds of 200 Mbps and 1 Gbps

B.C. is also above the Canadian average for access to internet services at higher speeds with 93 per cent of British Columbians having access to internet speeds of 200 Mbps or higher, and 92 per cent with access to speeds of 1 Gbps.

As infrastructure continues to expand or is upgraded, and technology improves, higher internet speeds of 200 Mbps and 1 Gbps will increasingly become more available across the province.

B.C. leads other provinces in access to higher speeds of 200 Mbps and 1 Gbps overall. However, as noted later in the report, access to higher speeds is predominantly in urban areas.

Percentage of households connected to high-speed internet services

On November 8, 2022, Prime Minister Trudeau announced progress toward the federal goal of having all households connected to 50/10 Mbps or more by 2030. The most recent data compiled by Innovation, Science and Economic Development Canada estimates B.C.'s overall connectivity status as of the publication of this report is 95.9 per cent.
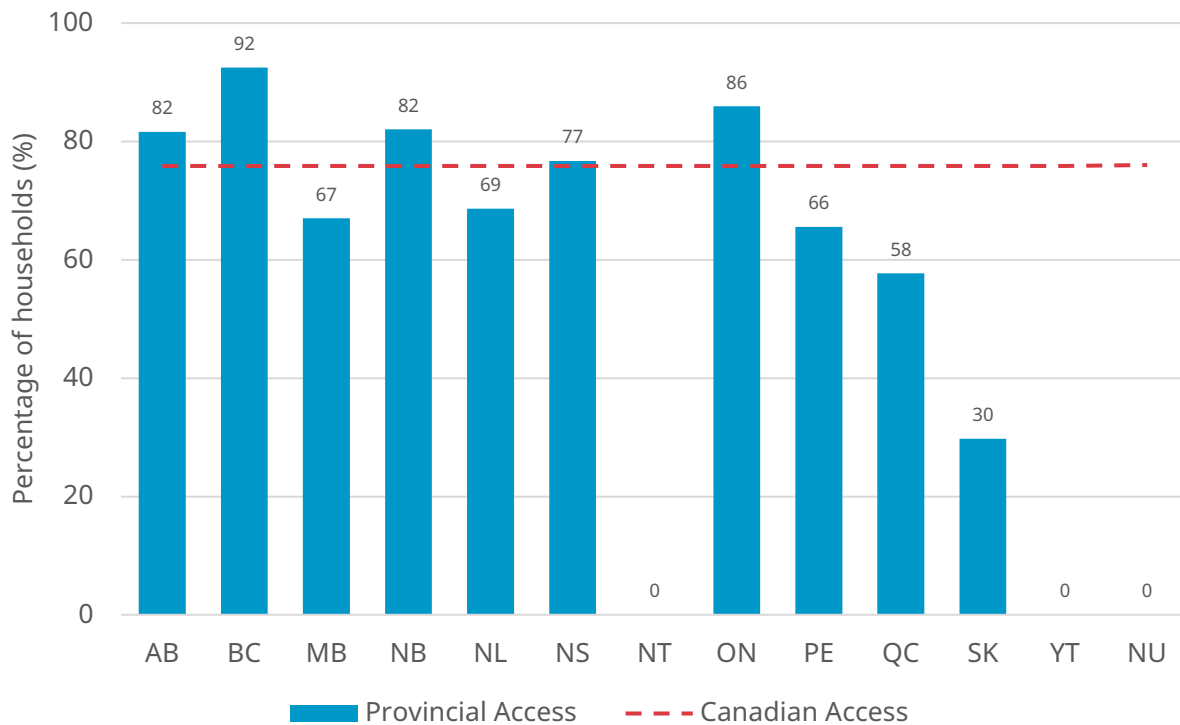
Photo credit: Shaw Communications Inc.

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Households with access to 200+ Mbps
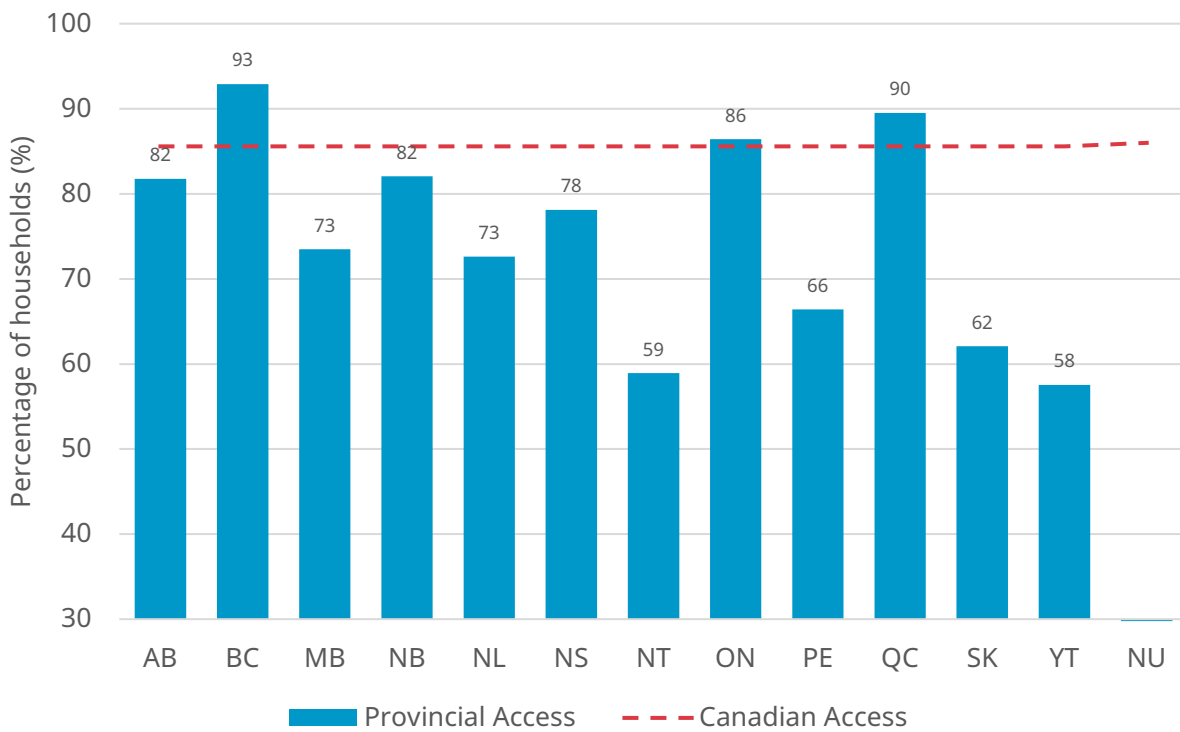
Source: CRTC Communications Market Report 2022

Households with access to 1 Gbps

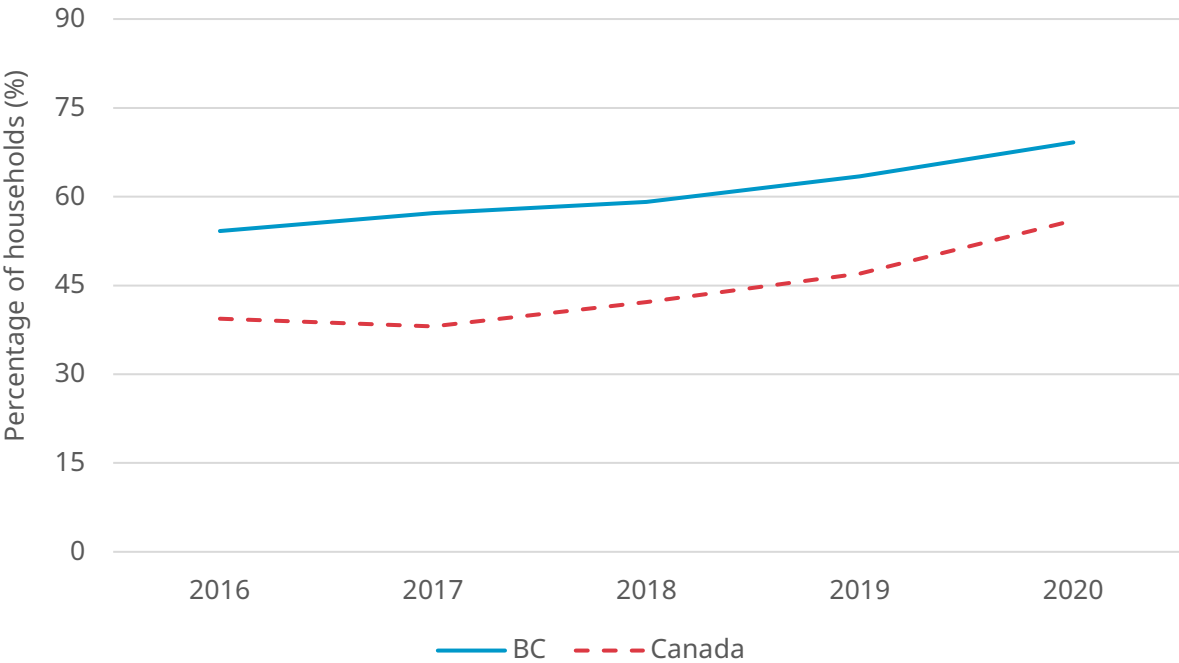Source: CRTC Communications Market Report 2022

Access to broadband speeds of 50/10 Mbps in rural areas

While access to high-speed internet can be more challenging in rural areas, over time B.C. has performed well compared to the Canadian average for providing at least 50/10 Mbps internet access to rural households, staying 10-20 per cent above the Canadian average from 2016 to 2020.

CRTC definition of a rural area

The CRTC defines a rural area as having a population of less than 1,000 or a density of 400 or fewer people per square kilometre. This definition of rural also includes households on First Nations reserves in a rural area.

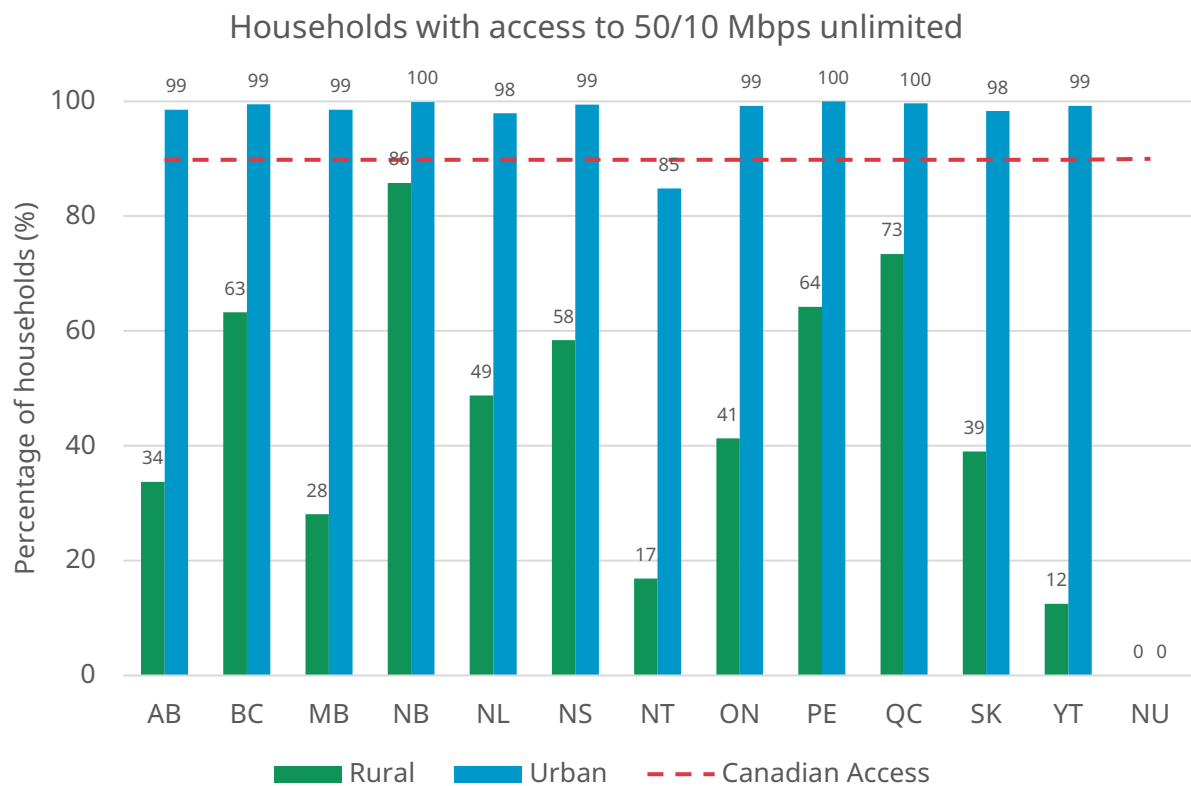### Rural households with access to 50/10 Mbps over time

Source: CRTC Communications Market Report 2022

Comparison of access to broadband speeds of 50/10 Mbps and 1 Gbps

While access to high-speed internet in urban areas is nearly at 100 per cent (99.71), the story for rural communities is markedly different. Only 69 per cent of rural households in B.C. have access to 50/10 Mbps, which means 31 per cent of rural households are under-served.
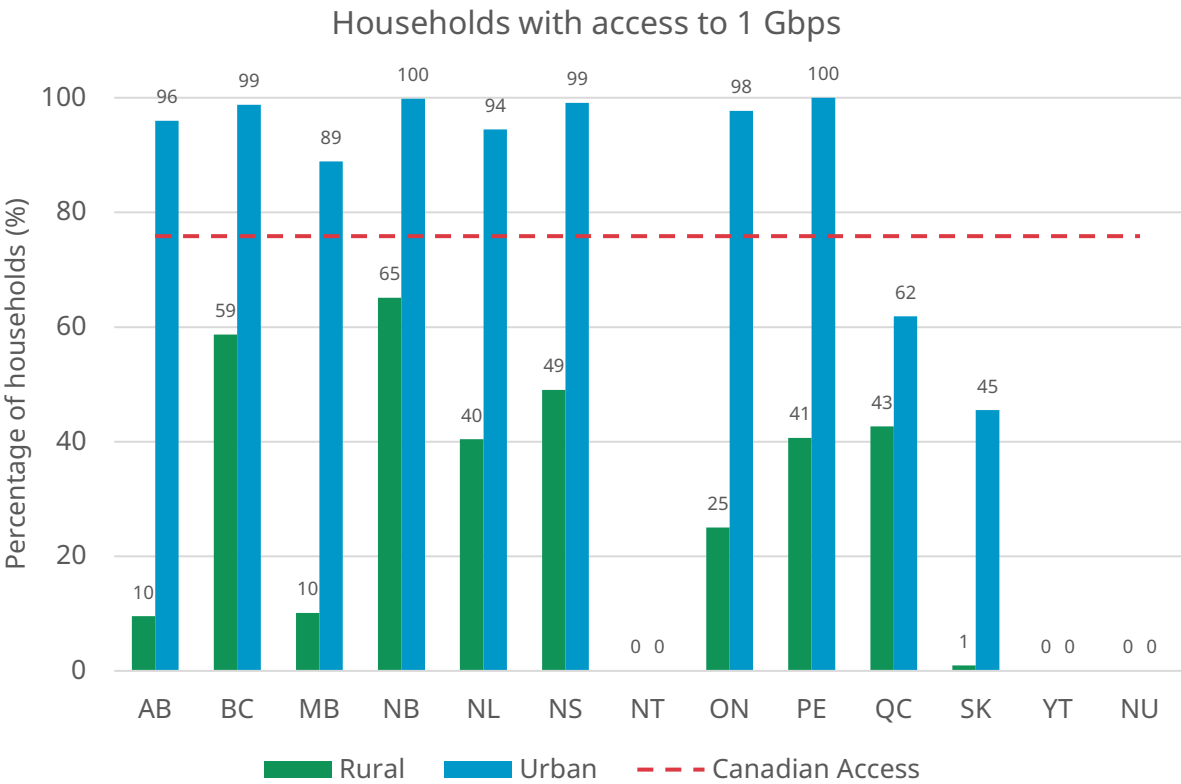
B.C. is third in the country by province for rural connectivity but remains above the Canadian average for rural internet coverage at 69 per cent of households with access to 50/10 Mbps, compared to the Canadian average of 56 per cent.

Households with access to 50/10 Mbps unlimited

Province	Rural	Urban
AB	34	99
BC	63	99
MB	28	99
NB	86	100
NL	49	98
NS	58	99
NT	17	85
ON	41	99
PE	64	100
QC	73	100
SK	39	98
YT	12	99
NU	0	0

Y-axis: Percentage of households (%)

Legend: ■ Rural ■ Urban – – – Canadian Access

Source: CRTC Communications Market Report 2022

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Most households in urban areas (99 per cent) have access to 1 Gbps internet speeds, while only 59 per cent of households in rural areas have access to these high speeds. However, B.C. is one of the leading provinces in Canada for high-speed connectivity in rural areas at 59 per cent (second to New Brunswick at 65 per cent), illustrating that issues of access to high-speed internet in rural areas are endemic across the country.

Households with access to 1 Gbps

	Rural	Urban
AB	10	96
BC	59	99
MB	10	89
NB	65	100
NL	40	94
NS	49	99
NT	0	0
ON	25	98
PE	41	100
QC	43	62
SK	1	45
YT	0	0
NU	0	0

Legend: Rural, Urban, Canadian Access

Source: CRTC Communications Market Report 2022

Access to broadband speeds of 50/10 Mbps on First Nations reserves over time

According to the CRTC Communications Market report, 72 per cent of households in First Nations reserves in B.C. have access to high-speed internet services of 50/10 Mbps. Over time, from 2016-2020, there has been a steady increase in broadband internet access on First Nations reserves and access in B.C. remains above the Canadian average.

First Nations reserve areas with access to 50/10 Mbps unlimited over time
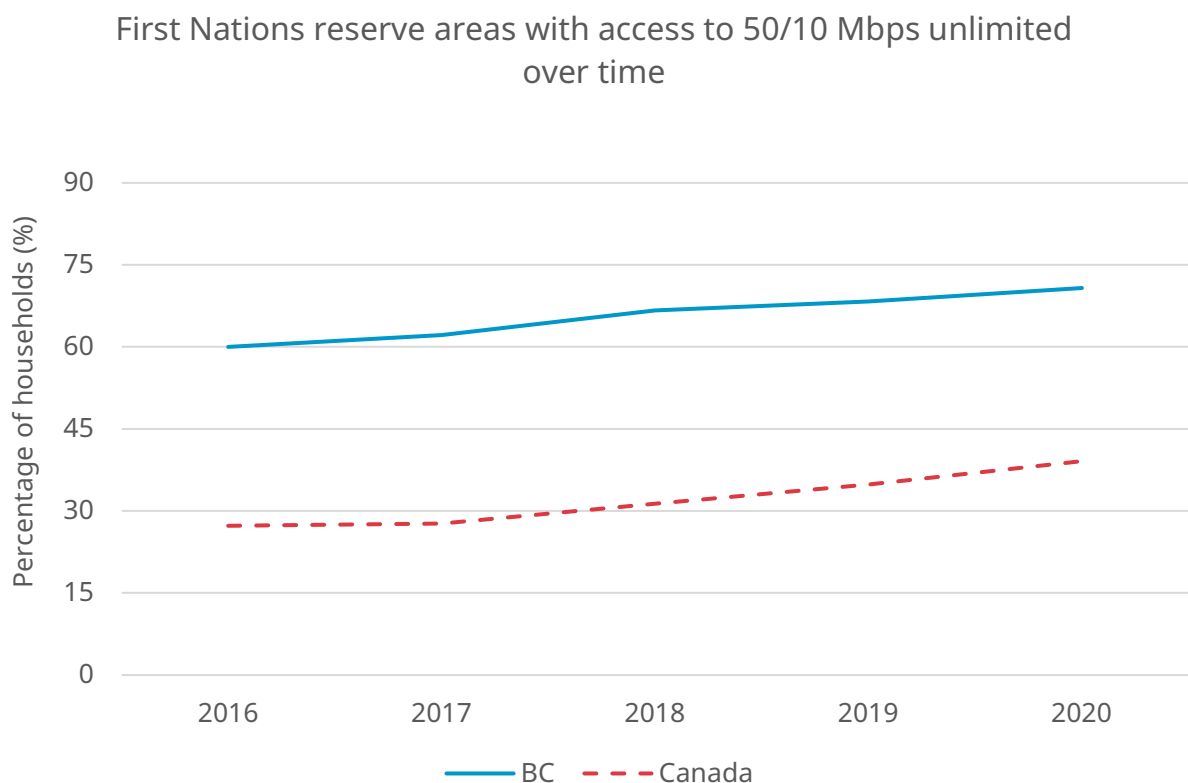
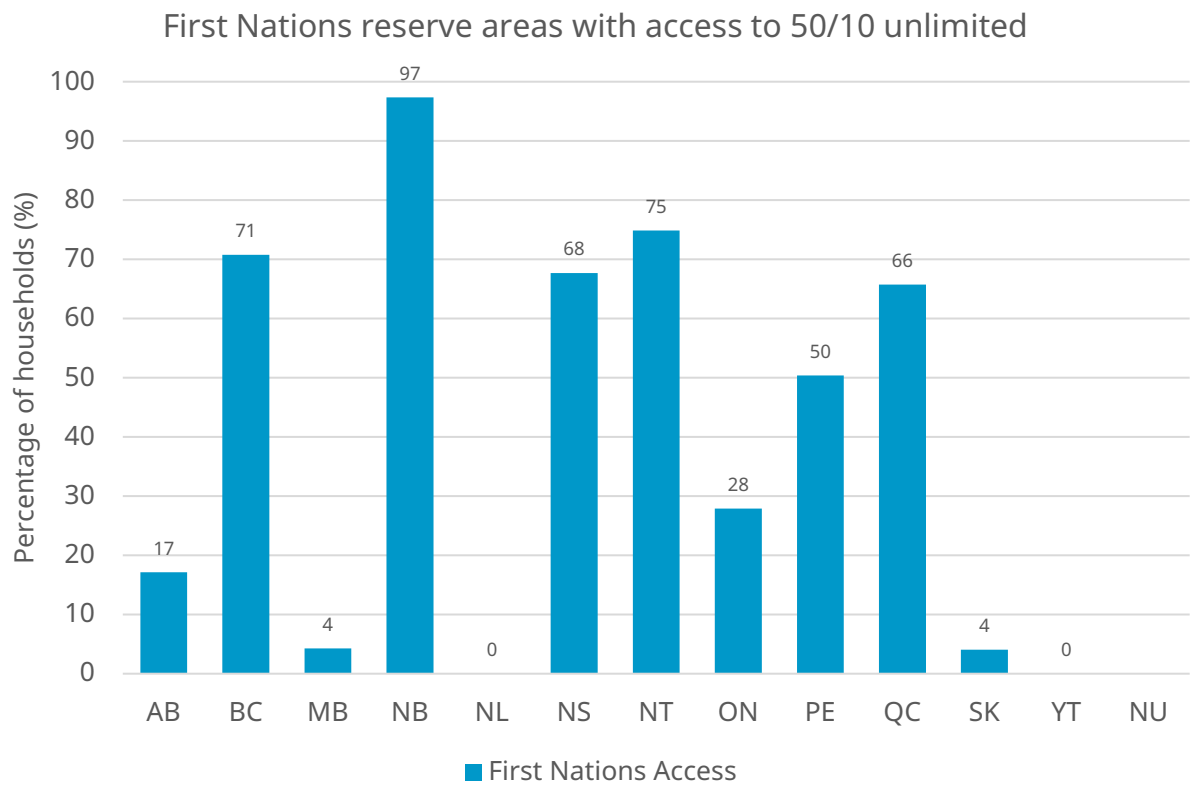

Source: CRTC Communications Market Report 2022

Connectivity data for First Nations in B.C.

There are more than 200 First Nations with territories in B.C. The connectivity analysis provided by the CRTC Communications Market Report is based upon more than 1,700 First Nations reserve areas and looks at total population and dwellings on reserves according to the Statistics Canada census data. The data is included here to give a general overview of connectivity on First Nations reserves.

Access to broadband speeds of 50/10 Mbps on First Nations reserves

A lack of access to high-speed internet on First Nations reserves is present throughout Canada, with perhaps the exception of New Brunswick where 97 per cent of households on reserves have access to 50/10 Mbps.

In B.C., 72 per cent of households on First Nations reserves have access to 50/10 Mbps. While this compares favourably between provinces, access on First Nations reserves still falls behind those in urban areas in the province which are nearly fully served.

First Nations reserve areas with access to 50/10 unlimited

Percentage of households (%)

Province	First Nations Access
AB	17
BC	71
MB	4
NB	97
NL	0
NS	68
NT	75
ON	28
PE	50
QC	66
SK	4
YT	0
NU	

■ First Nations Access

Source: CRTC Communications Market Report 2022

A commitment to support high-speed internet access on First Nations reserves

Connecting all First Nations reserves with high-speed internet services by 2027 is a foundational component of the B.C. government's commitment to support reconciliation.

This commitment aligns with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and B.C.'s corresponding legislation, the *Declaration on the Rights of Indigenous Peoples Act* (DRIPA). Connectivity is represented directly in action 4.36 in the DRIPA Action Plan, "to ensure every First Nations community in B.C. has high-speed internet services." Connectivity also indirectly supports many other actions in the Plan, including Indigenous language revitalization, education and training, healthcare and economic development.

Trends over time for access to different internet speeds on First Nations reserves

Access to high-speed internet is increasing on First Nation reserves in Canada, although access remains significantly behind that in urban centres. For speeds of 50/10 Mbps, access has increased from 67 per cent of households on First Nations reserves in 2017, to 72 per cent of households in 2020. For speeds of 1 Gbps, access has increased from 34 per cent in 2017, to 68 per cent in 2020.
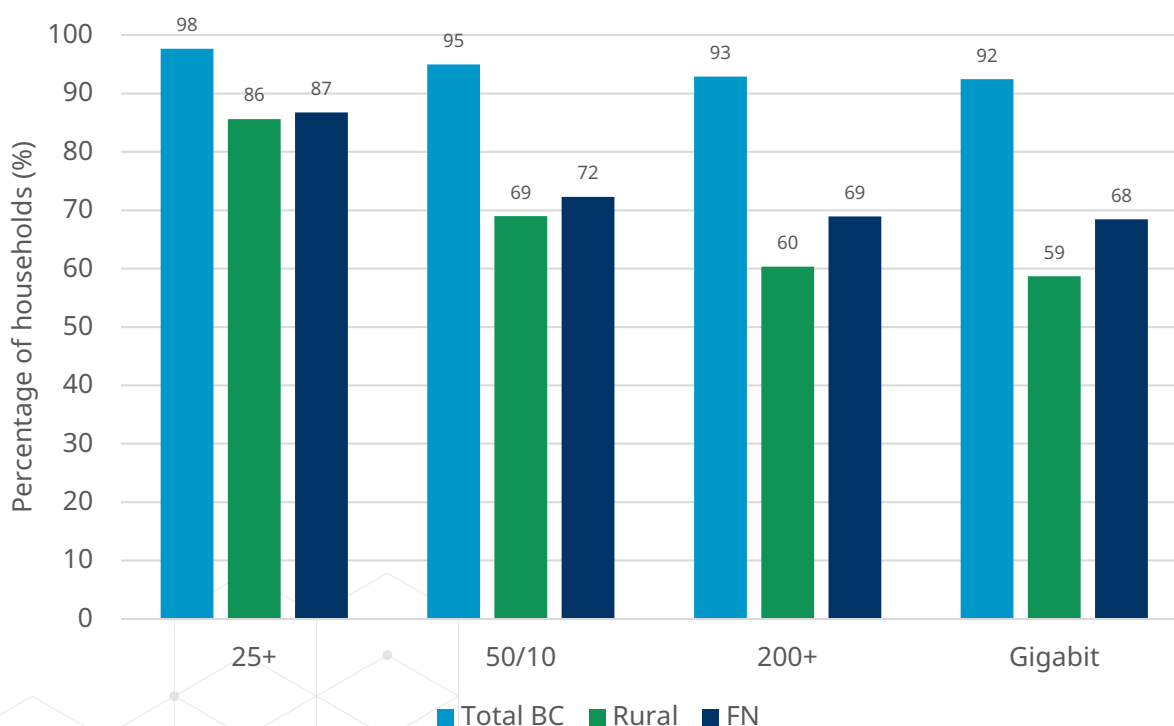
While there remains a gap of 28 per cent of households on First Nation reserves without access to high-speed internet in 2020, access to higher internet speeds is increasing as service providers expand their networks and government funding programs help expand services into harder-to-reach areas.

Access to broadband (200 Mbps and 1 Gbps) on First Nations reserves compared to the B.C. and rural average

First Nations households overall in B.C. have slightly more access to high-speed internet services than the rural average. 72 per cent of households in First Nation reserves have access to 50/10 Mbps, while 69 per cent of rural British Columbian households have access to these speeds. In addition, there is slightly more access to higher speeds, with 68 per cent of households on First Nations reserves with access to 1 Gbps speeds compared to the rural average of 59 per cent.

It is important to note, however, that rural First Nation reserve households do not see the same amount of access to high-speed internet as urban First Nations households. As First Nations reserves begin to receive the infrastructure in place for broadband connection, through government connectivity program funding, or private sector investment, higher speeds will become more available.

Access % to various speeds in B.C.

Speed	Total BC	Rural	FN
25+	98	86	87
50/10	95	69	72
200+	93	60	69
Gigabit	92	59	68

Percentage of households (%)

Source: CRTC Communications Market Report 2022

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Low Earth Orbit satellites

Emerging Low Earth Orbit (LEO) satellite internet services have the capability to reach parts of the province unserved by traditional terrestrial technologies. While Geosynchronous Earth Orbit (GEO) satellite internet services have been available for some time, their adoption has been limited due to available speeds, plan pricing and a slower less resilient and reliable service. LEO satellites, which orbit much closer to the earth, have the capability to provide high-speed internet service performance similar to those available in urban areas.

LEO technology does face some limitations in comparison to terrestrial fibre-to-the-home (FTTH) or hybrid fibre-coaxial (HFC) networks. Individual LEO satellites have finite capacity, so only a certain density of homes within a geographical area can be served by a satellite - this number varies by LEO internet service provider. LEO internet services also require line-of-site from the antenna on the home to one or more LEO satellites, which may be challenging for homes surrounded by tall trees, mountains or other tall obstructions. In addition, LEO internet services can suffer service degradation, or service outages, due to extreme weather such as heavy rain or snow – this also varies by provider. For these reasons, FTTH and HFC services are generally seen as more desirable where feasible.

Currently, both Starlink and OneWeb are operating constellations providing LEO internet services within B.C. Both providers have made statements targeting full coverage of B.C.

Starlink is currently the only provider of LEO-to-the-Home consumer internet service in B.C. OneWeb, via their resellers, offers a LEO-to-the-Community service which a local service provider could use as a backbone service. Telesat, a longstanding provider of satellite services in Canada, has announced they will also provide a LEO service offering in the future.

LEO services are evolving rapidly. Please see the provider's websites for the most current source of information regarding services, coverage and pricing.

- Starlink
- OneWeb
- Telesat | Global Satellite Operators

Broadband affordability

Providing access to high-speed internet services is an important first step in getting connectivity to a home or business, but affordability is a key factor in digital inclusion and can determine whether a home or business is able to subscribe to the service and speed available that they need.

There are a variety of influences that affect the cost to deliver high-speed internet services.

For example, costs for service providers can be higher in areas of lower customer density, or where the terrain to build is more challenging. For these reasons, comparison of B.C. with other provinces is not necessarily a like-for-like comparison as environments and terrain are different.
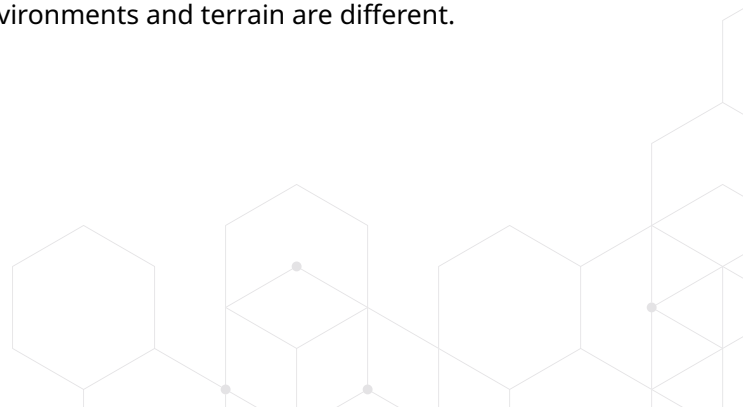
Affordability highlights

- The percentage of households with a broadband subscription increased in B.C. and across Canada between 2017 and 2020.
- Average subscription price in B.C. for a 50/10 Mbps internet plan is $75/month – over $10 less than the Canadian average.
- B.C. has the lowest minimum cost of an internet subscription plan within Canada at $40/month for 50/10 Mbps.
- Minimum subscription prices are only available in urban areas. British Columbians in rural areas on average pay more for their internet.

Average price for unlimited 50/10 Mbps plans over time

B.C. trends below the Canadian average price of $86 for monthly 50/10 Mbps unlimited internet plans, offering subscriptions at $75 per month on average. Over time, B.C. has remained either on par or lower than the Canadian average for internet subscription prices for a monthly 50/10 Mbps unlimited plan.

Note: Average prices are only available for 50/10 Mbps unlimited plans on the CRTC Monitoring Report.

Average price of 50/10 Mbps unlimited over time

Avg Price (CDN $)

Source: CRTC Communications Market Report 2022

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Minimum price for any 50/10 Mbps internet subscription over time

B.C. has trended above the Canadian minimum price since 2016 for subscriptions to internet services of 50/10 Mbps, but in 2021, B.C. had the lowest minimum price in Canada at $40/month - predominantly offered in urban areas.

Minimum price of 50/10 Mbps over time
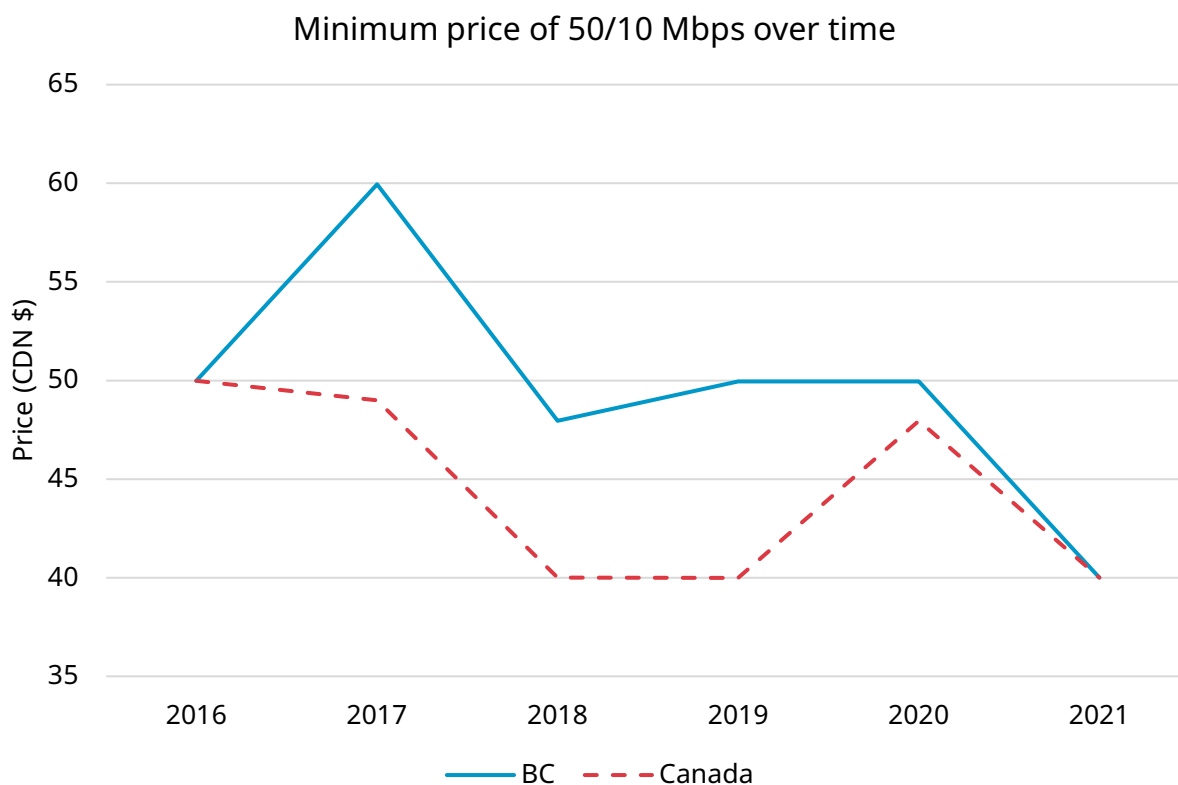
Source: CRTC Communications Market Report 2022

Minimum price for a 50/10 Mbps subscription – rural versus urban

Rural subscribers in B.C. tend to pay more than their urban counterparts for a monthly 50/10 Mbps internet subscription. B.C. shows a difference of $4 per month between urban and rural minimum subscription costs for high-speed internet services of 50/10 Mbps or higher.

The minimum price difference between urban and rural in B.C. has increased, compared to the 2017 CRTC Communications Monitoring Report, when both rural and urban households saw an equal minimum price of $59.95.
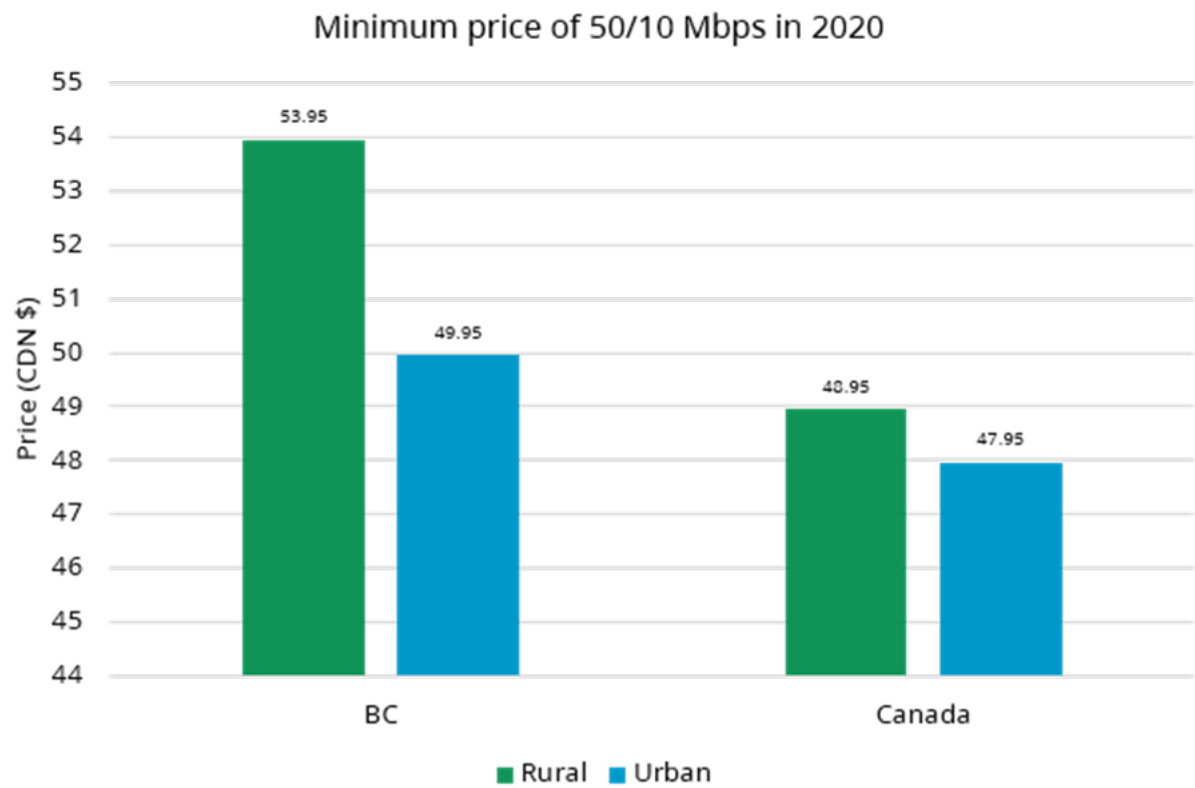
Source: CRTC Communications Market Report 2022

Subscription rates over time for various provinces

The number of subscribers to internet services has been on a steady rise since 2016 for all of Canada. Overall, there is an increase in the percentage of households within B.C. and Canada subscribing to internet services, with B.C. trending above the Canadian average.

Households with a fixed broadband subscription over time
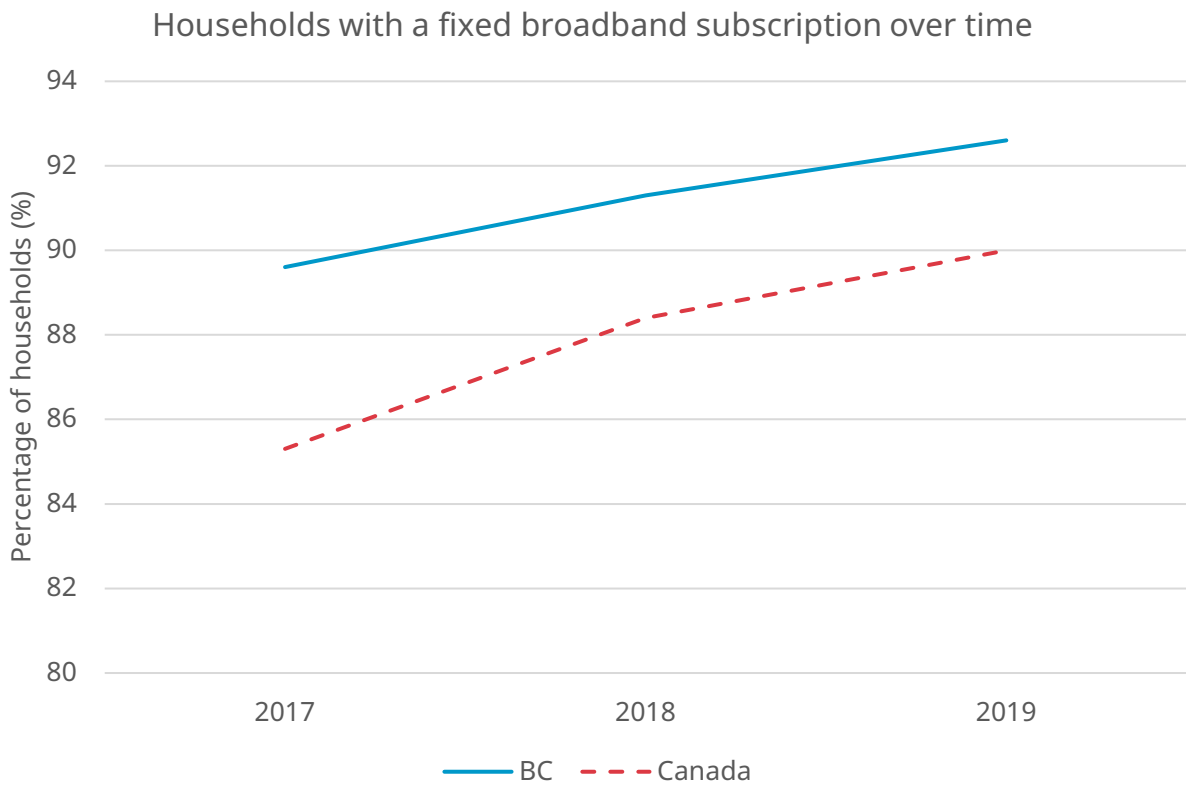
Source: CRTC Communications Market Report 2022

Federal affordability program: Connecting Families

The Government of Canada expanded Connecting Families in 2021, an initiative supported by service providers that aims to connect low-income seniors and families to affordable high-speed home internet. Participating service providers across the country offer 200 Gbps of data usage for $20 a month with no equipment or installation fees.

Broadband speeds

Internet speed remains a key factor in adoption and performance as technology advances and demands for streaming and access to services increase. This report will analyse speeds experienced in the home or business, both in B.C. and across Canada.

Speed is an important factor in how consumers experience the internet. Speeds experienced by individual users in a home or business can differ from speed delivered to the household or building access point due to a variety of factors. These can include the speeds subscribed to, the number of people accessing the internet at the same time, the type and age of devices used, Wi-Fi or wired to a router connection, and more.

Data from CIRA's Internet Performance Test shows that B.C. has some of the highest median internet speed tests in the country, however, this is predominantly in urban centres.

Median download and upload speeds in urban and rural areas

B.C. has above Canadian average median upload and download speeds for rural areas and urban areas. Comparison of urban speeds to rural speeds, however, shows that many rural areas in B.C. experience slower speeds which would in part be due to lower speed internet packages available to rural households.

Median download speeds

Source: CIRA Internet Performance Test, 2022

Median upload speeds
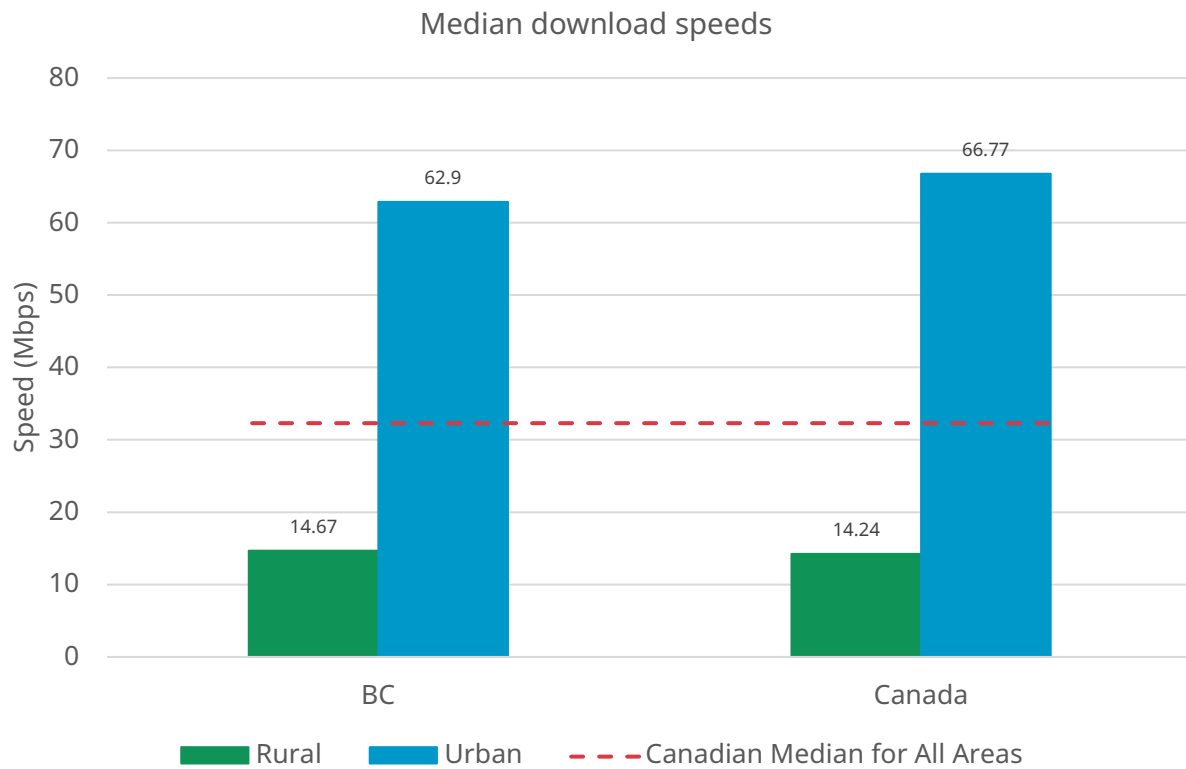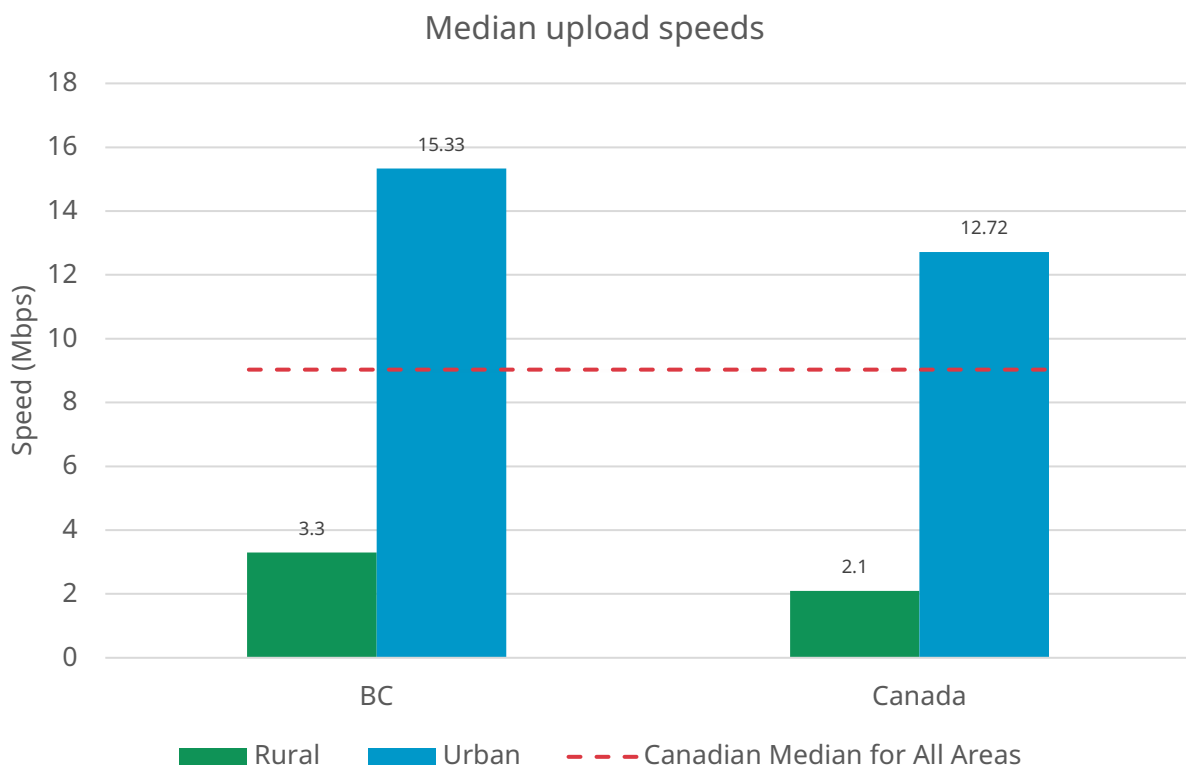
Source: CIRA Internet Performance Test, 2022

CELLULAR

Cellular is increasingly important as the world becomes more mobile, allowing us to work, connect and play while on the move. Mobile services are also critical for safety, public alerting and being able to call for help when needed, as well as accessing mobile services for health, education, tourism and many others.

As 5G, a service many times more powerful than 4G with less latency, is deployed in Canada, the opportunities for mobile technology seem unlimited in ways that will change our world.

Cellular highlights

- Access to 5G services overall in B.C. is above the Canadian average. B.C. is an early leader in Canada in deployment of 5G.
- Prices for cellular plans have seen a steady decline in Canada since 2016.
- B.C. remains on par with the Canadian average for LTE and 5G cellular plan prices.
- Cellular coverage on highways is lower in B.C. compared to other provinces, due in part to challenging terrain, lack of available power and the remoteness of some B.C. highways.

Photo credit: Rogers Communications Inc.

Cellular definitions

- **LTE**: Long-Term Evolution is referred to as fourth generation cellular and is the current standard, widely deployed in most mobile networks.
- **LTE-A**: Long Term Evolution – Advances is an enhancement of the LTE standard.
- **5G:** 5G New Radio (NR) is a new radio access technology (RAT) that is referred to as the fifth generation. These networks promise to deliver significantly faster speeds, lower latency, and gains in spectral efficiency than prior generational networks, among other benefits.

Cellular access

Access to a cellular network is important and enables us to stay in touch with friends, family and work while we are mobile, as well as access services, and call for help if we need it.

The CRTC's universal service objective states that the latest generally deployed mobile wireless technology should be available, not only in Canadian homes

and businesses, but on as many major highways as possible throughout Canada.

The expansion of broadband internet services across the province will support the expansion of cellular services across the province

LTE coverage for B.C. and the Canadian average

LTE mobile coverage is high across Canada and across the province, in terms of population with access to cellular services. However, B.C. ranks ninth among Canadian provinces with 99 per cent of the population with access to LTE services compared to other provinces where population coverage is nearly 100 per cent.

Population per cent with LTE coverage

Source: CRTC Communications Market Report 2022
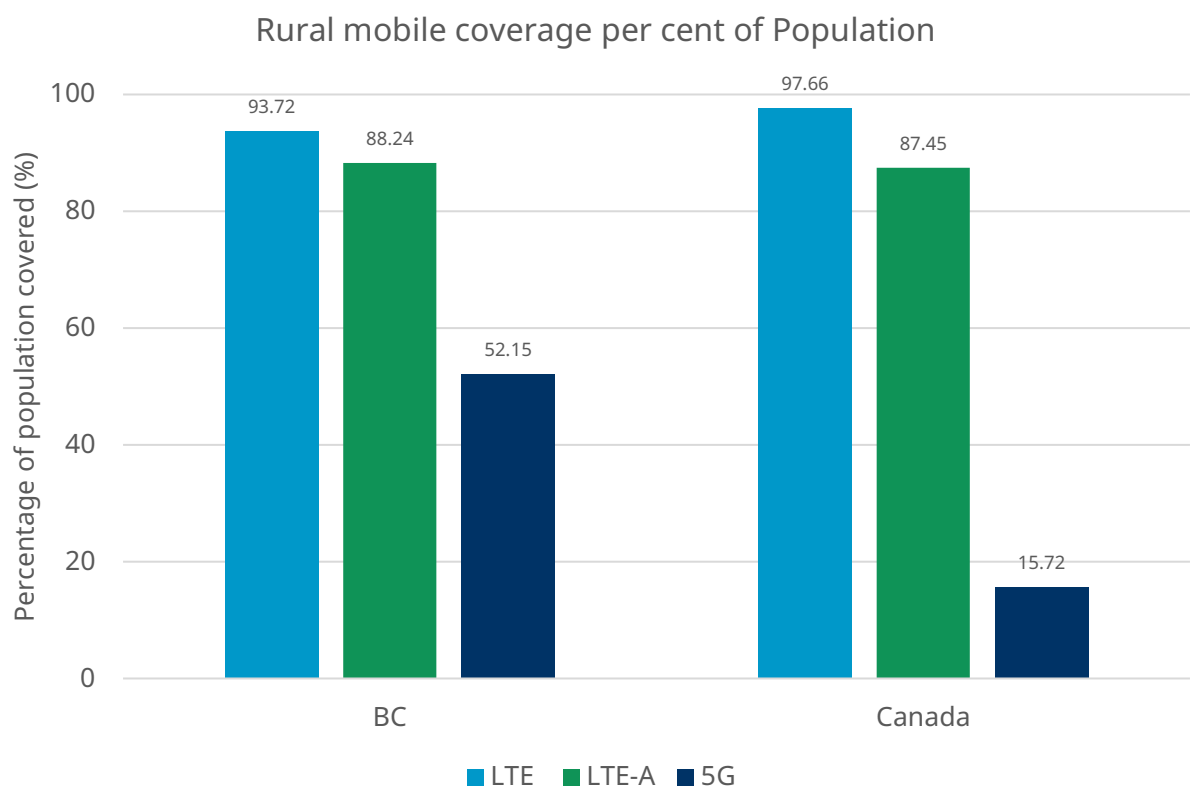
5G coverage for B.C. and the Canadian average

B.C. trends above the Canadian average for access to 5G cellular services, with 87 per cent of the population in B.C. with access to 5G. This is set to increase as the technology is deployed more broadly across Canada.

Population per cent with 5G coverage
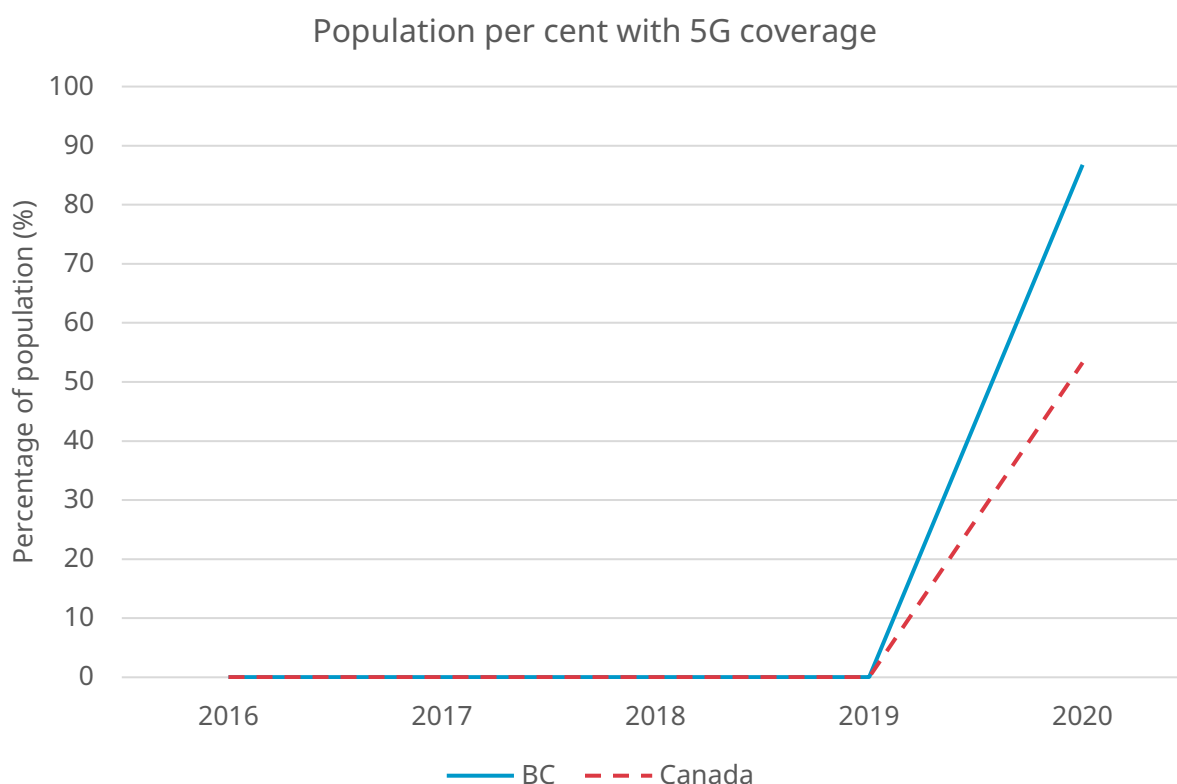
Source: CRTC Communications Market Report 2022

Rural cellular coverage

For LTE and LTE-A population coverage within rural areas, B.C. is on par with the Canadian average. For 5G, B.C is above the Canadian average for population coverage in rural areas. However, rural coverage for 5G cellular services remains nearly half of that of its urban counterparts, with only 52 per cent of the population in rural areas with access to 5G, compared to nearly 94 per cent in urban areas.
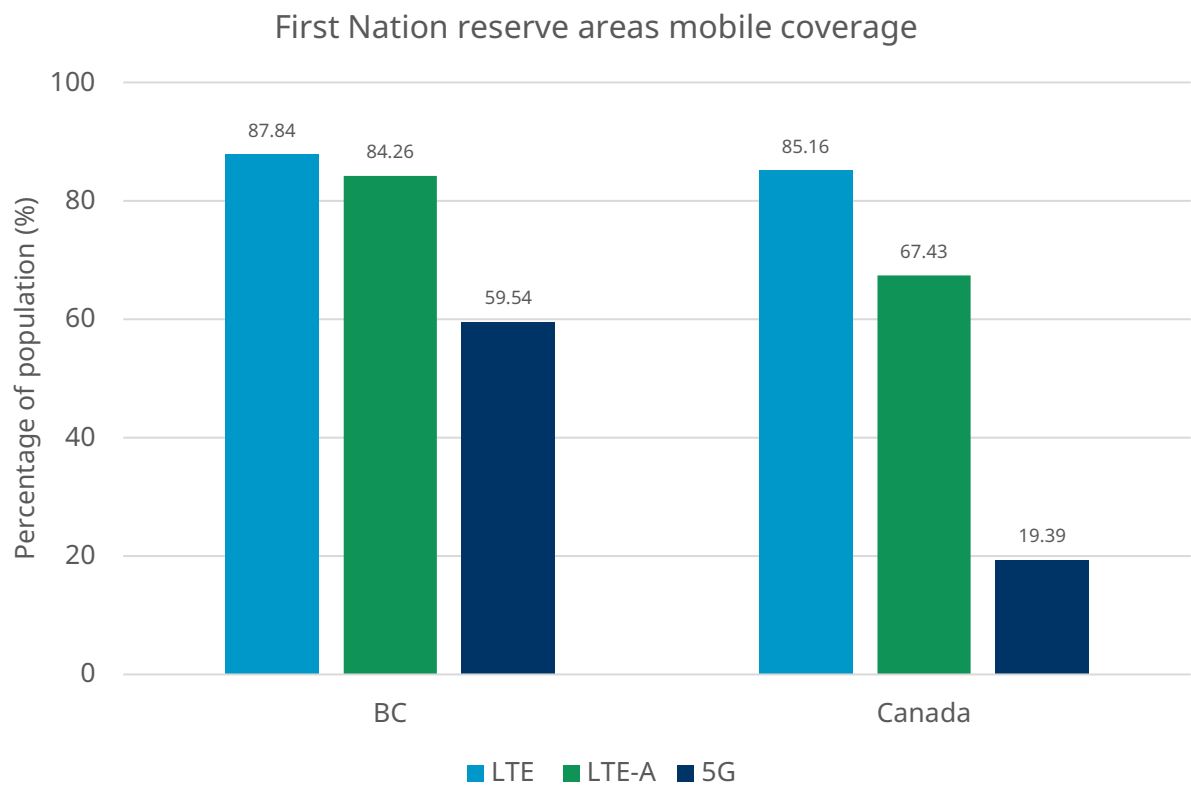
Rural mobile coverage per cent of Population

	BC	Canada
LTE	93.72	97.66
LTE-A	88.24	87.45
5G	52.15	15.72

Y-axis: Percentage of population covered (%)

Legend: ■ LTE ■ LTE-A ■ 5G

Source: CRTC Communications Market Report 2022

Cellular coverage on First Nations reserves

Compared to rural and overall cellular coverage in the population, First Nations reserves are under-served, with only 88 per cent of the population of reserves with LTE coverage. B.C. has more 5G coverage for First Nations reserve areas compared to the Canadian average, with 60 per cent of the population on First Nations reserves in B.C. with access to 5G services.

First Nation reserve areas mobile coverage

	BC	Canada
LTE	87.84	85.16
LTE-A	84.26	67.43
5G	59.54	19.39

Percentage of population (%)

Legend: LTE, LTE-A, 5G

Source: CRTC Communications Market Report 2022

Cellular coverage along major highways

B.C. is behind the Canadian average for cellular coverage along sections of major highways. This is due in part to challenging terrain, lack of available power and the remoteness of highways without populations supporting a business case to expand cellular services.

Of the 15,000 kms of primary and secondary highways in the province, approximately 4,200 kms of highway lack cellular service coverage. Of this total, 3,100 kms also lack available power necessary for cell towers.

Mobile coverage along major roads and highways
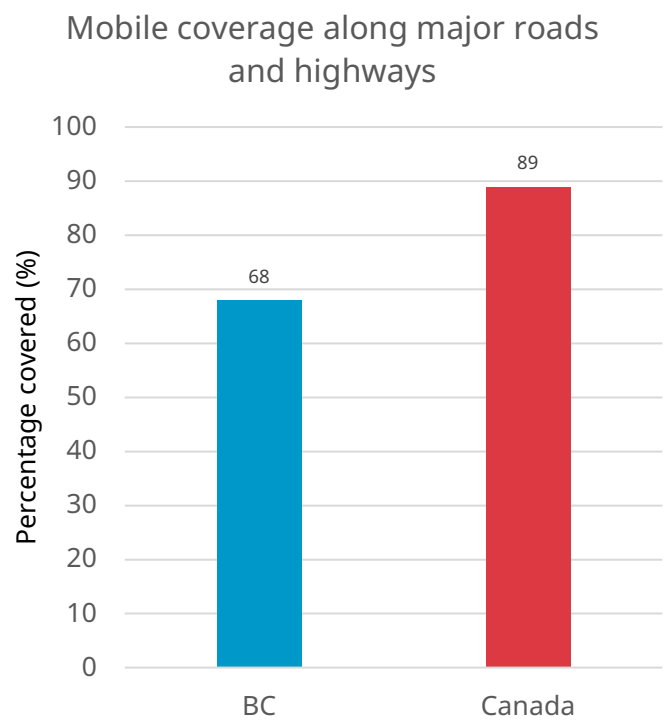
Source: CRTC Communications Market Report 2022

Provincial funding and highway cellular in B.C.

For the first time in 2020, through the Connecting British Columbia funding program $15 million was allocated to cellular service expansion along B.C. highways and rest areas.

At time of publication, funding has been allocated through the Connecting British Columbia program to provide cellular coverage for 532 additional kms of highway, with connectivity provided at 33 highway rest areas, including ferry terminals and campgrounds. This includes a Rogers Communications project to extend coverage along 252 km and three rest areas on a stretch of Highway 16 also known as the Highway of Tears. The Highway of Tears is over 700 kms long and this project builds on existing connectivity in the area from other providers, completing continuous cellular coverage along this route.

Map of highway cellular in B.C.

Highway sections
without LTE cellular
coverage

LTE cellular coverage
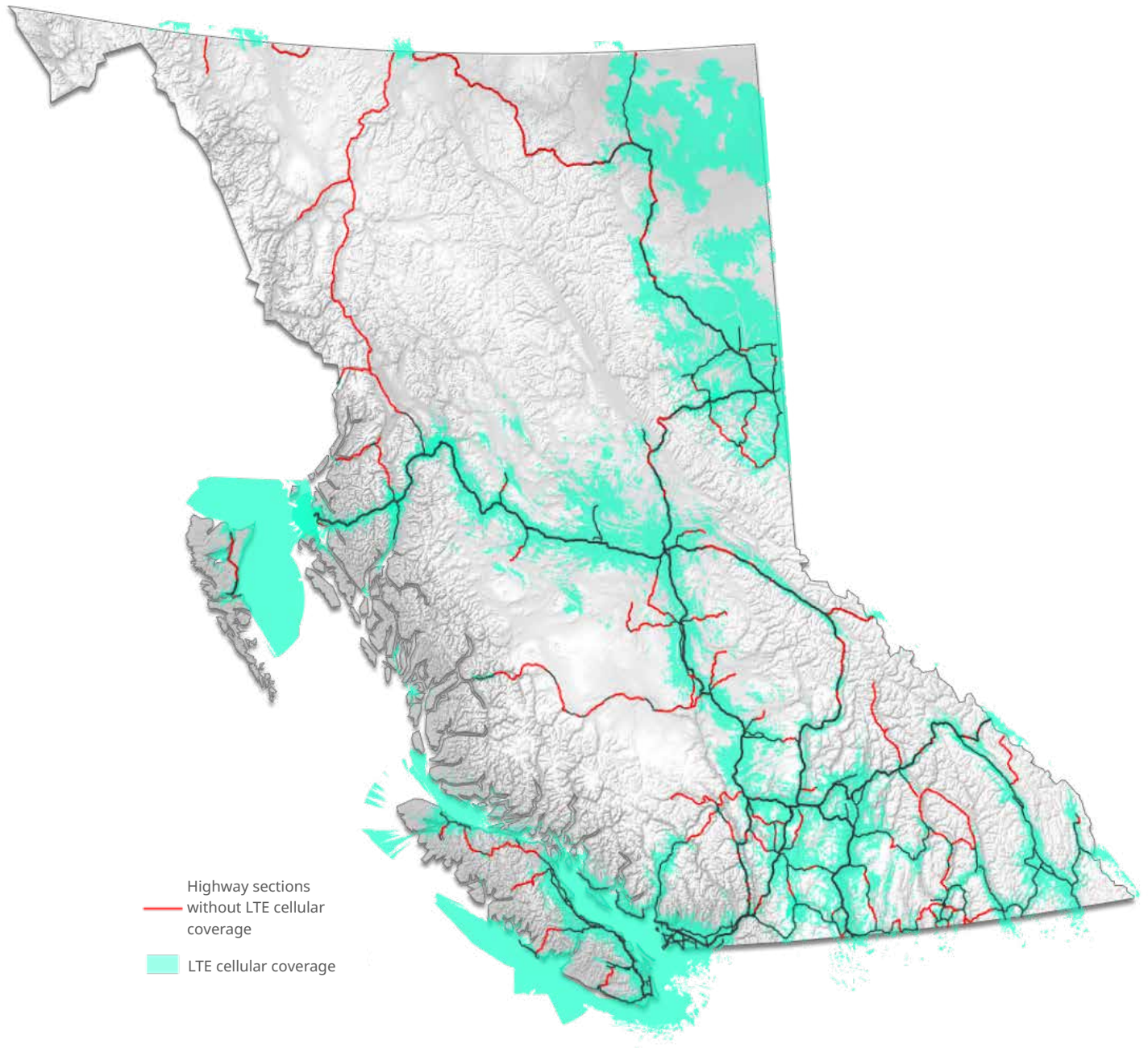
Source: Connectivity Division, Ministry of Citizens' Services 2022

Cellular affordability

The CRTC states that all Canadians need fast, affordable, and reliable broadband internet and mobile access to participate fully in today's economy and society.

Average price over time (5 Gb data, unlimited SMS/min)

The average price of a 5 Gb plan has decreased across Canada between 2016 and 2021, in some cases by half. In B.C., the average price of a 5 Gb plan has decreased from $84 a month in 2016 to $43 a month in 2021. B.C. is on par with Canada in terms of average price.
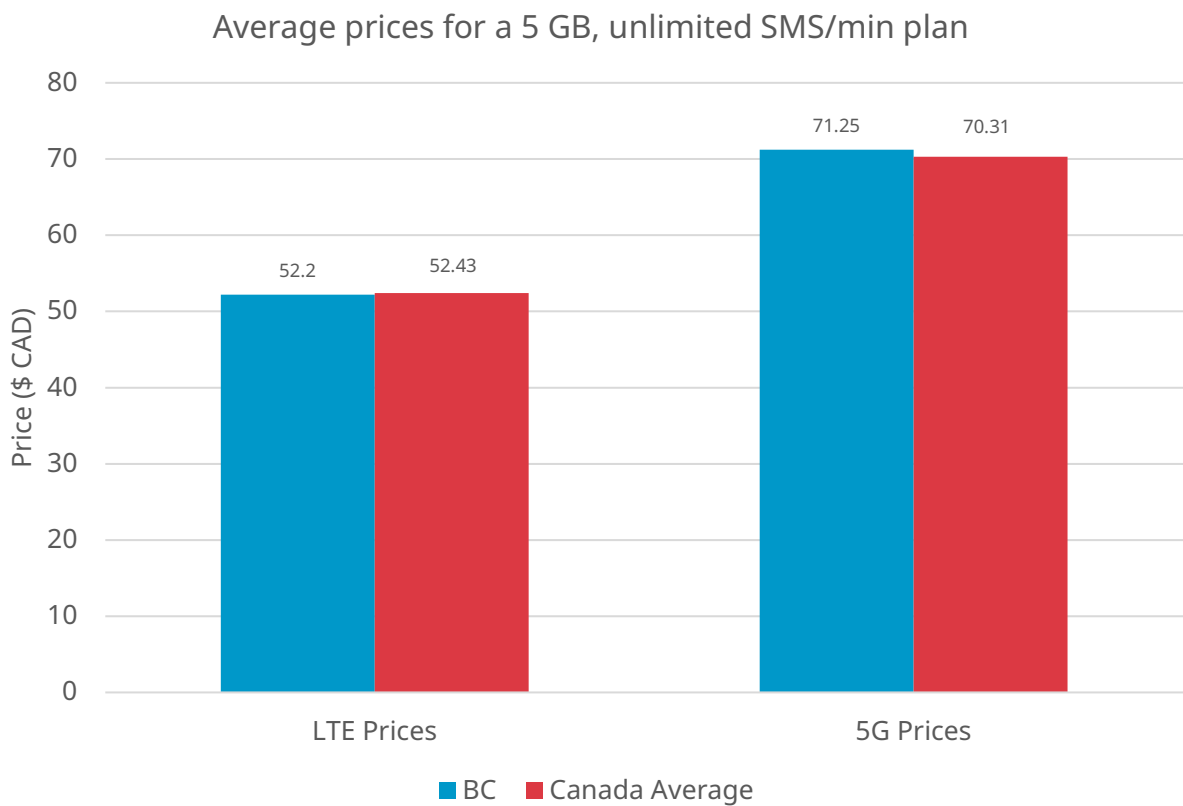
Average price of a 5 GB, unlimited SMS/min plan for all speeds
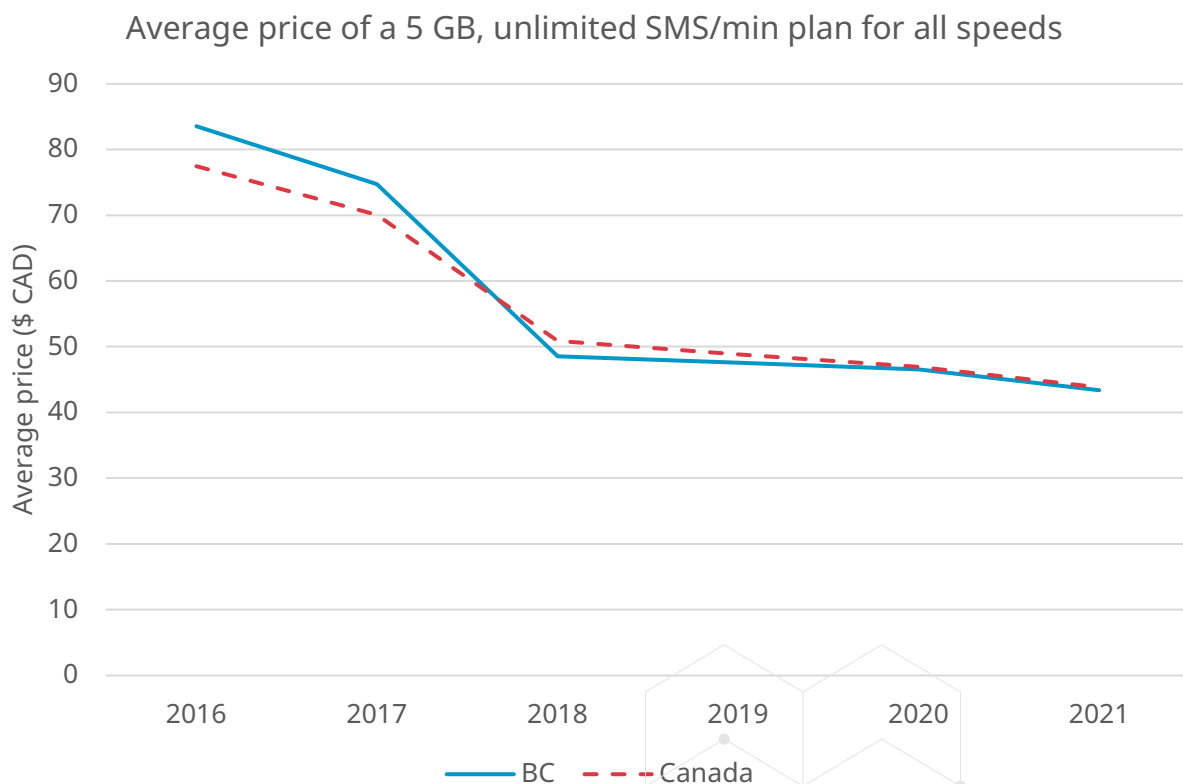
Source: CRTC Communications Market Report 2022

Average cellular price (5 Gb data, unlimited SMS/min)

The average price for a 5 Gb, unlimited SMS/min plan within B.C. is similar to the Canadian average.

Average prices for a 5 GB, unlimited SMS/min plan

	LTE Prices	5G Prices
BC	52.2	71.25
Canada Average	52.43	70.31

Y-axis: Price ($ CAD), scale 0 to 80

Source: CRTC Communications Market Report 2022

Cellular speeds

Access to a fast and robust cellular service is important. In previous sections, this report looked at access and affordability. This section looks at actual speeds experienced by users.

Cellular download and upload speeds

The Canadian median download speed for all cellular services is 75.32 Mbps and upload speed is 9.34 Mbps. The average speeds in B.C. are 74.53 Mbps and download speed and 10.09 Mbps upload speed, which is similar to the Canadian median.

Median cellular speeds in 2021 Q1
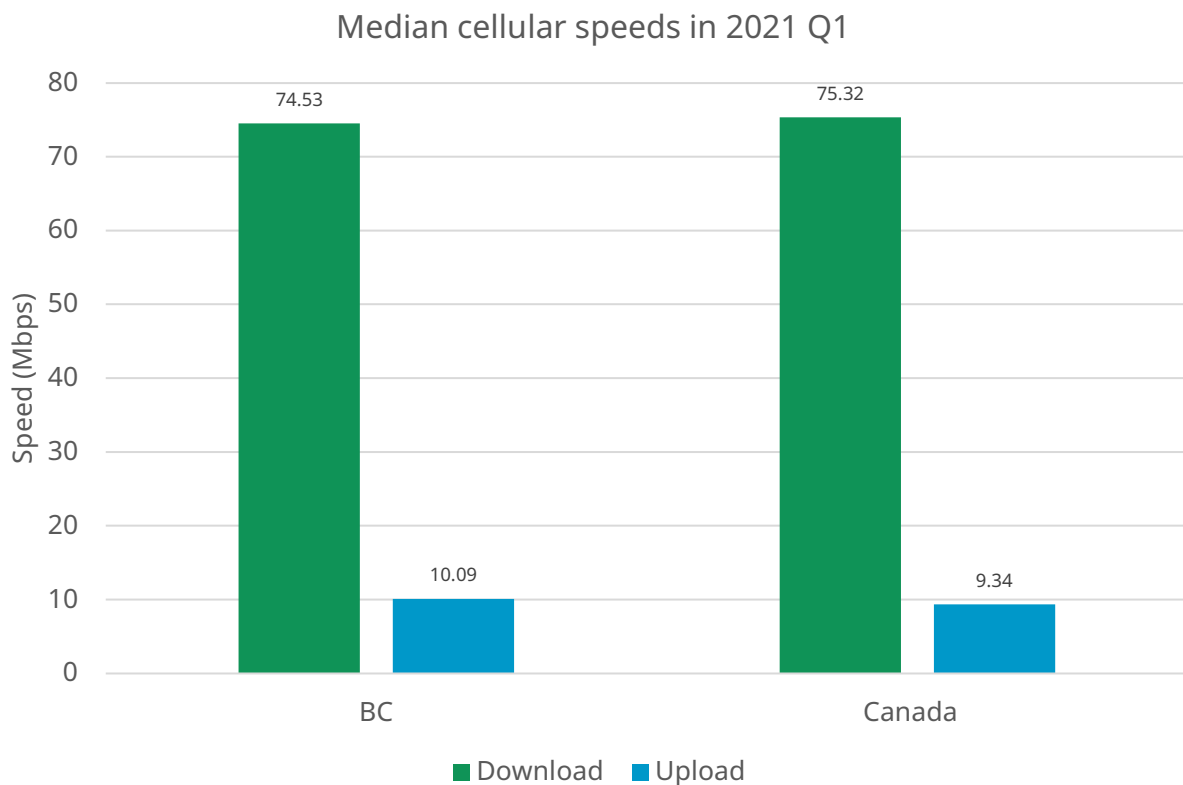
Source: Speedtest Canada Mobile Report 2022