

ALBERTA BROADBAND
STRATEGY 2022

Connecting Albertans, growing the economy

Alberta

Alberta broadband strategy 2022 : connecting Albertans, growing the economy

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Premier's message



Few investments will be as important to Alberta's future as building broadband networks that deliver fast internet speeds to rural, remote, and Indigenous communities. Broadband is an economic driver, the backbone of our modern economy.

Right now, nearly 489,000 Albertans do not have access to the speeds they need to work and learn from home. While median download speeds in urban centres are 135 megabits per second, speeds in rural communities can be as low as five megabits per second. More than 200,000 households in rural, remote, and Indigenous communities have been grappling with this challenge for many years.

The pandemic exposed the crisis: students doing homework in the parking lot of a fast food restaurant with free Wi-Fi. Parents trying to find room in their household budget for internet costs that far

exceed the rate in urban centres. Rural businesses leaving their hometown to compete in the online economy.

Alberta's government heard these stories and so many more. With this strategy, we are taking meaningful steps to secure the lives and livelihoods in rural communities.

Our broadband strategy considers Alberta's unique opportunities and challenges to make the most of resources and technologies and connect as many homes and businesses as quickly as possible. This will help attract investment, encourage new economic development, and present a wealth of new opportunities in every industry, from healthcare and education to tourism and hospitality. It will help economic recovery and diversification reach every corner of our great province.

By improving broadband in underserved communities, we are securing a bright, vibrant future for hundreds of communities, the people who call them home, and the businesses that support them.

Albertans deserve better connections, and Alberta's government is proud to make that happen.

The Honourable Jason Kenney
Premier of Alberta

Minister's message



Before I was elected, I spent most of my 15-year career as a venture capital investor, where I had the opportunity to invest in and help build many exciting Alberta-based technology companies. I have seen the power of technology transform and improve every industry. Most of the economic growth around the world in the last 10 years has come from technology, and at the root of all technology is connectivity.

Over the last two years, I have met with municipalities, Indigenous communities, service providers, and other levels of government to understand the unique challenges and opportunities facing each community looking to improve its broadband speeds. It quickly became clear that broadband is essential to our economic recovery and the livelihoods of Albertans, and we must take action to eliminate the digital divide between rural and urban communities. This means finding ways to deliver reliable

high-speed internet to even the most remote corner of our province through a mix of technology that accounts for our province's dispersed population and rugged terrain.

I am proud of the work that Alberta's government has done on this front. To date, we have announced a \$150-million commitment to fund connectivity infrastructure for rural, remote, and Indigenous communities in Alberta. I also negotiated and signed a deal with the federal government to match our commitment, bringing the total investment to \$300 million. I continue to work with telecommunications and internet companies, big and small, to maximize their investments.

Our work does not stop there. We want to ensure that we can keep the momentum going. To achieve connectivity for all Albertans by the end of fiscal year 2026/27, Alberta's government has committed an additional \$240 million, and we are actively working with the federal government to secure an additional agreement that matches this investment.

This is an important first step to eliminating the digital divide, and Alberta's government is committed to getting the job done.

The Honourable Nate Glubish
Minister of Service Alberta



The power of connectivity

“Broadband connectivity creates opportunity for our children and our communities. It enables rural economic development, increases access to health care, creates smart farms, improves education, enables information sharing to address crime, promotes rural living, and enables us to be world leaders in a range of industries.”

– **Paul McLauchlin, President of Rural Municipalities of Alberta**

“Better connectivity in our communities means that Indigenous people will have better access to the global economy, health and education. This will help ensure that all Albertans have the same opportunities.”

– **Chief Billy Morin, Enoch Cree Nation Maskekosihk**

“Increasing access to broadband across Alberta has the potential to be a game changer for our rural economy. By breaking down the digital divide, Alberta’s broadband strategy will ensure rural job creators are equipped to access global markets and continue supporting Alberta’s economic recovery.”

– **Honourable Nate Horner, Minister of Agriculture, Forestry and Rural Economic Development**

The power of connectivity

Reliable, high-speed internet connectivity is important for all Albertans, and is something that a majority of Alberta's most populous cities already enjoy. As of December 2021, median download speeds in Calgary and Edmonton were the first and second fastest in Canada (*Speedtest.net, 2021*), respectively.

Albertans in rural, remote, and Indigenous communities, however, do not have access to the required internet services to work or learn online. In many cases, Albertans are forced to use Wi-Fi at retail shops, malls, and libraries to access the speeds they need to hand in school assignments, join meetings, or access online services.

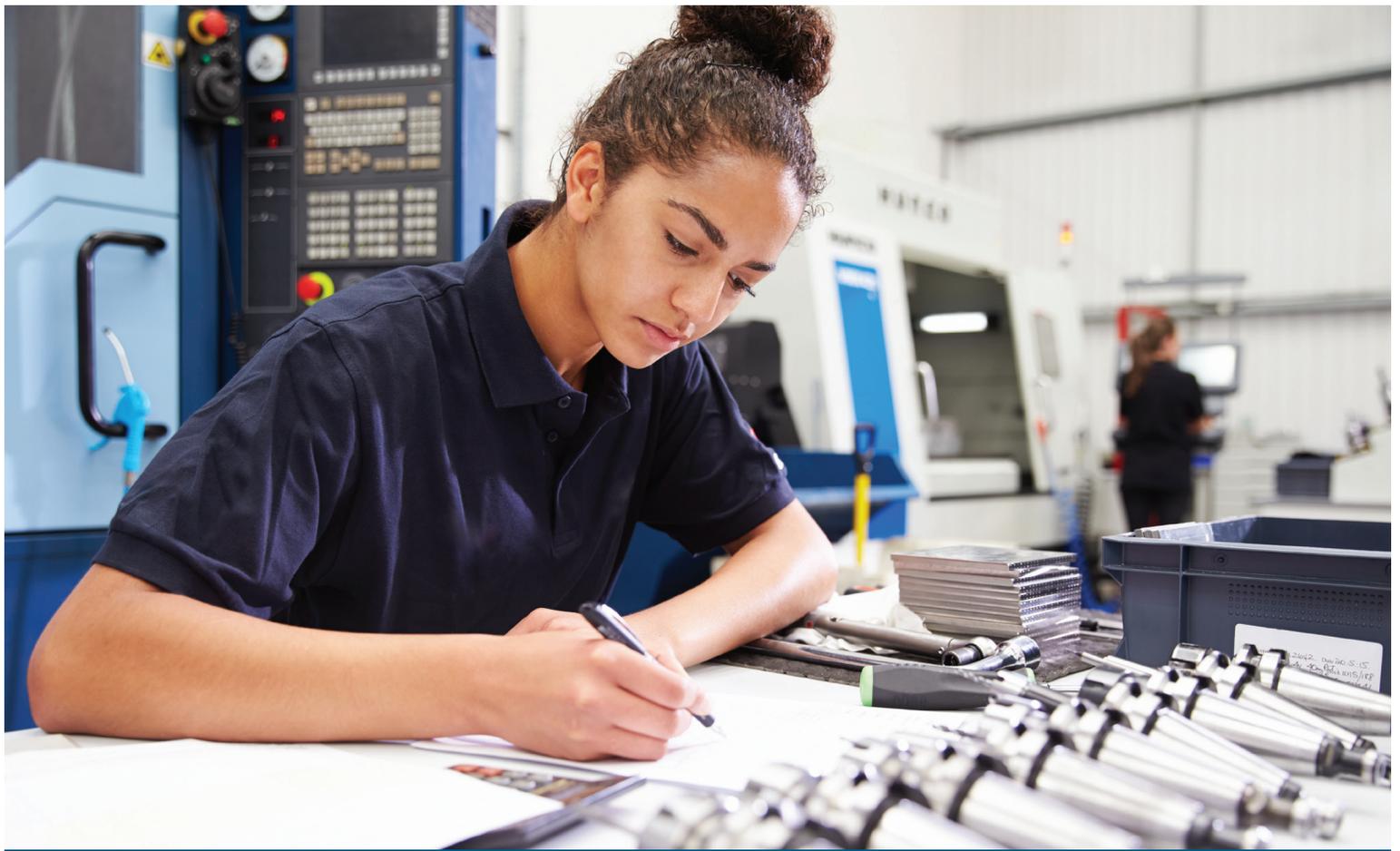
Alberta's government is committed to working with all levels of government and the private sector to increase investment into rural connectivity infrastructure and achieve 100 per cent connectivity by the end of fiscal year 2026/27.

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100%
connectivity by the
end of fiscal year
2026/27

.....





Benefits of universal connectivity

Access to reliable high-speed internet does more than just connect Albertans to the world: it is one of the simplest things that can be achieved to continue to grow and diversify Alberta's economy, strengthen our workforce, build for the future, and help everyday Albertans.

Benefits of universal connectivity



Up to
\$1.7 billion
in annual GDP growth

Jobs, Economy and Innovation

- Support economic growth and recovery by returning \$500 million to \$1.7 billion in annual GDP growth to Alberta through improved connectivity for households and businesses.
- Enable Alberta-based businesses to access international markets, providing new opportunities for economic growth and diversification.
- Strengthen connectivity for businesses driven to online transaction dependence due to the pandemic, further supporting economic recovery.
- Create up to 1,500 jobs in Alberta to deploy and install the broadband technology needed to increase coverage.
- Create up to 2,000 service industry jobs in rural regions.
- Create thousands more jobs and opportunities across sectors as the economy grows and diversifies.

► “Broadband connectivity is crucial for the diversification of Alberta’s economy. Our economy is growing and people are moving here for the opportunities that exist across all industries and sectors. This plan ensures that Albertans will have the resources they need to participate in the economy, whether by upgrading their skills online or gaining access to global marketplaces.”
– Honourable Doug Schweitzer, Minister of Jobs, Economy and Innovation

Labour and Immigration

- Provide more flexibility for re-skilling and job training, allowing Albertans to gain new skills to enter or return to the workforce.

► “Improving access to broadband internet connectivity will provide more flexibility for job training and help secure the long-term viability of Alberta’s communities and businesses. Reliable, high-speed internet is important for all Albertans, and is essential for Alberta’s recovery and economic diversification.”
– Honourable Kaycee Madu, Minister of Labour and Immigration



Advanced Education

- Help Albertans gain the skills and knowledge to lead in a digital economy, connecting learners of all ages to the resources, tools, and training they need.
- Allow students in rural, remote, and Indigenous communities to access higher quality post-secondary education without needing to relocate.
- Reduce costs to deliver education through online programs, rather than in person.

- ▶ “Access to quality broadband will provide more opportunities for how post-secondary education is delivered in our province. It will ensure every Albertan, particularly those in our rural and remote communities, is able to access high quality post-secondary education right at home.”
– Honourable Demetrios Nicolaides, Minister of Advanced Education



Indigenous Relations

- Foster reconciliation efforts by ensuring Indigenous communities are connected, have access to the services they need, and can participate meaningfully in our digital economy.
- Support Indigenous economic diversification initiatives by providing opportunities to build new workforce skills and support growth in new sectors.

- ▶ “Closing the digital divide is an important part of reconciliation. Taking real, meaningful action to improve broadband access will ensure communities can grow in prosperity, leading to safe and healthy communities for future generations.”
– Honourable Rick Wilson, Minister of Indigenous Relations



Municipal Affairs

- Provide incentives for rural communities to attract new residents and businesses, ensuring strong rural economic development and participation in the global digital economy.

▶ “Access to reliable broadband is key to securing long-term sustainability for Alberta’s communities, particularly in the rural parts of our province. By ensuring that every Albertan has access to the modern economy, regardless of where they live, local businesses will be able to reach new heights, young Albertans will have more opportunities to succeed in their communities, and municipalities will be able to provide better services to their residents.”
 – Honourable Ric McIver, Minister of Municipal Affairs

Agriculture, Forestry and Rural Economic Development

- Increase GDP in the agricultural sector by up to five per cent through increased productivity and application of AgTech.
- Unlock smart agriculture, including drone farming, livestock and crop monitoring, precision agriculture, and autonomous machinery to allow Alberta’s farmers to increase yield, improve revenue potential, and optimize productivity.
- Support rural economic growth initiatives across the Government of Alberta through the coordination and integration of economic enablers such as broadband accessibility to rural Alberta.

▶ “Access to reliable, high-speed internet is crucial to ensuring rural Albertans can meet the challenges of the future. Alberta’s broadband strategy will make it easier for job creators in our innovative agriculture sector to reach new customers and get more made in Alberta products to market.”
 – Honourable Nate Horner, Minister of Agriculture, Forestry and Rural Economic Development



Education

- Ensure province-wide access to remote education for over 120,000 students, leading to better employment outcomes.
- Provide students with access to a wide range of supplemental materials, resources, and courses to supplement in-person study.
- Enable rural and Indigenous students to access a broader range of learning supports.

- ▶ “Expanding Broadband access is an important issue I have heard about from Education stakeholders in remote areas. Alberta’s new broadband strategy will ensure province-wide access to remote education for students who require it and enable access to a broader range of learning supports, enhancing student success. I am encouraged that these new initiatives are bringing Albertans together so that all students can benefit, regardless of their geographical location.”
– Honourable Adrianna LaGrange, Minister of Education



Health

- Improve access to healthcare for up to 40,000 Albertans who cannot currently access a primary care provider, reducing travel time and cost of accessing healthcare for patients.
- Improve access to emergency health services in rural, remote, and Indigenous regions.
- Reduce the cost of long-term care delivery through home health monitoring, at-home management of chronic illness, additional access to mental health care services, and reduced hospital stays.

- ▶ “Expanding broadband means better connections for Albertans with the health care services they rely on. Alberta’s broadband strategy will improve access to emergency health services for rural Albertans and reduce the cost of long-term care delivery.”
– Honourable Jason Copping, Minister of Health



Justice and Solicitor General

- Deter rural crime using internet-connected security equipment in homes and businesses.

▶ “A major factor in the issue of rural crime is the distance from the nearest police detachment or even neighbours. To help protect against break-ins, and to help catch the perpetrators when a crime is committed, internet-connected security equipment is critical. More internet broadband access means more Albertans can take advantage of this technology to help keep them, their families, and their businesses safe.”

– Honourable Tyler Shandro, Minister of Justice and Solicitor General

Service Alberta

- Increase the number of households with access to digital government services, reducing costs through efficient delivery and increased adoption of government programs.
- Enable broader access to innovative technologies, like artificial intelligence, machine learning, Internet of Things, and augmented reality, which are revolutionizing industries like health care, agriculture, and transportation.
- Provide a digital ecosystem supportive of innovation and transformation, allowing Albertans to embrace these technologies to improve their daily lives.

▶ “I have seen the power of technology transform and improve every industry, and we are hard at work to make sure we can harness technology to transform government. The root of all technology is connectivity and that is why the work we’ve been doing to eliminate the digital divide is so important.”

– Honourable Nate Glubish, Minister of Service Alberta





The problem

Alberta's government has been actively working with municipalities, Indigenous communities, and the telecommunications industry to understand the magnitude of Alberta's connectivity problem, and what is required to fix it.

Our analysis shows that eliminating the digital divide in Alberta will cost an estimated \$1 billion. This reflects a need for public sector funding from all levels of government, in addition to private sector investment, and using a combination of fibre, fixed wireless, and low-earth orbit (LEO) satellite technology.

As we move forward, Alberta's government has identified the need to focus on access, affordability, and quality.

The problem

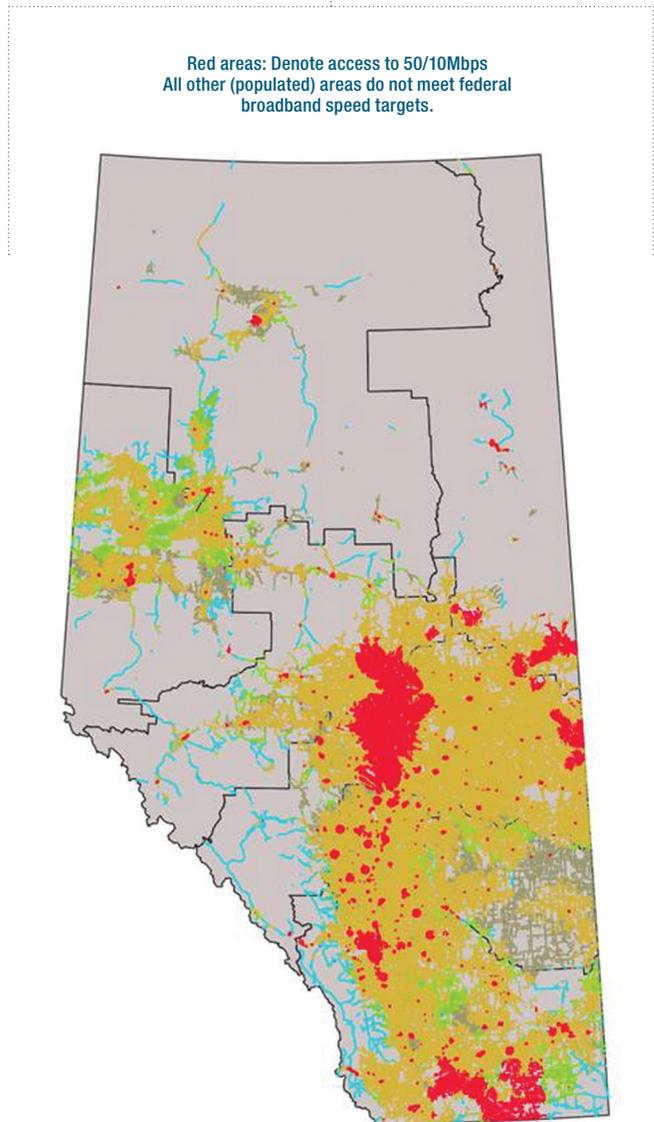
Access

Today, 67 per cent of rural Albertans and 80 per cent of Indigenous communities do not have access to reliable high-speed internet at federal target speeds. This represents approximately 201,000 households, or 489,000 Albertans, who are at an economic disadvantage to their peers living in urban centres.

Factors contributing to Alberta's digital divide include low population density, distance from core network infrastructure, and challenging terrain. Each of these factors limit the business case for private investors to deliver services to underserved communities. Rural Albertans faced similar issues with the development of electricity, natural gas, and traditional telephone lines. Rural Alberta was the last to be connected because of the challenging economics of providing broadband and other core services to the most remote regions of the province.

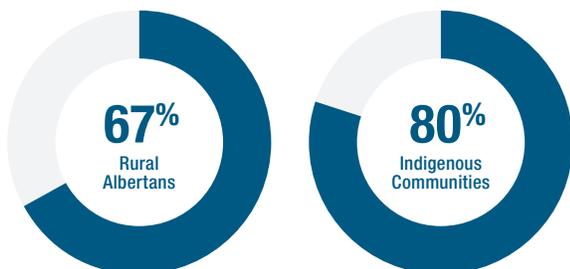
In order to address the poor economics of building connectivity infrastructure in rural Alberta, public sector funding is required.

Map of broadband coverage



Eliminating the digital divide in Alberta will cost an estimated **\$1 billion**

Unreliable access to high-speed internet at federal target speeds



Households at an economic disadvantage

201,000 Households

489,000 Albertans

Affordability

Providing access to high-speed connectivity is not the only factor to achieving universal connectivity. Albertans will see few benefits of broadband deployment if the cost for services are unsustainable or too high to stay connected. There are challenging economics to consider.

Leveraging existing infrastructure wherever possible will be critical to ensuring affordability, but much new infrastructure will still be required. Other factors impacting overall affordability include: long distances to core infrastructure, geographical barriers, and low population density. Each of these factors impacts revenue opportunities and diminishes the return on investment for service providers to provide broadband to these communities. To overcome this disincentive to extend broadband

services to rural communities, the federal and provincial governments are working with private providers, municipalities and Indigenous communities to close this funding gap.

Real-world constraints also prevent us from deploying broadband all at once, even if this funding was available. There are global supply chain challenges as a result of the COVID-19 pandemic, including delays in procuring fibre technology, wireless infrastructure, and electronics. Furthermore, the private sector partners who will build the connectivity infrastructure have capacity constraints when it comes to engineering, design, and construction. For these reasons, it makes sense to take a phased approach over several years to ensure that we do not overpay for connectivity improvements.

Finally, current federal policy on spectrum plays a role in broadband affordability. This includes policy on spectrum auctions, licences, and rights, so our advocacy to the federal government on improvements to these policies is important as we work towards securing more affordable access to connectivity.

In partnering with all levels of government and the private sector, Alberta's government is maximizing funding and available resources to provide affordable, sustainable services to all Albertans, regardless of where they may reside.

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A phased approach ensures we do not overpay

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Quality

Telecommunications networks can experience outages or failures resulting from a range of causes, including oversubscribed wireless infrastructure, cold weather, or damage incurred to fibre cables.

In addition to these challenges, some communities have identified circumstances where actual connection speeds in their areas are lower than what is advertised. Data collected by the

federal government shows which communities have access to connections at or above the universal connectivity target speeds; however, data does not currently show the actual delivered speeds for each location.

As broadband is deployed, investment must focus on solutions with strong and resilient networks that minimize potential outages, maintain consistency, and provide high-quality services to Albertans.

Sample broadband speeds in Alberta communities

Location	Maximum available download speeds	Maximum available upload speeds
City of Calgary	2.5 Gbps	2.5 Gbps
City of Edmonton	1.5 Gbps	1 Gbps
City of Fort McMurray	1.5 Gbps	1 Gbps
Town of Hinton	1.5 Gbps	1 Gbps
City of Lethbridge	1.5 Gbps	100 Mbps
City of Red Deer	1.5 Gbps	1 Gbps
Town of Slave Lake	1.5 Gbps	1 Gbps
Town of Wainwright	1.5 Gbps	1 Gbps
City of Lacombe	1 Gbps	100 Mbps
Hamlet of De Winton	25 Mbps	5 Mbps
Town of Mundare	25 Mbps	5 Mbps
South Cooking Lake	25 Mbps	5 Mbps
Chipewyan Prairie First Nation (Janvier 194)	10 Mbps	2 Mbps
Little Red River Cree Nation	5-10 Mbps	1-2 Mbps
Peavine Metis Settlement	5-10 Mbps	1-2 Mbps
Village of Lomond	5 Mbps	1 Mbps
Hamlet of Wanham	5 Mbps	1 Mbps

* Speeds are based on service provider data and marketing.

* Though maximum speeds are available, individuals within each location may have access to differing speeds and maximum speeds may not actually be available to all households in a given location.



The solution

Eliminating the digital divide in Alberta will depend on funding, technology, and policy reform.

The solution

Funding

To ensure the successful deployment of broadband, Alberta's government announced an initial commitment of \$150 million and negotiated a Memorandum of Understanding (MoU) with the federal government to match it dollar-for-dollar. We are actively working to maximize public funding and private investment. Our expectation is that the initial funding of \$300 million from the Governments of Alberta and Canada will unlock a significant amount of private sector funding for the successful projects. With hundreds of municipalities and dozens of private sector companies all working on different plans and projects, avoiding duplication and optimizing the reach of existing infrastructure will be critical to achieving universal connectivity.

This initial investment is a critical step towards universal connectivity. Alberta's government has committed an additional \$240 million and, through matching funding with the federal government, we can successfully achieve connectivity for all Albertans by the end of fiscal year 2026/27.

In order to execute work as quickly and efficiently as possible, the MoU will leverage the Government of Canada's existing Universal Broadband Fund (UBF) process. The Government of Alberta will collaborate with the Government of Canada to review and select the best Alberta broadband projects that applied for UBF funding, eliminating duplicate application processes, and leveraging several hundred existing applications. This approach will ensure the market's capacity to build and deploy connectivity infrastructure is not overwhelmed.



Left to right: Paul McLauchlin, president, Rural Municipalities of Alberta; Chief Billy Morin, Enoch Cree Nation; Randy Boissonnault, Federal Minister of Tourism and Associate Minister of Finance; Nate Glubish, Minister of Service Alberta.

Committed annual funding by Alberta's government



Technology

A range of technological solutions will be required to meet the unique needs and characteristics of each community, while maintaining a sustainable, cost-effective approach to achieving universal connectivity. These include fibre, fixed wireless access, and LEO satellite technologies.

Fibre is recognized as the preferred solution for high-speed connectivity. However, analysis showed that a fibre-only approach is not the most effective way to expand connectivity across the province, costing tens of thousands of dollars to connect a single household in remote regions. While fibre technology will be used wherever possible, a blended approach will be necessary to achieve universal connectivity.

Fixed wireless access consists of a fibre backbone connecting to wireless towers that broadcast internet signals to nearby households. This technology offers a more cost effective way to reach remote communities by leveraging existing cell towers and wireless infrastructure, and is a critical part of the solution to connect communities where fibre may not be economically viable.

Some regions of the province are so remote and sparsely populated that even fixed wireless access technology will not be a viable solution. In these cases, LEO satellite technology, which uses radio waves to communicate with satellites in orbit, will be used to deliver internet connectivity. Satellite technology is most effective for remote regions where infrastructure and terrain make other solutions unfeasible. Satellite networks are growing every month, making this a strong solution for hard-to-connect regions.



Fibre-to-the-home (FTTH)

Speeds: high
Reliability: high

- Primarily in underserved rural and Indigenous areas within or on the edges of cities and towns that have sufficient population density and proximity to a fibre interconnection point.
- Expected to be used in cities and towns.
- Will serve rural and Indigenous communities that are close enough to cities and towns that have sufficient population density and proximity to a fibre connection point.



Fixed Wireless Access (FWA)

Speeds: medium
Reliability: medium

- Primarily in less dense rural and Indigenous areas where existing wireless infrastructure is already present and distances between dwellings is larger.
- Expected to be used primarily in rural municipalities, villages, summer villages, some First Nations and some Metis Settlements.
- Will be used where distance to existing infrastructure is available.



LEO Satellite

Speeds: medium
Reliability: TBD

- Primarily in areas with very low population densities, challenging terrain and distance from existing infrastructure (i.e., remote communities) would usually mean that FTTH and FWA are not feasible solutions.
- Expected to be used in some rural municipalities, First Nations and Metis Settlements.
- Will be used where low population density and distance from existing infrastructure is an issue.

Policy reform

Regulatory decisions regarding telecommunications are a matter of federal jurisdiction. Some existing policies create challenges for private sector investment into rural connectivity infrastructure and the expansion of broadband in our province.

In order to invest in fixed wireless access infrastructure, telecommunications providers need to purchase a spectrum licence from the federal government. This spectrum licence allows them to broadcast a wireless internet signal in a specific geographic region over a certain frequency. Fixed wireless access technology and other technology advancements, like 5G, cannot be deployed without a spectrum licence.

Currently, the federal government auctions spectrum according to service areas based on geographic regions, and these service areas often include urban and rural portions. Industry must abide by the terms of a spectrum licence— for example, serving a minimum percentage of the population within a certain timeframe— which are often more easily met by serving the urban portion of the region. As such, the rural spectrum capacity is often left underdeveloped and rural communities are frequently left behind.

Investors who wish to develop new wireless infrastructure in a region cannot do so unless they have access to spectrum rights, which may require that the current spectrum holder relinquish their licence or sublease the spectrum access.

In some cases, spectrum holders seek to resell their spectrum licences at a profit, rather than using it for its intended purpose or developing the region themselves.

Service Alberta’s advocacy for spectrum policy changes includes:

1. Ensuring that rural and urban regions are not managed in the same service areas for spectrum licensing purposes, to better support development in underserved rural, remote, and Indigenous communities.
2. Strengthening and enforcing a “use it or lose it” framework for spectrum licensing that ensures spectrum is more readily available to providers who can demonstrate intent to provide services to the region.
3. Ensuring policies discourage the acquisition and resale of spectrum licences as a financial asset, and that buyers have realistic plans to develop the spectrum region.

If the federal government adopts these changes, the economics of broadband will be improved and private sector investment can reach more rural Alberta communities with improved fixed wireless solutions.



Progress and next steps



Ongoing advocacy to the federal government for spectrum policy reform

The commitment

Eliminating the digital divide and reaching universal connectivity in Alberta is a priority for Alberta's government. The Alberta Broadband Strategy outlines our plan to get the job done, including a commitment of \$390 million in provincial funding.

We are committed to providing the funding, advocacy, and strategic support to deliver universal connectivity in Alberta by the end of fiscal year 2026/27. This will ensure that all Albertans, regardless of where they live, can participate in our province's economic recovery, and benefit from new and exciting technological advances in the years to come.



