

# Cracking the rural broadband challenge

How to undertake a nation-building exercise, leveraging a core set of business principles, to extend connectivity to rural, remote and Indigenous communities across Canada.

November 2020

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## Abstract

TELUS has connected more than 2.4 million households, including over 450,000 rural<sup>1</sup> households, across Canada to date to our world-class TELUS PureFibre network. We have connected a further 410,000 rural households to our world-leading wireless high-speed networks. By focusing on simple and measurable business outcomes, we have clearly demonstrated to our shareholders, lenders and Board of Directors that we can achieve a return on our network investments. We recommend that governments approach their rural connectivity policies and programs with the same outcome-focused approach

Through the combination of a range of technologies (5G, fixed wireless, fibre and low earth orbit satellites (LEO) in the far north), enabled by coordinated public-private partnership (3P) models and federal, provincial and municipal public policy that unleashes both spectrum and funding, **we believe that all of Canada can be connected by 2025.**

1. We must work urgently to ensure that 100% of Canadians and Indigenous Peoples living in Canada, including rural Canadian and Indigenous communities, can get access to reliable, high-speed broadband networks and connectivity by 2025.
2. Communities with access to high-speed, broadband networks will realize better social outcomes for all their constituencies, including more robust economies, higher productivity, better access to education and healthcare, and increased appeal for new citizens and businesses.
3. We recommend that the Government coordinates federal and provincial subsidy dollars and accelerate rollout of funds, deploy spectrum to improve connectivity to hundreds of thousands of rural Canadian homes overnight, and measure results based on the number of homes and businesses connected and the community benefits enabled. With federal, provincial and municipal governments acting in collaboration with TELUS, leading private companies and viable Internet Service Providers (ISP) we can bridge the digital divide immediately. Let's do this, together!

In this paper, we will demonstrate how the internal business processes used at TELUS to expand its connectivity reach can be applied to government policies and programs to connect more rural households and premises across Canada. This internal process at TELUS has nation-building and rural connectivity

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<sup>1</sup>We define rural as communities that have between 2 and 5,000 premises. Statistics Canada defines a rural area as follows: "Rural communities are defined as areas with populations of less than 1,000 or density of 400 or fewer people per square kilometre."

objectives at its core, such as enabling new connectivity and access to virtual healthcare solutions, while being grounded in good governance and capital management, and measuring success on both business and social outcomes. Indeed, success should not only be measured by connectivity but also by the services made available and the benefits offered to the community.

Carriers, like TELUS, with vast and diverse broadband networks, sustainable operating models and a proven track record of investing in sustainable rural networks are set up to work with the Government to reach rural, remote and Indigenous communities that have high economic barriers to build. While private investments do go a long way to help expand connectivity, there are parts of Canada that are simply economically infeasible for private entities, alone, to build.

For the past 20 years, there has been rapid growth in the global demand for connectivity. Significant strides have been made by the telecom industry, all levels of government, local communities and Indigenous organizations to accelerate the deployment of advanced communications infrastructure across Canada.

In fact, the Canadian telecommunications sector exceeds its peers globally<sup>2</sup>, compared to places with similar geographies like Australia or those with easier more dense geographies like Europe or Asia, in the deployment of vast, reliable networks through facilities-based competition. Despite our accomplishments, we know there is still work to be done. Based on the CRTC 2019 Communication Monitoring Report, just 41<sup>3</sup> per cent of households in rural Canada have access to broadband speeds at or above 50/10 Mbps – otherwise called the ‘Digital Divide’.

We believe the CRTC’s Universal Service Objective for internet (50 Mbps download and 10 Mbps upload speeds for all households in Canada) can be met, and believe the timelines of achieving that target can and should be accelerated with the right business-driven approach. To that end, we welcome the recent announcement of the Universal Broadband Fund, and the Government’s updated objectives to connect 98 per cent of Canada by 2026. The proposed approach in this paper is complementary to that objective, and supports even further acceleration to connect all homes by 2025.

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<sup>2</sup>S. Fenwick, *Global State of the Mobile Network Experience Awards*, OpenSignal, <https://www.opensignal.com/reports/2020/09/global-state-of-the-mobile-network-experience-awards>, 2020

<sup>3</sup>Canadian Radio-television and Telecommunications Commission, *Communications Monitoring Report 2019*, <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2019/cm9.htm#a3.3>, 2020

## SECTION 1: Cracking the rural broadband challenge

The business-driven approach to rural connectivity: unleash different technologies and focus on outcomes.

Connecting all of Canada with one type of technology is no more feasible than attempting to convince a Montreal Canadiens' fan to cheer for the Vancouver Canucks. Our massive country requires customized solutions that reflect the local geography and conditions. To connect all of Canada by 2025, we need to fully deploy all types of connectivity technology, rather than focus on just one.

Over the past decade, TELUS has been investing significantly in rural Canada, expanding access to services and building sustainable and robust networks. TELUS has connected over 450,000 rural households across Canada to date to our TELUS PureFibre network and a further 410,000 households to wireless high-speed networks. Additionally, in 2020 alone, TELUS has supported 38 communities with new fibre-fed copper internet. It has done so by clearly demonstrating to our shareholders, lenders and Board of Directors that we can achieve a return on that investment by focusing on simple and measurable business outcomes.

With simple and measurable outcomes defined, it is critical to develop a pay-for-performance culture that reflects smart management of capital. That is how we have approached our successful broadband investments. By utilizing a performance based funding framework for capital projects<sup>4</sup>, we ensure funding is directed to those projects that demonstrate sound execution and delivery. In simple terms, as milestones are achieved, more funding is released. This framework demands governance and reporting on a 90-day rolling cycle to monitor progress and allocate capital and measure success.

The business case challenges for carriers to provide services in the most rural areas of Canada are best described when looking at the cost to connect a premise in a rural area compared to a non-rural area. **Cost per premises increases in rural areas by nearly 2.5X, on average, over non-rural areas** due to low population density, the vast distances between populated areas, access to existing infrastructure, Canada's challenging climate and difficult topographical features (e.g. mountains and lakes).

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<sup>4</sup> Additional Reference Section - TELUS Pay for Performance Governance and Reporting Framework

## Cost to Build Rural



Furthermore, ongoing operational and maintenance expenses are higher by the same percentage. As industry experts have pointed out, one of the challenges in providing service in rural territories is that the **ongoing costs for installation, operations and maintenance is often higher on a per subscriber basis**. Technicians experience lengthy unproductive “windshield time” driving between locations. Lower population densities and harsher geographic conditions contribute to higher capital costs on a per subscriber basis, and can also lead to higher operating expenses<sup>5</sup>. **Content costs per subscriber are also higher due to this incremental cost of delivery.** To balance the equation between urban and rural, it's important to drive incentives from multiple dimensions. Incentives that would subsidize the delivery of content into rural communities would help reduce the ongoing operating costs experienced with servicing remote areas of Canada.



Many rural areas in Canada do not have a wired transport network coming into a community and are currently served by wireless microwave radio transport systems. Those systems are proficient where road access or the topology would restrict a physical wired transport system; however, those microwave radio transport systems are limited for capacity, more susceptible to weather or environmental conditions, and expensive to upgrade and maintain service. Installing fibre backhaul is required for increased speed and enhanced services but is costly given the distance from existing facilities.

<sup>5</sup> M Goldberg, An expense gap in the rural digital divide, Telecom Trends, <http://mhgoldberg.com/blog/?p=14194>, 2020

### *A case study on Haida Gwaii*

*Located 55KM off the northern pacific coast of Canada, Haida Gwaii residents have both wireline and wireless services provided through the same microwave radio transport system. Despite higher demand on Haida Gwaii for services, there is not sufficient bandwidth coming to the archipelago through that system to support new customers or improved services.*

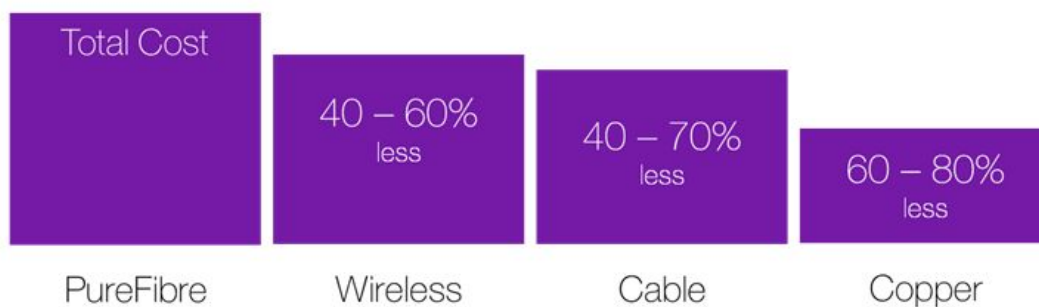
*Robust fibre transport to the archipelago is required but until such time as that transport build is completed, there is limited ability to improve service levels for businesses and residents.*



**No one technology type is perfect.** Both wired and wireless solutions are complementary. It is critical that we consider the technology best fit based on geography, density and nearness to other related network elements like existing transport facilities or the cellular network. It is critical that programs to support connectivity do not favour one technology approach over another and that is exactly how TELUS has approached investments in network connectivity to connect an increasing number of communities.

While there is a lot of variability given specific circumstances of each region, let's consider a high level suggestion that if TELUS PureFibre was the most expensive technology to build in a rural community, then the comparative cost to provide coverage using other options may look like the below. This comparison is only true if supporting infrastructure like transport and power is nearby, otherwise costs could be as expensive as a fibre build.

### Relative Cost of Connectivity Technologies



These figures, while directional in nature, speak to **the advantage that established and sustainable network carriers have in helping address the rural connectivity challenges** through their diverse networks and sustainable operating models.

- **TELUS PureFibre** costs, when compared to other ISP infrastructure builds, are more economically efficient given the scale at which we have design and planning engineering, construction and build teams in place, discounts on volume of fibre and equipment purchases, and existing distribution and backhaul infrastructure.
- **Wireless** costs remain high due to the fact that net new wireless internet coverage is only possible through the building of new tower sites; however, **providing speeds of 50/10 Mbps leveraging the nearly 1,600 existing wireless towers could be possible with access to more spectrum.**

**“Spectrum”** refers to the radio frequencies used by wireless providers. Access to spectrum is critical to provide the necessary network capacity to support high-quality broadband services. As a public resource, spectrum is managed by the federal government and allocated to providers via auctions.

- Internet access is also made possible through the cellular networks across Canada. In February of 2020, TELUS finished connecting every community in B.C. with a population of 1,000 people or more to our 4G LTE network. This network access is not to be taken lightly, a recent PCMag report<sup>6</sup> shows that **TELUS 4G LTE network speeds easily outpace 5G network speeds of the United States’ top carriers and other Canadian providers.** Our approach to continuous investment and expansion ensures our customers continue to enjoy the world-class speed and latency that they have come to expect.
- **Copper** costs are lower given the reach of the existing infrastructure and because as TELUS PureFibre networks have been deployed across Canada, we have generated a supply of excess copper equipment that can be repurposed and redeployed to rural areas.

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<sup>6</sup>S. Segan, Fastest Mobile Networks 2020, PCMag, <https://www.pcmag.com/fastest-mobile-networks/2020>, 2020

*A case study for Vermillion River County, Alberta*

*To connect all ~8,000 homes in the County with wired connectivity would cost over \$120M for fibre-fed copper upgrades or over \$200M for TELUS PureFibre. At a cost per premise of \$15,000, a wireline solution here would be cost prohibitive.*

*Currently, TELUS provides near complete coverage of the county with access to wireless 4G LTE coverage and SmartHub wireless internet access of 25 Mbps. Unlocking spectrum would allow existing wireless internet investments to be leveraged to increase speeds to 50/10 Mbps.*



TELUS' substantial investments in rural communities were the result of a positive investment environment made possible by facilities-based competition. **Through these investments, TELUS provides services to 240 Indigenous communities across B.C., Alberta and Quebec**, of which 69 have access to high-speed internet of 50/10 Mbps, and 53 have access to 1 Gbps speeds on TELUS PureFibre. We plan to connect an additional 9 Indigenous communities by the end of 2020.

*“With the arrival of TELUS PureFibre in Gibsons and on the Sunshine Coast, it made us one of the best-served communities in the country for fast internet, telephone and television service. Not only does it support our local economy as businesses, families and individuals take advantage of this service to serve their various digital requirements, but it also supports the growing number of professionals who are choosing to telecommute so they can enjoy the more rural lifestyle we so fortunately have here on the Coast. Your commitment to our community, through the economic and social growth resulting from your investment, is much appreciated.” – Mayor Beamish, Gibsons, B.C.<sup>7</sup>*

**In our contemporary economy, digital adoption is fundamental to regional and national economic development and community vitality.** We have observed that the construction activity alone provides economic stimulus in the region through direct construction-related employment as well as the spin-off benefits for local businesses, hotels and restaurants. Adoption of high-speed broadband services in a region, via network builds like TELUS PureFibre, will result in long-term productivity benefits across industries

<sup>7</sup> Full community references included in the Community Reference sections for all quotes throughout the document.

through digital adoption in our economy, as more employers and residents take advantage of high-speed internet networks. Specifically, we have observed that the biggest benefactors are retail services, hospitality, professional services and the government sector.

***“Our business community has come a long way by establishing online shopping experiences because of the fibre project. One of the very cool initiatives that we are taking on is establishing a Digital Main Street and looking forward to the rollout of this project – which may not be possible without the increased connectivity that TELUS PureFibre has allowed us. All in all, we in the small community of Black Diamond appreciate and value our relationship with TELUS and our fibre broadband experience.” – Sharlene Brown, CAO, Black Diamond, Alberta***

Beyond the economic benefits, **connectivity enables access to a large set of social and community services.** Our commitment to building networks that support long-term community prosperity are central to our ethos, and we have heard firsthand the impact that these investments have locally.

***“I can’t overstate the value that having TELUS PureFibre connectivity has brought to Fort St. John. TELUS deployed fibre facilities in a collaborative partnership with our city and the investment has allowed us to market connectivity as a key differentiator.” – Mayor Ackerman, Fort St. John, B.C.***

Measuring success: enabling remarkable social outcomes through connectivity

**TELUS’ successful investment model is measured not just on enabling premises with connectivity but also by looking at the social and community services that are enabled alongside.**

We recognize that reaching the end user with a connection is the absolute minimum bar set for outcomes. While a connection to the internet is a meaningful and important first step, it is not the standard we should be holding ourselves to when considering closing the digital divide. Connectivity is just the beginning, and is only as good as those services that are provided via that connection.

Success is measured in three tiers of tangible outcomes, all equally important to cultivate connectivity:



***“Not only has better service boosted business, it has also made educational programs and supports work for people from K-12 and post-secondary. Prior to TELUS expanding services, it was very difficult for students to do their studies, and educators to deliver services. Additionally, the ability to participate in arts programs, recreational activities, gaming, health care services etc. can now occur seamlessly, where it simply couldn’t before.” – Mayor Fehr, Alix, Alberta***

In all of our markets where 25/5 Mbps is available, there is access to our full set of unique residential and business services (Internet, Optik TV, phone, premise security, cyber security) but critically, access to additional social services, economic services and community benefits. Here is where TELUS stands apart. We have continued to develop and expand programs that **look beyond connectivity to enable communities for longer-term prosperity and success**, and to address some of the larger and more complex social issues like **access to affordable technology, access to healthcare and staying safe online**.

**Digital healthcare:** with today’s technologies, connectivity grants immediate access to virtual healthcare. Access to virtual care solutions, like Babylon by TELUS Health, allows patients to access medical advice from provincially licensed doctors or nurses over their smartphone, enabling patients with severe chronic diseases or conditions to monitor health factors from the comfort of their homes and share this information electronically with health professionals. We are providing specialized healthcare through connectivity and driving better health outcomes by providing more than 28,000 clinicians use of TELUS electronic medical records and linking over 6,500 pharmacies using TELUS pharmacy management solutions.

**Smart agriculture:** using the power of data and technology to drive better food outcomes, from farm to fork. By linking data systems across the agriculture value chain, TELUS Agriculture equips food producers with systems that will improve efficiency, increase yields, reduce waste and allow for improved food traceability.

**Affordable access to technology:** supporting economically disadvantaged families, people with disabilities, seniors and Indigenous Peoples in Canada through the TELUS Connecting for Good

programs, including low-cost high-speed internet access with TELUS Internet for Good, a free smartphone and data plan for vulnerable youth through TELUS Mobility for Good, and adaptive technology for people of all abilities with TELUS Tech for Good.

**Online safety and community support:** providing access to TELUS Wise, helping youth, Canadians and Indigenous Peoples in Canada of all ages stay safe online, and delivering hundreds of thousands of volunteer hours in the communities where we operate.

**Small Business services:** providing low-cost and ubiquitous access to a robust set of business services to enable local entrepreneurs, innovators and businesses to stay local while competing globally.

**Smart Town and Smart Village capabilities:** leveraging technology to cultivate and support demographic management, community safety, housing, mental health and addiction, while encouraging long term community growth, vitality and prosperity.

**It's not just the power of digital technology, but also how we translate it into meaningful services** that drive innovation and support the transformation of essential social models, such as patient-centred healthcare, universal education and environmental stewardship. Further, physical and cyber security are becoming increasingly important given the role technology is playing in the areas of home and business security as well as the use of online applications for healthcare and education. As more and more data is being generated through broader bandwidth, it is equally important to protect the use of that data. For TELUS, and other large ISPs, there is a breadth of experience and expertise in protecting and keeping that data secure.

***“The work TELUS has done in partnering with our little agriculture town has been key in supporting our future growth. Since the build, we’ve seen Westlock able to compete globally, while allowing families and businesses the benefits of raising a family in a small, tight-knit community.” – Mayor Leriger, Westlock, Alberta***

***“The connectivity that TELUS brought to our community has allowed our community to stay competitive throughout COVID-19. TELUS and the City of Wetaskiwin have continuously partnered with our community since the build in 2015 to drive additional benefits and local support. Now that we have the fibre facilities, we are excited to continue working with TELUS to realize the power of Smart City capabilities.” – Mayor Gandam, Wetaskiwin, Alberta***

When viewed against this backdrop, **telecom policy is an economic development policy, a public health policy, an agriculture policy and an innovation policy**<sup>8</sup>. With respect to COVID-19, better public health outcomes, especially during and after the pandemic, can be achieved by adopting policies that encourage investment in networks and digital infrastructure, including maximizing available spectrum for auction, requiring rural deployment as a condition of spectrum license, bringing spectrum assignments per operator in line with international benchmarks, and maintaining a long-standing commitment to market competition.

Moreover, the private sector has constraints on its ability to invest. Investors in the telecommunications sector expect that companies will provide them with an ongoing dividend yield that puts a limit on a company's ability to use internally generated funds to fund capital expenditures. In the current environment, Canadian telecommunications companies will continue to invest to connect premises, but will have difficulty matching or exceeding their peers in other countries without more policy support. **Policy support could accelerate the pace of investment over the next five years.** Through further relaxation of accelerated depreciation, companies would have an incentive to accelerate rural investments so that they occur within the window that the incentive is available.

Enhanced tax incentives are effective in stimulating additional investment in broadband by telecommunications companies. In addition to directly improving cash flows, and hence companies' ability to fund investments, tax incentives have some key advantages from a policy perspective. Tax incentives leave decision-making in the hands of private sector companies, are universally available and entail relatively low costs for administration<sup>9</sup>.

## Sustainable operations: what we have learned through the COVID-19 pandemic

TELUS' network investments are underpinned by a commitment to sustainable operations, continually supporting, maintaining and upgrading its broadband networks. The networks that are built are only as good as the services that they are able to deliver to Canadians and Indigenous Peoples living in Canada. In the past eight months, those networks and the network operators have been tested. **Despite a remarkable increase in usage, Canada's networks – from urban to rural – have remained consistently robust** and have supported the heightened demand; as a result, Canada's economy is leading the world in productivity.

Indeed, the networks that have been deployed across Canada exceed our peers globally despite the higher cost of building those networks on a per subscriber basis for capital, labour, maintenance and spectrum

<sup>8</sup> J. Whalley, P. Gerli, *Supporting rural communities through ICT: Healthcare, the environment and agriculture*, TELUS Communication Inc, [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapi/CRTC-2019-288-Telus-Petition-Appendix-B-Whalley-Gerli-Report.pdf/\\$file/CRTC-2019-288-Telus-Petition-Appendix-B-Whalley-Gerli-Report.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapi/CRTC-2019-288-Telus-Petition-Appendix-B-Whalley-Gerli-Report.pdf/$file/CRTC-2019-288-Telus-Petition-Appendix-B-Whalley-Gerli-Report.pdf), 2020

<sup>9</sup> KMPG, *Review of the Economic Impact of Broadband and Fibre to the Premise Deployment*, KPMG, 2013 (available upon request)

costs<sup>10</sup>. Layer on the operating environment of Canada, with nearly **4X the number of days below freezing, 10X the amount of snowfall and 95% less customers per square kilometre** covered with mobile networks<sup>9</sup> compared to benchmark peers, Canada's networks are a staggering achievement. Compare this to Australia, where the National Broadband Network (NBN), which is yet to be completed despite investing near \$51B<sup>11</sup>, has been a disaster for consumers and the nation<sup>12</sup>, enabling connected services for only 7.8 million<sup>13</sup> Australians out of only 11.8 million who are able to connect at all. A September 2020 survey showed that two-thirds<sup>14</sup> of NBN users in regional areas of New South Wales said they were having speed issues over the network.

***“Connectivity is critical to productivity. This is especially the case during 2020 where I have found myself leading the TELUS Digital team from my home in Melbourne, Australia. Ordinarily, you’d think the time zones would be my biggest challenge; however, despite being less than fifteen kilometers from the central business district, my hybrid fibre-coax connection is the real bottleneck. The time zones actually help, for a large part of my ‘work day’ most people are asleep when I’m working and when they wake up, I often find it’s a juggle between 4G hotspots, home internet and mobile phones to avoid the dreaded buffering video and robotic audio that comes with bandwidth limitations” – Monty Hamilton, Chief Digital Officer, TELUS, based in Melbourne, Australia, working from home for family reasons during COVID.***

Fulfilling our important responsibility as an essential service provider, the TELUS team works diligently to sustain our world-leading network connectivity to support the increasing number of Canadians and Indigenous Peoples in Canada working, learning, accessing entertainment, transacting online and socializing virtually from home, on a significantly intensified basis. Indeed, the TELUS network remains resilient to handle the usage pressure given its heightened capacity and capabilities.

***“Through COVID, we were able to set up many of our team to work remotely throughout the Valley to help prevent the spread and keep our team safe. We were able to quickly find the support and resources we needed in a difficult time. Through COVID, we were also able to show urban communities that technology and a strategic location***

<sup>10</sup> Christensen Associates, *Key Costs Drivers of Mobile Wireless Services in Canada, Implications for Pricing*, Christensen Associates, <https://www.lrca.com/wp-content/uploads/2020/10/Key-Cost-Drivers-of-Mobile-Wireless-Services-in-Canada-Implications-for-Pricing.pdf>, 2020

<sup>11</sup> Hon. M Corman, Hon. P Fletcher, *NBN Co secures \$6.1 billion in private sector funding*, Government of Australia, <https://www.financeminister.gov.au/media-release/2020/05/12/nbn-co-secures-61-billion-private-sector-funding>, 2020

<sup>12</sup> I. Lane, *Coronavirus pandemic shows government must fix Australia's NBN, telco experts say*, The New Daily, <https://thenewdaily.com.au/life/tech/2020/03/22/nbn-coronavirus-fix/>, 2020

<sup>13</sup> nbn Co, *Weekly Progress Report November 2020*, NBN Co [https://www.nbnco.com.au/content/dam/nbnco2/2019/documents/weekly-progress-report/Public\\_Progress\\_Data%20-%20051120.pdf](https://www.nbnco.com.au/content/dam/nbnco2/2019/documents/weekly-progress-report/Public_Progress_Data%20-%20051120.pdf), 2020

<sup>14</sup> D. Braue, *Regional Australians still living an NBN nightmare*, Information Age, <https://ia.acs.org.au/article/2020/regional-australians-still-living-an-nbn-nightmare.html>, 2020

***would make Drumheller an ideal place to live, raise a family and locate your business.”***

***– Mayor Colberg, Drumheller, Alberta***

When we look specifically at events like the COVID-19 pandemic, **fast, reliable, far-reaching telecommunications networks will help limit the spread of this virus and strengthen our ability to address its ongoing impact.** Responding to this demand and the needs of Canadians and Indigenous Peoples living in Canada, we redirected capital investments towards those areas of Canada with the most urgent needs, including expanding our digital healthcare services, supporting online learning and focusing on keeping homes and premises connected through this increased network demand.

Successfully removing economic barriers to connectivity: partnerships that work

**While private investments do go a long way to help close the gap, there are parts of Canada that are simply economically infeasible for private entities, alone, to build.** We must continue to encourage future investments in rural connectivity by facilities-based providers, by avoiding policies that would restrict further investment like mandating wholesale MVNO access<sup>15</sup>, continuing with spectrum policies<sup>16</sup> that employ set-asides for small and regional telecom companies, or favouring open access for fixed wireline infrastructure.

Through the use of the public-private partnership (3P) model, and through strong collaboration with other connectivity partners, we have **observed a number of successful projects which have delivered connected homes, provided a robust set of services and cultivated connectivity** to create remarkable social outcomes for communities. Based on our experience to date working directly with community governments, evolving the 3P model to allow for community governments to work with ISPs to jointly fund community-wide connectivity projects up front, while remaining eligible for federal or provincial subsidies or reimbursement based on a set of successful criteria, would be welcomed.

As an example of what success can look like, collaboration among Indigenous, federal and provincial governments, and partners like the All Nations Trust Company (ANTCO), will see TELUS PureFibre in 61 Indigenous communities across B.C. and Quebec, including more than 20,000 homes, schools, governments and health centres, by the end of 2020. The **TELUS Indigenous Connectivity Report** from 2019 and 2020<sup>17</sup> respectively, demonstrates the power of working together with different funding partners to accomplish truly remarkable and expansive connectivity projects.

<sup>15</sup>Multiple reference in 'Additional References' Section on MVNO Impacts

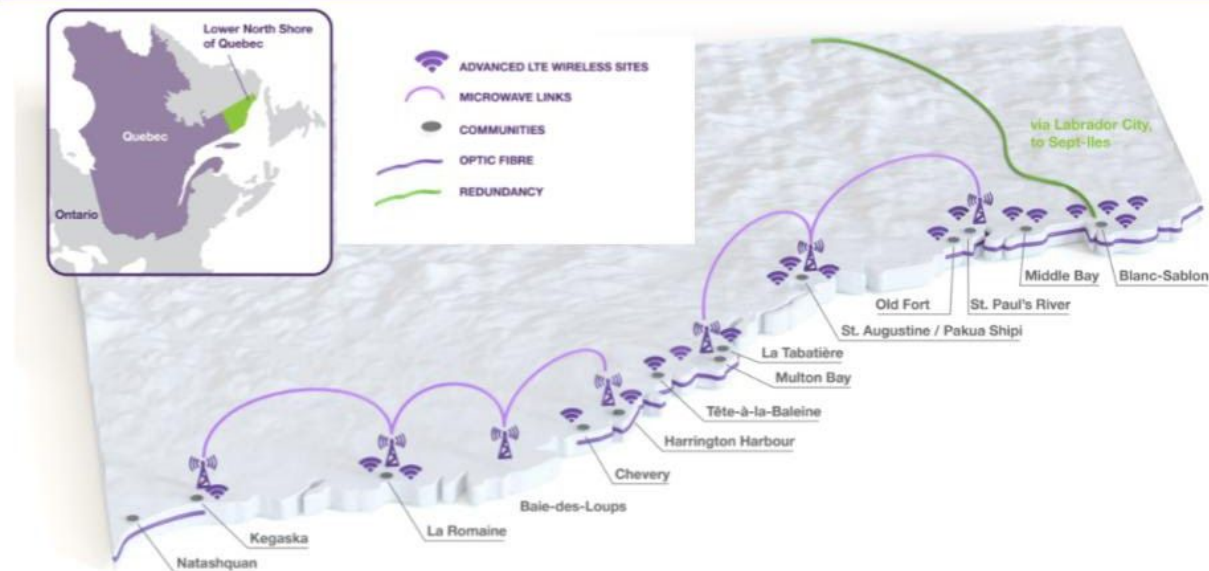
<sup>16</sup>R. Crandall, *The Government's Spectrum Policy Will Reduce the Quality of Wireless Services for Rural Canadians*. Unpublished manuscript, 2020 (Available upon request)

<sup>17</sup>TELUS, *Indigenous Connectivity Report*, TELUS, [www.telus.com/indigenousconnectivity](http://www.telus.com/indigenousconnectivity), 2020

**A further example is our Quebec rural connectivity 3P partnerships.** By the end of 2020, 93% of all homes and premises in TELUS' Quebec territory will have access to our fibre network, and the rural and rugged Gaspé Peninsula will have fibre connections available to 99% of residents. Out of the 93%, 10% is a result of government subsidy programs, which combined, have contributed \$50M towards our overall Quebec TELUS PureFibre investments over the last decade. This demonstrates the effectiveness of these programs when industry, provincial and federal governments work together. Notably, for the Connect to Innovate Program, nearly 30% of allocations to date were to Quebec proposals driven in part by the provincial government's strong participation.

#### **A case study of Quebec's Lower North Shore**

*Quebec's Lower North Shore spans over 400 kilometres from Natashquan to Newfoundland's border. 14 communities, accessible by air or sea, now benefit from one of the most extensive and advanced microwave ecosystems in the world. 1,950 households and close to 5,000 'Coasters' now benefit from high-speed internet connectivity over LTE and 3G voice services. This state of the art deployment could not have been possible without provincial and federal funding and extensive collaboration of all stakeholders.*



Through these improved 3P partnerships, more communities like Pakua Shipi will have access to virtual healthcare solutions, though their community is so remote it cannot be reached by car. More small communities, like Nelson, B.C., will attract global tech businesses and top talent. And more children, like those on the Witset First Nation, will be able to access their ancestral language and connect with Elders who can share their teachings to all who wish to learn.

In B.C., there have been additional successful 3P partnerships leveraging the Connecting B.C. Fund and the Northern Development Initiative Trust to connect communities like Keremeos. In response to COVID-19,

these programs have adopted a more reactive and streamlined approach to quickly and effectively review and approve projects that could be completed within 3 months. Through this program, **more communities in B.C. can access 50/10 Mbps but also all of TELUS' accompanying services enabling residents, innovators, entrepreneurs and businesses to fully participate in virtual learning, healthcare and the digital economy.** Furthermore, we look forward to participating in the most recently announced economic recovery fund to accelerate broadband investments in partnership with the provincial government.

***"Improving broadband technology in Keremeos has tremendously benefited residents, businesses and first-responders within our Village, and will help to build Keremeos' economic resilience as we recover from the impacts of COVID-19. The new broadband technology in our municipal hall has allowed Council to take part in conferences virtually while COVID-19 restrictions are in place. The Village of Keremeos feels extremely fortunate to have partnered with TELUS [and the Government of BC] on the installation of TELUS PureFibre in the community. The TELUS team was knowledgeable and organized, and the roll-out exceeded expectations." – Marg Coulson, CAO, Keremeos, B.C.***

At the federal level, TELUS has participated in each call for applications, including the CRTC Broadband Fund, as we share in the desire to increase services in rural regions where funding is made available.

While individually these partnerships work, they miss the broader success that could be achieved by better federal and provincial coordination and collaboration to pool funding streams and share outcomes of success to connect even more homes and premises.

## Accelerating rural connectivity through a fit-for-region technology approach

The estimated cost and timeline to address the connectivity gap

**Applying a business-driven lens to the connectivity gap identified by the CRTC, our assessment is that the estimated total cost to address the 14% of Canadian households without 50/10 Mbps service would be somewhere between \$6B and \$10B.**

Based on the CRTC's 2019 Communication Monitoring Report<sup>18</sup>, approximately 14% of Canadian households do not have access to 50/10 Mbps. When applying a ratio to account for the number of those premises that could be serviced by wireless and wired connections, based on the geography of Canada, we would expect **average per premise costs to range between \$3,000 and \$5,000.** Affordability for carriers

<sup>18</sup>Canadian Radio-television and Telecommunications Commission, *Communications Monitoring Report 2019*, <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2019/cm9.htm#a3.3>, 2020

typically sits between \$1,000 and \$2,000 per premise, to achieve a discounted payback period of around 20 years. It takes a long time to amortize broadband investments, but we make these long-term investments because we also believe in building our communities. Based on these economics, which still require 20+ year amortizations, it is estimated that the private sector could have a business case to support \$2B to \$4B of the total cost. Those carriers with the capability, scope and scale to approach this nationally would be best suited to address a significant portion of this challenge.



The above assessment is based on leveraging wireline and wireless terrestrial networks to expand connectivity across Canada to reach the vast majority of homes. If we think about those companies looking to provide rural connectivity through low earth orbit satellite (LEO) technology, we should consider them complementary to the overall network experience in Canada. Using our world-leading wireline and wireless networks, we can cover the vast majority of Canada's geographic footprint. Satellite services, like SpaceX, Starlink or Telesat, could be useful in supporting the last stretch of coverage in very disparate regions where, despite best efforts, it's economically infeasible to build wireless or wireline infrastructure to expand services. The Federal Government's recent announcement to invest \$600M to secure capacity on Telesat's LEO satellite constellation is a step in the right direction to support ISPs who will build access facilities and provide high-speed internet access to the most challenging remote communities in Canada, including the far north.

Let's use what we already have: maximizing wireless internet connectivity through spectrum

**The faster we unlock more spectrum, the faster we can provide 50/10 Mbps to hundreds of thousands of underserved homes and premises.** As wireless solutions will work best in many communities – particularly those in rural areas – the Government should carefully consider its spectrum policy, auction timelines and auction frameworks. Flawed spectrum policy has permitted essential radio

waves to lay dormant in rural parts of the country due to lax deployment conditions. Imagine how much more connectivity there would be for rural Canadians and Indigenous Peoples living in Canada today if that spectrum was actually put to use.

**A case study in Western Canada**

*In Alberta, TELUS currently provides wireless internet access at speeds of up to 25/5 Mbps to 150,000 households where no other service from TELUS is available; in B.C., that number is 120,000 households. Leveraging existing assets, **unlocking spectrum could provide 50/10 Mbps to approximately 270,000 Canadian households.***



Large national providers are deploying the rural spectrum they acquire, while regional providers (who acquire spectrum at steep discounts through set-asides) are only deploying in urban areas and letting their rural spectrum holdings remain fallow. **Those set-asides prevent the national carriers from having access to the spectrum needed to expand rural broadband.** The regional providers that buy it at auction are not doing anything with it because there is no business case for them to do so, nor do they have to as there are limited deployment conditions attached to that rural spectrum.

Spectrum has been set aside in Canada for 12 years to help “new entrants”

These multi-billion dollar “new entrant” companies are **sitting on their spectrum, hurting rural communities**

Carrier	Rural holdings	Rural deployment rate
TELUS	169.5 MHz	63%
Shaw	93.1 MHz	15%
Videotron	127.7 MHz	17%
Eastlink	90.1 MHz	15%

**85%**

of rural spectrum  
remains unused by  
set-aside eligible  
carriers

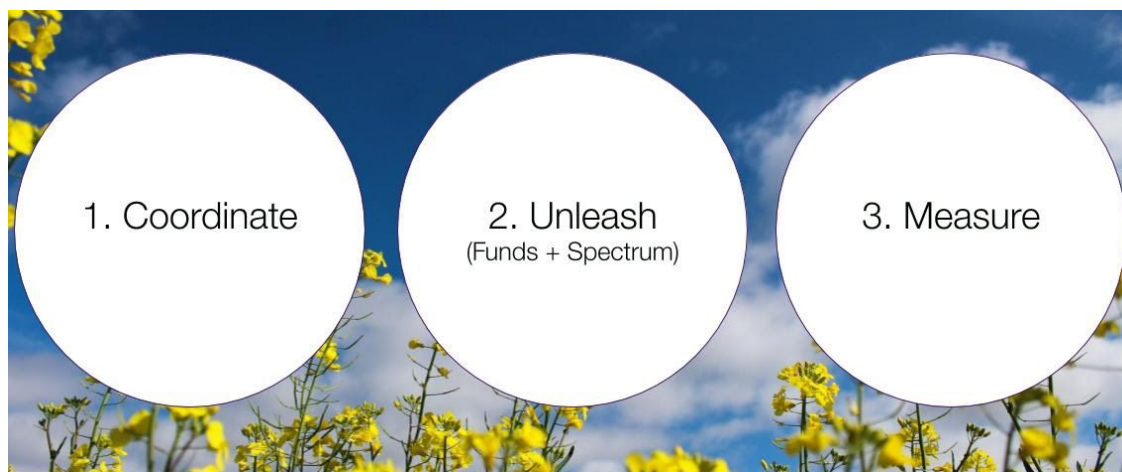
“Despite having obtained spectrum at favourable rates through set-asides, Canada’s regional wireless carriers have not become national players, nor are they using their spectrum in rural areas as intensively as the three national carriers. The three national carriers have spectrum with national coverage, and thus with full rural coverage could serve 5.7 million rural Canadians...Shaw and Videotron, have spectrum that covers 2.4 million and 1.7 million rural Canadians, respectively. However, they only use 15 percent and 17 percent

of this rural spectrum, respectively, to serve rural Canada...Clearly, if the three national carriers had been able to acquire more spectrum in open auctions – i.e., auctions without set-asides – there would be much greater deployment of wireless spectrum, and therefore even better wireless service in rural Canada today.”<sup>19</sup>

## SECTION 2: Working together

Applying the business-driven approach to 3P partnership and Government policies and programs

**Do not restrict the capital or spectrum available to connect homes.** We recommend Government take an outcome-focused approach to its rural connectivity policies and programs. Through doing this, we believe that all of Canada can be connected by 2025. As we have done at TELUS, **coordinate** available capital, **unleash** it based on expected outcomes and then **measure** performance across a breadth of services and social outcomes to justify future investment. We should not restrict capital if there is a good business case, nor should we restrict spectrum for the same reason.



1. **Coordinate all Federal and Provincial subsidy dollars to be allocated at the same time and based on the same set of shared and measurable outcomes for eligibility.** Current programs are not administered, released or awarded at the same time. Each program comes with its own set of eligibility criteria and administration. Direct coordination between the federal and provincial government programs and the private sector, leveraging 3P partnerships, would better leverage funding from all three sources and should be approached from a regional business case

<sup>19</sup>R. Crandall, *The Government's Spectrum Policy Will Reduce the Quality of Wireless Services for Rural Canadians*. Unpublished manuscript, 2020 (Available upon request)

perspective, given each area of Canada will come with its own unique challenges and technology approach.

2. **a) Unleash funds as needed to complete projects that meet funding criteria.** Stop annually capped subsidy funds as this unnecessarily restricts investment to annual allotments. Award dollars as projects are ready. ISPs should be assessed on their financial capacity to support, maintain and invest in upgrading their broadband networks five years after network build, as well as their ability to provide community benefits. Encourage deeper private investments through further relaxation on accelerated tax depreciation for rural connectivity investments.

**b) Unleash spectrum to connect hundreds of thousands of Canadian homes** and premises to meet the Universal Service Objective. In the wireless internet scenario, the faster we unlock more spectrum, the faster we can provide 50/10 Mbps to hundreds of thousands of underserved homes and premises.

- Retroactively: Find ways to free up the fallow spectrum. Flawed spectrum policy has permitted essential radio waves to lay dormant in rural parts of the country. **Imagine how much more connectivity there would be for rural Canadians and Indigenous Peoples living in Canada today if that spectrum was actually put to use.**
  - Proactively: Maximize available spectrum for auction, do not set aside blocks of spectrum, require rural deployment as a condition of spectrum license (“use-it-or-lose-it” licensing requirements), and bring spectrum assignments per operator in line with international benchmarks like those recommended by the Radio Spectrum Policy Group in Europe<sup>20,21</sup>.
3. **a) Measure success as the number of homes and premises connected.** Reduce administration by focusing on the number of premises that will receive improved services, and worry less about micromanaging projects through assessment of submitted expenses post build completion. This matches up with how ISPs build networks today, focusing on maximizing the number of homes and premises connected for total dollars invested. Government should adopt this mindset: fund projects based on the homes and premises connected, on budget and on time, not what equipment will be used.
  - b) Measure the additional community benefits beyond connectivity.** Prioritize funding to those projects and companies that can enable a fully diversified product set, can demonstrate programs to

<sup>20</sup> Radio Spectrum Policy Group, *Strategic Spectrum Roadmap Towards 5G for Europe - Opinion on spectrum related aspects for next-generation wireless systems (5G)*, European Commission, Directorate-General for Communications Networks, Content and Technology, [https://rspg-spectrum.eu/wp-content/uploads/2013/05/RPSG16-032-Opinion\\_5G.pdf](https://rspg-spectrum.eu/wp-content/uploads/2013/05/RPSG16-032-Opinion_5G.pdf)

<sup>21</sup> Radio Spectrum Policy Group, *Strategic Spectrum Roadmap Towards 5G for Europe - RSPG Second Opinion on 5G networks*, European Commission, Directorate-General for Communications Networks, Content and Technology, [https://circabc.europa.eu/sd/a/fe1a3338-b751-43e3-9ed8-a5632f051d1f/RSPG18-005final-2nd\\_opinion\\_on\\_5G.pdf](https://circabc.europa.eu/sd/a/fe1a3338-b751-43e3-9ed8-a5632f051d1f/RSPG18-005final-2nd_opinion_on_5G.pdf)

support social and economic benefits, and have a track record of continual investment and innovation creating generational benefits for those communities connected.

This performance-based funding approach of **coordinate, unleash** and **measure** is rooted in TELUS' experience and own internal business processes used in building its TELUS PureFibre network to over 133 communities across Canada since 2013. Over \$5.2B of capital has been invested since that time, by focusing on simple and measurable business outcomes, including \$1B invested to deliver a future-proof suite of services to over 1.3M rural Canadians and Indigenous Peoples who live in Canada.

We recommend that the Government adopt the same successful governance model used for successful broadband investment programs and employ a performance-based governance and funding approach to rural connectivity programs. **As milestones are achieved, more rural funding can be released, reflecting smart government management of the funding allocations.** As a benchmark, governance and reporting on a 90-day rolling cycle should be the starting point for government funding programs, including the UBF.

### Applying the model in practice

This model has been utilized in Quebec through the Provincial Government's ability to make funding available when federal programs are announced to compliment those initiatives. To this end, the Quebec Government has been very successful at coordinating funding among different parties, which has led to a significant improvement in rural connectivity, with nearly 97% of rural homes and premises in all of TELUS' operating area connected by the end of 2021. Further, the **Government of Quebec has also partnered successfully with private industry directly to fund regional connectivity builds where the focus has been on outcomes via premise connections.**

Competition and affordability can easily be managed via methods currently used in existing Government programs (e.g. fixed prices on 50/10 Mbps service plans for 'x' years), while adopting the above methodology encourages swift connection of rural premises while ensuring competition and affordability after the networks are established. Further extensions to programs like TELUS' Internet for Good could be explored to **include low-cost internet for low-income seniors**, ensuring that those who need connectivity do not have barriers to accessing it.

In working with the All Nations Trust Company in B.C., the focus has always been on enabling Indigenous communities by connecting the entire community. In these projects, funding is provided up front and the remainder upon completion, and **success is measured based on all of the homes and premises being connected**, not on a detailed accounting of each expense line item.

The recently announced UBF Rapid Response Stream of \$150M for projects to be completed by November 15, 2021 is a welcome announcement. The Government of B.C. had announced in September an injection of \$90M into the Connecting B.C. program to encourage the rapid expansion of high-speed internet access for projects that can be completed by October 31, 2021. Initial applications for the Connecting B.C. \$90M program have already been submitted with more to follow. With different project timelines and differing criteria for success (projects that provide speeds of 25/5 Mbps being eligible under the B.C. program and not the UBF) there is a clear opportunity to coordinate the UBF with provincial programs to align on eligibility criteria, timelines and outcomes to maximize the funding made available by the different levels of Government.

## Going beyond connectivity: innovation, product diversity and social outcomes

The TELUS team's unwavering commitment to improving outcomes for our fellow citizens, in concert with our leading operational execution and our vastly superior asset mix, continues to define our leadership in social capitalism, **reflecting the symbiotic relationship between our company and the communities that we serve**, not just in Canada, but on a global basis.

As we manage through the ongoing global pandemic, the TELUS team continues to do good in the communities where we live, work and serve. Notably, we expanded our Internet for Good program to **provide low cost, high-speed Internet to 68,000 low-income family members and people with disabilities**.

Similarly, through our national Mobility for Good program, **we've enabled 20,000 kids making the difficult transition out of foster care** and vulnerable Canadians with free smartphones and free data plans to help **them stay connected to what matters most** as they endure that difficult transition.

This was further reinforced by the Wall Street Journal, which ranked TELUS 29th in their **100 Most Sustainably Managed Companies**<sup>22</sup> in the World Report and 15th globally in respect of the subcategory of social capitalism. Clearly, ethical investing is front of mind within this contemporary period that we live in and all the changes that we're going through economically and at a societal level. Impressively, **TELUS is the only telecommunications company worldwide** and one of only 3 Canadian companies named to this global list.

Indeed, the current environment underscores the potency of connectivity which enables millions of Canadians to work, learn, access, entertainment, transact online and socialize virtually from home on a significantly intensified basis.

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<sup>22</sup> F.N.Ochoa, D. Holger, M. Sardon, C. Lindsay, *The 100 Most Sustainably Managed Companies in the World*, The Wall Street Journal, <https://www.wsj.com/articles/the-100-most-sustainably-managed-companies-in-the-world-11602507298>, 2020

All as we, as a nation, as citizens, as consumers, as entrepreneurs, as innovators and as businesses, make a quantum progression into the digital society and digital economy that will endure and grow well beyond the current global health crisis. TELUS is clearly **positioned for sustainable operations in this regard, given the technology investments that we have made on a persistent basis over the past decade.**

The sustainable performance of TELUS related to our operational track record is unsurpassed on a global basis. Structurally we have scale on fibre, and we will have greater scale on 5G. Those are not easy things for others to replicate. In addition, we have a strong and lasting network sharing alignment with Bell. When it comes to new technology deployment, when you can leverage two labor pools and two balance sheets to ensure that your speed of deployment, your coverage and the depth of your network is second to none, that, again, is a differentiator.

Further we are committed to investing in new innovative technologies, layering on 5G to our existing networks, and the opportunities that the increased roll out of 5G will unlock. **Our 5G network will bridge digital divides** and drive innovation for entrepreneurs, small businesses, government, health care, education and social pursuits, whilst **creating an estimated 250,000 jobs and contributing \$40 billion annually** to Canada's economy, something that we're clearly going to need in the aftermath of COVID-19.

TELUS is committed to enabling remarkable social outcomes through connectivity and that becomes abundantly clear when you look at the full set of community, social and economic benefits enabled by TELUS networks, including, and in addition to the above:

1. **Smart Agriculture:** Access to quality and safe food will be a growing challenge across the globe as the worldwide population continues to grow. TELUS is pioneering the first end-to-end digital solution across the entire agriculture food value chain. We see an opportunity to increase yield, reduce waste and trace the quality of our food and the safety of our food from its origin all the way to our dinner table. **When you think about creating better food outcomes, you are also talking about better health outcomes.**
2. **Healthcare:** Our efforts in the health space have never been more important as the COVID-19 pandemic continues to impact the country. More than ever, TELUS Health's leading medical expertise, robust networks and broad technology assets will be pivotal in mitigating second wave risks, **providing greater efficiency of care and keeping thousands of healthcare professionals, families and elderly people, healthy and safe.**
3. **Services unique to TELUS:** A TELUS connection **means a fully diversified product set across the continuum of needs for homes, entrepreneurs, innovators and small business** like premise security, cyber security, virtual healthcare services, LivingWell Companion, home and

building automation, Smart Towns and Villages, fully symmetrical (equal upload and download speeds) on our PureFibre network, and advanced residential and small business services like Optik TV with integrated applications for Netflix, Amazon and Calm.

4. **Great customer service and great networks:** We have fully adopted a continuum of digitization across marketing, selling, fulfilling, billing, caring and connecting. These attributes form part of our **best-in-class customer experience** layered on top of our best-in-class networks in terms of symmetry, latency, content delivery and functionality,
5. **Driving Automation:** TELUS is committed to harnessing the power of technology and data to provide outstanding customer experiences on a global basis. Canadian adoption of Artificial Intelligence (AI) and automation beyond big tech has use cases across a wide range of industry sectors, including agriculture, e-commerce, telecommunications and healthcare, driven by the desire for convenience and efficiency in our daily lives.

## Conclusion

Technology is equally essential to us all, wherever we may live. It's why we are passionate about ensuring equal access. Canada has made great progress, and, in collaboration with the federal and provincial governments, we must work to bring every Canadian household online. Many of these critical infrastructure projects are possible only through strong partnerships between the private and public sectors. We welcome the recent Universal Broadband Fund announcement by the Federal Government and look forward to working with provinces, municipalities and other entities to advance connectivity across Canada. To reach the universal service objective in the next 5 years, Government programs should adopt a business-driven approach to coordinate and unleash both funding and spectrum, and focus on measuring outcomes:

- **Coordinate** all federal and provincial subsidy dollars to be allocated at the same time and based on the same set of shared and measurable outcomes for eligibility
- **Unleash** funds as needed to complete projects that meet funding criteria
- **Unleash** spectrum to connect hundreds of thousands of Canadian homes and premises using existing infrastructure
- **Focus on and measure** the number of homes and premises connected, not what equipment was used, reducing administration and expediting deployment
- **Support** those projects that demonstrate community impact and companies who have a proven track record of investing in programs and leading the adoption of policies and practices that have a positive impact on social and economic wellbeing

At the end of the day, we must look at the gaps and ask: which entities are investing in the rural areas of Canada, and what steps can we take to encourage that investment. We're ready. Let's roll up our sleeves and do this, together.

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On behalf of TELUS, we would like to extend a **special thank you to those communities who participated to provide valuable feedback and references** into this paper, ultimately supporting improved connectivity across all areas of Canada.

### Gibsons, BC

*With the arrival of TELUS PureFibre in Gibsons and on the Sunshine Coast, it made us one of the best-served communities in the country for fast internet, telephone and television service. Not only does it support our local economy as businesses, families and individuals take advantage of this service to serve their various digital requirements, but it also supports the growing number of professionals who are choosing to telecommute so they can enjoy the more rural lifestyle we so fortunately have here on the Coast. Your commitment to our community, through the economic and social growth resulting from your investment, is much appreciated.*

*The arrival of fibre-optic in our area marked an economic coming of age for our region, as this long desired service is finally here. The benefits to Gibsons' residents, businesses and as a community are extensive.*

*Access to community fibre also contributed to the increase in small business startups and our winning of the Open For Business Award in 2019*

*As a Gibsons resident, we are now able to live in one of the world's most livable towns and operate our business right from where we live.*

*As a business, this long-identified and much-needed service, allows us to access the kinds of services you need to operate locally and compete on a global scale. Fibre allows the Town's SCADA (Supervisory Control and Data Acquisition) system to continuously monitor some of most critical assets such as the water reservoirs and the wastewater treatment plant. – Mayor Beamish*

### Fort St. John, BC

*"I can't overstate the value that having TELUS PureFibre connectivity has brought to Fort St. John. TELUS deployed fibre facilities in a collaborative partnership with our city and the investment has allowed us to market connectivity as a key differentiator." – Mayor Ackerman*

## Keremeos, BC

*"Improving broadband technology in Keremeos has tremendously benefited residents, businesses and first-responders within our Village, and will help to build Keremeos' economic resilience as we recover from the impacts of COVID-19. The new broadband technology in our municipal hall has allowed Council to take part in conferences virtually while COVID-19 restrictions are in place. The Village of Keremeos feels extremely fortunate to have partnered with TELUS [and the Government of BC] on the installation of TELUS PureFibre in the community. The TELUS team was knowledgeable and organized, and the roll-out exceeded expectations."* – **Marg Coulson, CAO**

## Alix, AB

*"My name is Rob Fehr, Mayor for the Village of Alix.*

*Where is Alix you ask? Glad you asked!!*

*Alix is located in Central Alberta and was founded in 1907, but the original settlement was called Toddsville after Joseph Todd who worked for the local railroad. Like many communities at that time, the railroad was instrumental in communities being formed. In order for these communities to grow and thrive, the railway was a big part in transporting goods and services across Alberta, and indeed the country itself. Many communities back in the day utilized the railway to deliver mail, as well as telegraph messages to individuals and companies in order to boost business and survive for that matter.*

*Fast forward to 2020. While the means of communication has changed a lot, the needs are still the same. In order for rural communities to stay viable and successful, services such as high-speed internet are critical in keeping people in their communities, and to allow them to communicate with each other inside their communities and around the world. As the global economy evolves, many people are now working from home more than ever, with an expected increase over the coming years.*

*I have personally spoken to many people in the community who now do their job duties from home now instead of going to their offices in larger urban centres. Many businesses have embraced this change, and are promoting the process as it reduces the cost of their overhead quite dramatically.*

*That said, I am very pleased with the recent investment TELUS has made in expanding broadband connectivity to our community. We have seen an increase in population and business openings than ever before. Since coming to Alix in the Spring of 2020, the growth and positive comments have been palpable, and appears to be continuing, even with the pandemic impacting our daily lives. The expanded broadband*

*services couldn't have come at a better time! Many people I have talked to have stated it was the lifeline needed to work from home, and open up opportunities to start their own businesses. Exciting news for sure!!*

*Not only has the better service boosted business, but it has also made educational programs and supports work for people from K-12 and post-secondary. Prior to TELUS expanding services, it was very difficult for students to do their studies, and educators to deliver services. Additionally, the ability to participate in arts programs, recreational activities, gaming, health care services etc. is now a thing that can occur seamlessly now, where it simply couldn't before.*

*Recently, a Health & Wellness organization opened in our community where many services can now be delivered to assist people from all walks of life in our community. In order for this organization to even entertain the idea of opening, a reliable internet service was a must. Once TELUS made the announcement they were expanding High-speed internet to Alix, they, and other organizations began to open and expand services in our community that were sorely needed. The feedback from individuals, businesses, non-profit groups, schools, emergency services, and community groups has been nothing short of glowing!*

*I personally was the first person in Alix to obtain services from TELUS when high speed was offered in early 2020. I now have a fantastic internet connection which assists me in my day to day work. It allows my family to enjoy enhanced television services and other recreational activities, as well as completing school and work projects easily.*

*While I can appreciate connectivity is a complex and expensive venture, I have no doubt in my mind the service expansion was a resounding success in not only boosting our digital economy, but encouraging growth and prosperity in our community. For us to continue to promote living and working in small town Alberta, the expansion and delivery of these services are a must. This is really the only way small communities like ours can compete on a local and global economy in today's world. It also is instrumental in delivering all the services people in larger urban centres enjoy.” – Mayor Fehr*

## Black Diamond, AB

*“The Black Diamond experience with installing TELUS PureFibre throughout the Town was excellent. TELUS was easy to work with during the project and responded to customer concerns promptly. As a small rural community 63 km SW of Calgary, Black Diamond has had the benefits of having 80% of our population sign up. This project came in at an appropriate time, allowing our citizens to work from home without interruptions during COVID - with quick and consistent internet services. Our citizens who have signed up were able to have better internet access to provide educational opportunities in lockdown times due to isolation.*

*Our business community has come a long way by establishing online shopping experiences because of the fibre project. One of the very cool initiatives that we are taking on is establishing a Digital Main Street and looking forward to the rollout of this project – which may not be possible without the increased connectivity that TELUS PureFibre has allowed us.*

*All in all, we in the small community of Black Diamond appreciate and value our relationship with TELUS and our fibre broadband experience.” - **Sharlene Brown, CAO***

Black Diamond Business Highlight - Bluerock Gallery: *“At Bluerock Gallery we started to do a lot more of our business online after the COVID-19 lockdown started so we really appreciated having a reliable high-speed internet system to sell our products and connect with our customers online, and give them the option to shop from their homes.” - **Tarek Nemr, Owner**, [www.bluerockgallery.ca](http://www.bluerockgallery.ca)*

## Westlock, AB

*“The work TELUS has done in partnering with our little agriculture town has been key in supporting our future growth. Since the build, we’ve seen Westlock able to compete globally while allowing families and businesses the benefits of raising a family in a small, tight-knit community.” - **Mayor Leriger***

## Wetaskiwin, AB

*“The connectivity that TELUS brought to our community has allowed our community to stay competitive throughout COVID-19. TELUS and the City of Wetaskiwin have continuously partnered with our community since the build in 2015 to drive additional benefits and local support. Now that we have the fibre facilities, we are excited to continue working with TELUS to realize the power of Smart City capabilities.” - **Mayor Gandam***

## Drumheller, AB

*“In Drumheller we accommodate a wide variety of businesses from small retail to large industry. Commercial and industrial land can be purchased at a fraction of what land costs in Calgary and Red Deer.*

*Since 2015, TELUS has invested \$50 million to connect the town to its PureFibre network, giving it the technological and economic upper hand when it comes to taking full advantage of the impending global 5G revolution. Over the next five years, TELUS will invest another \$16 billion in Alberta to connect more homes and businesses to PureFibre, enabling improved access to healthcare and agricultural technology and Internet capabilities of all kinds.*

*Drumheller has great infrastructure such as modern and well-maintained roads, large capacity water and wastewater processing ability (that can accommodate large industry), one of Alberta's main telecommunications hubs with capacity to handle large data user as well as access to mainline gas and three phase power. Coupled with competitive tax rates and incentive programs, Drumheller is one of the best jurisdictions in Canada to invest. Currently we have over 500 successful businesses, including several head offices, calling Drumheller home. The addition of PureFibre internet has allowed many of these businesses to expand from a bricks and mortar operations to businesses that offer goods and services to customers around the world.*

*We know the millennial workforce is all about technology. We'd like them to think of us when they are looking for a quiet, friendly and more affordable place to live, play and do business. With our stunning natural beauty, Drumheller is a great place to call home.*

*We see endless possibilities.*

*Through COVID we were able to set up many of our team to work remotely throughout the Valley to help prevent the spread and keep our team safe. We were able to quickly find the support and resources we needed in the difficult time. Through COVID we were also able to show urban communities that technology and a strategic location would make the Drumheller an ideal place to live, raise a family and locate your business.*

*One of our most exciting stories is from the website and marketing developer Marketing Hits, owned by Brian Yanish. The Drumheller-based entrepreneur was among the first to sign up for fibre, and has watched his home-based business boom. Brian first moved to Drumheller in the 1990s. He fell in love with Drumheller and decided right away that this was a great place to raise his family. Twenty-five years later, Yanish has built a successful home-based marketing and website development business, [www.marketinghits.com](http://www.marketinghits.com)*

*Brian has added national and international conference management to his list of professional offerings -- everything overseeing the digital registration of 10,000 delegates at a conference in Calgary to launching an interactive gaming app, he helped to develop, at conferences in Bahrain and Dubai.*

*In each case, he relies on fibre to keep him seamlessly connected with clients wherever they are in the world via video-conferencing, and provide real-time support to tech teams on site. He has been able to take on even more clients by eliminating the need to travel to events in person. He expects to expand the company even further over the next few years. Small communities like ours with great fibre optic service has so much opportunity, attracting many more tech companies and businesses to town.*

*We are so fortunate how fibre optic connects homes, businesses, hospitals, schools, and more. However, we still have some neighbourhoods in the Valley that do not have access to strong internet or cell service.*

*I was sworn in as Mayor of Drumheller in October of 2017. In the spring of 2018, we had a flood on the Rosebud River which affected residents and businesses along the Wayne valley. While dealing with the flood, it was very apparent how the lack of connectivity with some of our residents impacted our ability to provide proper emergency support. We ended up bringing in Alberta Emergency Management to help us and they were able to connect with our Emergency Management team, fire department, RCMP, public works and others with an AFRACS radio system which enabled emergency communication between providers and residents. Without their help, this could have been very devastating.*

*Following this flood event, we received numerous letters from residents asking for help to provide the same basic services that most people now take for granted in 2020.*

*This area sees over 100,000 visitors annually and without proper cell or internet service, no access to emergency broadcast system, and line outages, leaving residents stranded, unable to interface basic communication and alarm systems and more, is very concerning for our Council and administration.*

*Along this valley we have businesses that provide made in Alberta products that are shipped throughout Canada and beyond and have burgeoning online activities. Unfortunately, these businesses either rely on spotty internet coverage, or have taken matters into their own hands and constructed wireless towers on top of the valley in order to maintain and expand their connection to the outside customers.*

*Connectivity is a vital ingredient for Drumheller, which is actively seeking to attract newcomers to the region.*

*Drumheller has so much to offer. We have breathtaking beauty, biking and hiking trails, an incredible river that flows right through town, however when it comes to some of our more rural neighbourhoods, they do not have access to the same internet services as the rest of the community.*

*If all the residents in our Valley had the same access to fibre optic internet we feel that it would be an additional highlight for people looking to join an already exceptional community.” – Mayor Heather Colberg*