

Columbia Basin & Boundary Connectivity Strategy



Purpose of this document

The purpose of this Connectivity Strategy is to clearly communicate, develop awareness and to obtain support for a plan towards realizing the potential of a highly connected region. The audience for this plan is any community member who has an interest in the connectivity of their region. This strategy is based on a shared vision and objectives in relation to clear needs and identified strategic benefits.

This is not an engineering document. It should be used to establish a general approach and framework for prioritizing need for sustainably connecting the Region. This plan should be used to guide more detailed incremental connectivity plans, grant applications and connectivity deployments throughout the Region.

Ownership of this Plan

This strategy is owned and overseen by the Regional Broadband Committee (RBBC). The RBBC will act as curator for this plan ensuring that it is both updated with regularity and that milestones contained within it are tracked accordingly.

Region

References to the “Region” in this document mean the area including the Columbia Basin, as defined in the Columbia Basin Trust Act, and the Boundary Region of the Regional District of Kootenay Boundary.

Background

It is currently cheaper to provide fast and reliable Internet to densely-populated urban centres than it is to provide that same service to rural areas. The traditional economic motivators are clear for Internet providers and large incumbent carriers: the more people living in an area, the more people there are to pay for service. For large incumbent carriers, the business case for providing adequate connectivity in rural areas is absent. That disparity in service has put residents in rural BC at a significant disadvantage compared to urban counterparts. Within the Region, this issue is particularly acute.

Rural business owners, farmers, students, health and technology professionals in the Region are not able to keep up with their counterparts in centres like Vancouver or Kelowna. The magnitude of the task is further intensified by the challenging geography of the Region (mountainous, deep valleys). To address this challenge head-on, help is required both at all levels of government and within communities themselves. The effort to truly connect the Region will require partnerships both large and small.



Regional Broadband Committee

The Regional Broadband Committee (RBBC), established in 2014, has the following mission:

'The Regional Broadband Committee is a united voice to advocate for all our constituents through leadership, knowledge sharing, and a common understanding of the current and future needs of high speed broadband Internet services in the region.'

The RBBC membership consists of one elected official from each of:

- Columbia Shuswap Regional District
- Kootenay Boundary Regional District
- Ktunaxa Nation Council
- Regional District of Central Kootenay
- Regional District of East Kootenay
- Village of Valemout

Columbia Basin Broadband Corporation

Columbia Basin Broadband Corporation (CBBC) is a wholly owned subsidiary of Columbia Basin Trust (the Trust) created to improve connectivity to Basin communities and rural areas.

The Trust provides funding support for CBBC's ongoing operating costs and the costs of activating CBBC's Open Access¹ fibre optic network in the Region. CBBC acts as the network manager, operator and developer, and as a resource to service providers. CBBC works closely with the RBBC and Basin communities to provide support to those seeking to extend or improve local service.

Indigenous Connectivity

Comprehensive and robust connectivity is particularly important for Indigenous peoples in both the preservation of language and culture, as well as ensuring the ability to fully participate in the digital economy.

CRTC: Broadband a Basic Service for All Canadians

In December 2016, the Canadian Radio-television and Telecommunications Commission (CRTC) declared that broadband access Internet service is now considered a basic telecommunications service for all Canadians.²

CRTC has set the following Universal Service Objective (USO) targets for the basic telecommunications services that Canadians need to participate in the digital economy:

¹ <https://muninetworks.org/content/open-access>

² Telecom Regulatory Policy CRTC 2016-496, <https://crtc.gc.ca/eng/archive/2016/2016-496.htm>



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- Speeds of 50 megabits per second (Mbps) download/10 Mbps upload for fixed broadband Internet access services.
- An unlimited data option for fixed broadband access services.
- The latest mobile wireless technology available not only in homes and businesses, but also along major Canadian roads.

RBBC's Vision

'Equitable, affordable high-speed broadband Internet services throughout the region, ensuring rural economic development and sustainable, healthy communities.'

RBBC's Benefit Statement

- Information and Communications Technology (ICT) and broadband infrastructure are strategically important tools for economic, education, health, public safety and civic growth and that all communities within the Region should have affordable and reliable Internet access;
- Community based broadband strategies are being developed and regional broadband infrastructure is being strengthened and expanded; and
- The participating organizations in the Region have expressed a desire to explore and develop a regional approach to developing broadband capacity within the Region in order to coordinate and maximize available resources and identify mutually beneficial opportunities.

Targeted Outcomes

1. Access to and adoption of broadband allows the Region to retain and grow businesses, create and retain skilled workers, and re-invigorate communities.
2. Access to health care through advanced tele-medicine diagnostic and specialty care is widely available in the Region, with broadband in the home sufficient to allow home tele-health services to be provided.
3. Regional educational institutions have network resources and the capacity to meet 21st century learning needs.
4. The Region has robust public safety communications systems to ensure that all residents are provided with timely information when needed.

Initiative Objectives and Scope

The essence of the objectives are simple: at completion of this plan, the Region should attain at minimum the standard defined by the CRTC Universal Service Objective (USO). Anticipating that the USO will evolve throughout the timespan of this plan, the objectives aim for standards beyond what is currently stated by the CRTC.

The RBBC sets out the following objectives:



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1. 100% of critical community assets³ in the Region will have broadband Internet access speeds of at least 1/1 Gbps.
2. 85% of households in the Region will have broadband Internet access speeds capable of at least a committed 100/10 Mbps⁴.
3. The latest generally deployed mobile wireless technology will be available on every major transportation road⁵ in the Region.
4. Within the next 24 months, timelines will be established for achieving the first three objectives.

Quantifying the Connectivity Gap

While connectivity gaps are recognized and reported by residents of the Region. Empirical data is largely lacking. In 2017, the Northern Development Initiative Trust commissioned KPMG to produce a *Benchmarking Connectivity in British Columbia*⁶ report. While the report does provide some useful benchmarking information for urban areas, the CRTC data used⁷ to establish connectivity benchmarks for the Region has been found to be inaccurate and understates the actual connectivity gap.

It is important that accurate data be produced to empirically quantify the gap both to assist in determining the acuteness of the problem, as well as establishing a more accurate estimation of the cost of addressing the connectivity gap.

Cost and the Economics of Rural Connectivity

As noted above, accurate data describing the connectivity gap in the Region is largely lacking. The CRTC roughly estimates the cost to adequately connect rural Canada and the North at \$7 billion.⁸ The cost to adequately connect the Region could likely be in a magnitude of several-hundred million dollars.

The business case for large traditional broadband carriers is largely absent in the Region and in most rural areas of Canada. Communities who have waited for traditional broadband carriers to connect their communities have grown weary and discouraged. Unless economic factors for broadband deployment significantly change, waiting for large traditional carriers to address the Region's needs is not a sufficient strategy.

³ Critical municipal assets: Hospitals, schools, municipal & emergency services, and downtown business cores

⁴ Given the costs and challenging topographies in the region it is not feasibility or realistic to attempt to establish a universal objective. It is hoped that the remaining 15% of households in The Region can achieve 50/10 Mbps

⁵ Every numbered highway: <https://www2.gov.bc.ca/gov/content/transportation/transportation-reports-and-reference/numbered-routes>

⁶ <https://www.northerndevelopment.bc.ca/connecting-british-columbia-resources/>

⁷ <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2016/cmr.htm>

⁸ Broadband Connectivity in Rural Canada: Overcoming the Digital Divide: <http://www.ourcommons.ca/DocumentViewer/en/42-1/INDU/report-11>, Page 24



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Regardless of the inaccuracy of cost, the order of magnitude of the likely cost indicates that no single entity can address the funding challenge alone, and numerous funding sources will need to be leveraged to close the gap in the Region.

Need for a Regional Approach: Prioritizing the Need

The existence of a coordinated regional approach will increasingly become a prerequisite for government grant funding applications.

The RBBC encourages the regional districts and First Nations communities to continue to coordinate with the Columbia Basin Trust’s Broadband Initiative (CBBC) in broadband-related grant proposals.

General criteria for prioritizing a broadband project in the region:

- Number of communities benefiting
- Number of residents/households/businesses within those communities
- Magnitude of connectivity gap
- Cost per resident/household
- Existence of willing funding partners
- Existence of community champions
- Existence of technical, project management, and financial expertise required to complete and operate a project
- Long-term sustainability

Potential Funding Sources

Potential funding sources required to achieve this plan will be quite varied. The predominant funding sources are listed in the following table:

Government of Canada	Via programs such as those managed through either Innovation, Science and Economic Development, CRTC and/or Infrastructure Canada
BC Government	Via programs such as Connecting BC managed by NDIIT
Regional Districts	Via Gas Tax funds, taxation
Municipalities	Via individual programs within given municipality
Columbia Basin Trust	Via the Trust’s Broadband initiative
All Nations Trust Company (ANTCO)	e.g. Pathways to Technology
Carriers and Internet Service Providers	Individual service providers (both for-profit and non-profit)



Sustainability

Given the likely lengthy time-line of implementation and realization of this strategy, the rapid cycle to obsolescence of technology must be carefully monitored. Detailed construction/deployment and the associated operational plans must incorporate effective procedures and associated financial planning from implementation through to ongoing operations. In order to achieve optimal use of infrastructure, an asset lifecycle plan should be developed to ensure their proper servicing, upgrading, renewal and disposal.

Living Plan: Evolution of Technology

It is imperative that this plan remain 'living'. As technologies advance, so should the parameters of this strategy. A breakthrough in new technologies could completely change the profile of this plan. This plan should be reviewed and refreshed at minimum every 24 months. Some of the technologies that may prove impactful in the coming years include: **Low-Orbit Satellites⁹ and 5G¹⁰**.

Timelines, Risk and Probability

It is important to underscore that statements in this strategy have dependencies that are outside of the realm and control of the plan's authors. Specifically, addressing the connectivity gap in the region will require committed and sustained funding to do so. At the time of writing, adequate committed funding was largely absent. Therefore, this strategy cannot make confident statements about when objectives could be achieved. It is hoped that this strategy will assist in securing stable funding commitments so that objectives can be stated in more accurate time-related certainty in future versions of this document.

Without both a coordinated regional approach and secured and committed funding, there is a risk this strategy will not be viable.

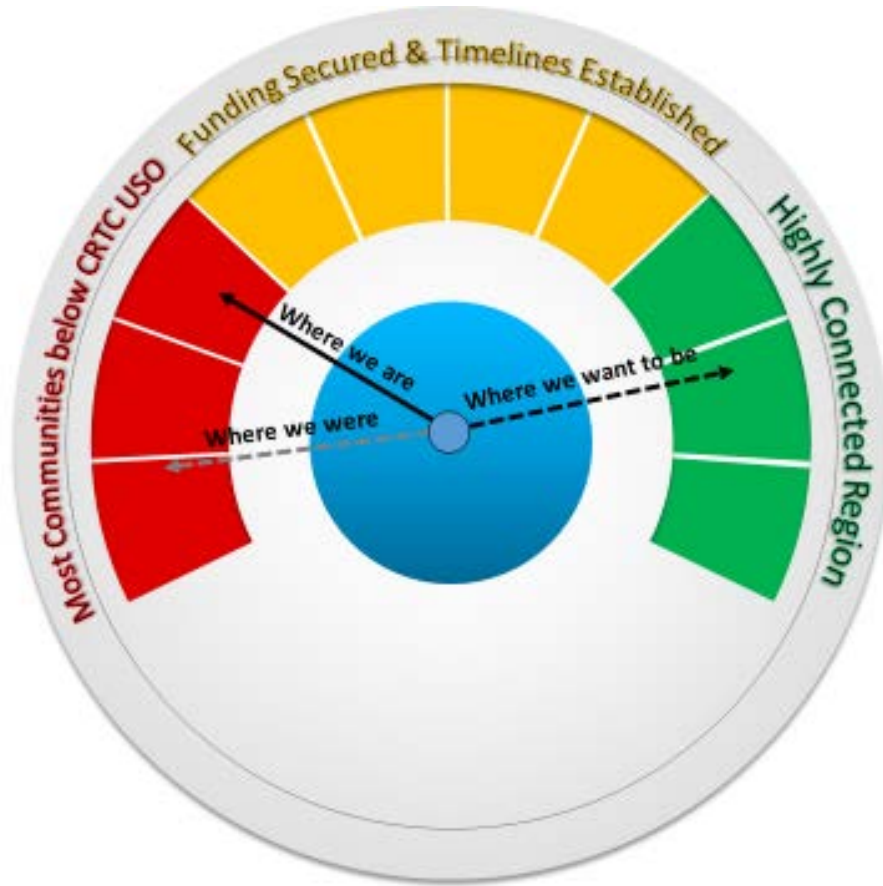
⁹ <https://www.wired.com/story/can-these-small-satellites-solve-the-riddle-of-Internet-from-space/>

¹⁰ <https://www.rcrwireless.com/20180114/opinion/debunking-5-common-myths-about-5g-reality-check-Tag10>



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A clear benchmark indicator needs to be established so that residents can clearly monitor progress:



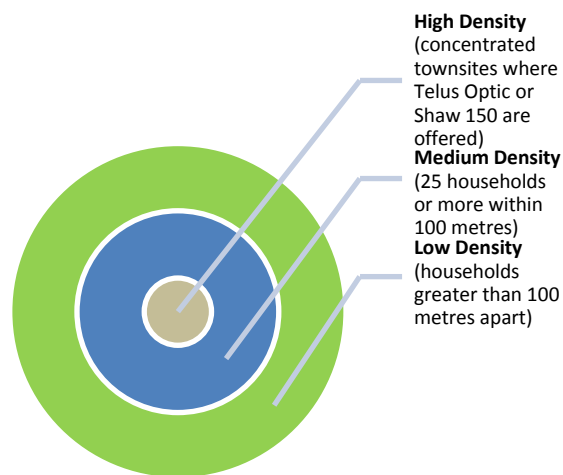
Appendix: Scope, Specific Objectives and Planned Measurements

Scope

The scope of this plan covers all communities and surrounding households in the Region that are considered underserved. The following table outlines the criteria for what is considered underserved and thus in scope of this plan:

Type	Minimum Standard
Critical Community Asset	Broadband Internet access speeds capable of at least 1/1 Gbps
Medium-Density Communities	Broadband Internet access speeds capable of at least a committed 100/10 Mbps
Low-Density Communities	Robust fixed wireless service capable of 50/10 Mbps
Major Transportation Road	Latest generally deployed mobile wireless technology available

Most high-density communities¹¹ (homes and businesses clustered within a concentration of 25 or more, within 100 metres of each other within the Region) are considered to have ‘adequate’ connectivity, where either Shaw 150 or Telus Optic have a service offering (e.g. services approximately capable of the CRTC USO) costs of bringing those communities to the stated standards are not the focus of this strategy. It should be noted that although connectivity within the core of high-density communities is largely considered adequate, surrounding areas are often underserved.

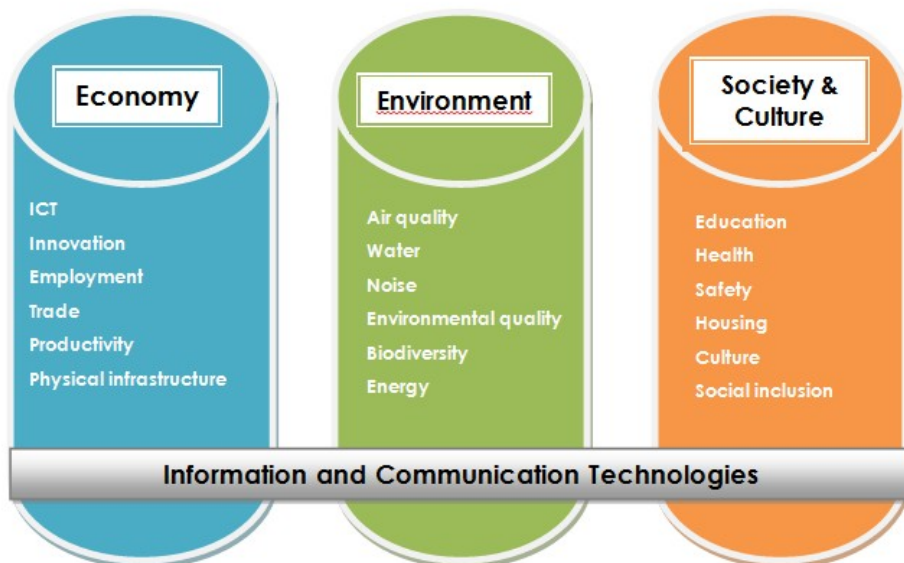


¹¹ Examples of high-density communities in The Region: Cranbrook, Castlegar, Rossland, Nelson, Grand Forks

Specific Objectives

The United Nations Economic Commission for Europe (UNECE) in cooperation with the International Telecommunication Union (ITU) developed a proposal for a set of Smart Sustainable Cities Indicators.¹² The main objective of the UNECE “United Smart Cities” project, within which the draft Smart Sustainable Cities Indicators (SSCIs) have been elaborated, is to support regions/cities, *with economies in transition, to improve their sustainable growth while focusing on a more transparent and efficient use of their resources. Sustainable growth can also be achieved with easier access to new and affordable technologies and will result in better living conditions for citizens.*

The UNECE–ITU Smart Sustainable Cities Indicators (SSCI) visual representation:



¹² http://www.unece.org/fileadmin/DAM/hlm/documents/2015/ECE_HBP_2015_4.en.pdf



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Targeted Outcomes and Planned Measurements

The RBBC proposes use of selected UNECE–ITU Smart Sustainable Cities Indicators (SSCI) to assist in measuring progress towards the targeted outcomes.

Targeted Outcomes	Smart Sustainable Cities Indicators (SSCI)
Access to and adoption of broadband allows the Region to retain and grow businesses, create and retain skilled workers, and re-invigorate communities.	<ul style="list-style-type: none"> • Attractiveness for skilled people • Employment trends • ICT infrastructure • Internet access in household • e-Commerce transactions
Access to health care through advanced tele-medicine diagnostic and specialty care is widely available in the Region, with broadband in the home sufficient to allow home tele-health services to be provided.	<ul style="list-style-type: none"> • Adoption of telemedicine • Life expectancy • Electronic records • Sharing of medical resources • Maternal mortality trends
Regional educational institutions have network resources and the capacity to meet 21st century learning needs.	<ul style="list-style-type: none"> • Students' ICT capability • Adult literacy trends • Higher education ratio
The Region has robust public safety communications systems to ensure that all residents are provided with timely information when needed.	<ul style="list-style-type: none"> • Vulnerability assessment • Disaster mitigation plans • Emergency response • Disaster and emergency alert



Endorsement

This strategy is endorsed by:

Chair, Columbia Shuswap Regional District

Date:

Chair, Kootenay Boundary Regional District

Date:

Chair, Ktunaxa Nation Council

Date:

Chair, Regional District of Central Kootenay

Date:

Chair, Regional District of East Kootenay

Date:

Mayor, Village of Valemount

Date:

