



INITIATIVE: ADVANCED BROADBAND IN COLUMBIA VALLEY

OBJECTIVE: IMPLEMENT BROADBAND (GIGABIT FIBRE/5G/STARLINK) SOLUTIONS THAT WORK TOWARD 100% AVAILABLE AND AFFORDABLE COVERAGE AT ADVANCED SPEEDS.

KEY STRATEGY: MAKE A KNOWN OF AN UNKNOWN....WHAT AN ADVANCED BROADBAND NETWORK TO EVERY COLUMBIA VALLEY PREMISES LOOKS LIKE. HOW MUCH IT COSTS. HOW WE GET IT DONE (E.G. INCUMBENT VS OTHER MODELS, PHASING, PRIORITY AREAS, FUNDING AND INVESTMENT).

ACTION REQUESTED:

- 1) Declare – as a municipality – advanced broadband as an essential service.
- 2) Support – as a municipality and through appointments to the CVCED - commissioning of a Columbia Valley Broadband strategy, consisting of FIVE key components:
 - a) Advocate for Columbia Basin Broadband Corporation (CBBC) completion of Infrastructure Master Planning to understand what's required at what cost via access to the CBBC GIS system, including indicative design capability to illustrate where fibre to the home is feasible vs wireless from a cost perspective. *Note 1: depending on conversation with CBBC this may require additional contracted work with budget TBD. Advocate for CBBC and/or grant investment in completion of infrastructure master planning. Note 2: An Infrastructure Master Plan presents a conceptual level design across the full project area. These layouts can be used to quickly move to preliminary design for prioritized deployment or used as a high-level planning report for future phasing and potential partnerships.*
 - b) Advocate for partnership with the Columbia Basin Broadband Corporation (CBBC) to complete Business Modeling (e.g. incumbent, open/shared access, community models for last mile connectivity) for build-out. Based on Business Modeling, support municipal intervention in the broadband infrastructure/service market where incumbent service is deficient. *Note: a Business Model recommends business structure (deployment plan steps, detailed operational financials, potential partners including, or not including incumbents and consideration of bridging gaps to create an economic model in low density development/rural areas for incumbent presence, funding opportunities, next steps).*
 - c) Identify priority last-mile advanced broadband projects (one for each of the seven communities in the Columbia Valley to begin).
 - d) Consider "downtown enterprise zones" with advanced broadband fibre installed to each property to take advantage of the convergence of density and tech/creative/professional services hub location.
 - e) Be an ongoing advocate for incumbent infrastructure enhancement to enable Gigabit/5G service to every premises.
- 3) Establish Dig Once Policies in all communities Columbia Valley to reduce future last mile fibre costs, for both new developments and existing asset management work. *Note 1: Radium has fibre to the premises – TELUS. Note 2: Dig Once installs an additional conduit during construction of road/development projects to accommodate future broadband requirements. The conduit will then be in place to accommodate fibre optic cable as and when a municipality or ISP wants to have it installed. This can be completed at nominal incremental cost for construction projects while facilitating easier access to last mile connectivity – which ideally reduces private sector provider costs in a manner that makes lower density population areas financially feasible. Note 3: the City of Pickering adopted a Dig Once Standard in 2016 and could provide a template.*

- 4) Pursue grant opportunities with "shovel worthy" priority projects.
- 5) Advocate – as individual communities and a collective Columbia Valley – for easier access to BC Hydro poles as part of a fibre optic/wireless cable typology (note: pole-based solutions are 50% of the capital cost of buried conduit/cable, acknowledging that in more urban areas there is desire to bury electrical and communications lines for aesthetic).
- 6) Advocate - as individual communities and a collective Columbia Valley – for federal/provincial government removal of taxation on the value of telecommunications infrastructure to create better business modeling.
- 7) Actively support, via municipal resources, assistance to local/small/independent ISPs that might appreciate assistance in their preparation of grant applications, and implementation of projects.
- 8) Encourage rural residents to sign up for Starlink’s Beta testing.
- 9) Complete master planning/seek service solutions for complete cell coverage in Columbia Valley.

Note: Note: the TELUS Custom Footprint' program will consider underserved areas, providing a cost back to the local government to enable TELUS investment. If there is no incumbent interest, the municipality must be supported to intervene in the market. This process was initiated via RDCK, RDEK, RDKB, and CSRD via a Terms of Reference for a Southeastern Connectivity Committee that would collaborate - with critical mass - to begin fundraising and business planning. This Terms of Reference is required to be approved by each Board.

Supporting economic development initiatives are:

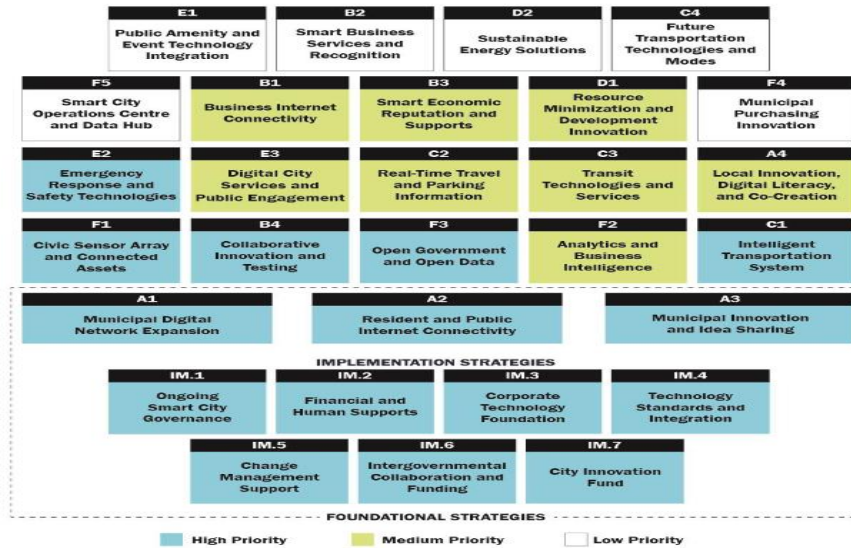
- Tech Strategy – a priority in the CVCED Strategic Plan



...which can build into a “Smart Valley”, “Gigabit Valley” Columbia Valley Vision...

e.g. City of St. Albert (Source: https://stalbert.ca/site/assets/files/1895/smart_city_master_plan-full.pdf)

ST. ALBERT SMART CITY STRATEGY OVERVIEW



BACKGROUND

I) "THE WHY"

Imagine every premises in Columbia Valley connected to a Gigabit-potential fibre network. Internet speeds as good as anywhere in the world. TV and phone service triple play offerings. A key economic enabler that attracts independent entrepreneurs, creators, knowledge workers, amenity migrants, and global digital economy entrepreneurs. A climate change strategy that reduces carbon footprint and environmental impact via reduced travel impacts. Implementation of a technology economic development vision for the Valley. The enabling an Industry 4.0 and Internet of Things future just around the corner...for rural communities who can overcome network speed and connectivity disadvantages.

Reality is that the CRTC's 50 (download) / 10 (upload) universal service objective is about connectivity, not enabling the future where local business can globally compete, new advanced technology sectors can flourish, and residents can meet their lifestyle needs. Advanced broadband is a must-have utility – like roads, water and sewer pipes, and airports that preceded – opening doors to significant societal advances.

Rural areas compete (investment, resident location) with more dense urban environments where advanced broadband economics are better. Successful rural communities of the future – by any measure – will be those that find ways to provide equivalent service despite challenging infrastructure and business models.

Fibre optic is the most future-proof infrastructure we can build today as a matter of resistance to damage/wear, and speed. Service levels today are up to 1.5 Gbps (e.g. TELUS). Theoretically, with technical advances speeds could be in the order of 2+ Pb/s (equivalent of download of roughly 30,000 4k



movies) (Src: <https://global-sei.com/company/press/2015/10/prs082.html>). In geographic context of human density, wireless is more economically feasible (point to point capability up to 1 Gbps). In very rural areas, satellite service is in the mix (e.g. Starlink – 50-150 Mbps).

Does speed matter? Yes. Doubling of Internet speeds should result in a 0.3% increase in per-capita GDP growth. Analysis of 28 EU countries...GDP growth exceeds any infrastructure-related capital expense in a period of 7-18 months, so long as the full economic benefits to society are considered. Enables Industry 4.0 and Internet of Things: a rapidly evolving set of applications that blur the lines between the physical, digital and biological worlds. Applications such as artificial intelligence, full-sensory virtual reality, holographic video conferencing and internet-enabled medical implants. At this maturity level, extremely high monthly data usage can be anticipated, for example 1 terabyte or more for an individual, as well as a host of activities requiring very high bandwidth. *“Populations and businesses that lack advanced connectivity will be increasingly disadvantaged as new internet-based technologies become more widespread in developed countries.”* Source: World Economic Forum, 2018 - http://www3.weforum.org/docs/WP_Financing_Forward-Looking_Internet_for_All_report_2018.pdf

A fibre backbone is installed in Columbia Valley, courtesy of the Columbia Basin Broadband Corporation. The unmet challenge in Canada remains last mile connectivity from the Point of Presence (POP) where business models are challenging.