5   Areas of Opportunity

5.1   Overview

The NADC region and its constituents have many options available to facilitate enhanced, more inclusive, and more affordable broadband infrastructure within its environs. Indeed, the options range from simply accelerating any currently planned broadband initiatives, to negotiating with the incumbents and potentially subsidizing private operators, to do-it-yourself (DIY) initiatives as exemplified by O-Net in Olds and Q-Net in Coquitlam.

In considering the options outlined below, note that in the broadband infrastructure game, a land-grab of sorts is currently underway and time is of the essence. The longer it takes communities to debate their options and assemble the required resources, the more time the traditional telecom and cable service providers have to replace aging infrastructure in their most profitable markets – the cities and towns – with fibre, which then removes valuable cashflow from more inclusive community-wide plays. To move forward quickly, LSLEA will likely need to take an active role with those communities most interested in moving ahead. As momentum develops and the issues are resolved, other communities could come onboard.

To be most effective, collaboration will also need to include both distribution and access networks within municipalities as well as the backhaul networks that link the communities together – an issue that will blur the more traditional LSLEA modus operandi in which their role is solely focused on coordination between communities and not on what each community elects to do itself.

5.2   Status Quo

For reasons ranging from a lack of resources, more important priorities, a belief that municipalities should not be in the infrastructure game, to satisfaction with current service levels, communities may elect to leave broadband to the existing players and not get involved. While this approach may work well for those in the more populated areas, experience to date suggests that those in the more rural areas could be waiting a long time.

Given the CRTC's recent framework decision, money to support infrastructure upgrades in the most rural areas will become available over the next fifteen years.[66] Indeed, the objective is to enable ubiquitous 50 by 10 Mb/s services by 2031. Proposed funding levels in support of this program are insufficient and affordability criteria have yet to be established.

5.3   Incremental

Should the Region or its constituents not have the support to *'jump in with both feet'*, but position for a possible broadband play later, interim straightforward and inexpensive approaches include:

- Broadband Facilities Master Plan:
    - Carry out high-level boundary connections assessment to potential future back-haul locations;
    - Carry out high-level feeder network assessment for development, re-development, and capital project inclusion of conduit/fibre/tower locations and/or ROW protection and agreements; and
    - Use as informed decision support when working with service providers, development community, and/or regional partners.
- Municipal Planning:

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[66] http://www.crtc.gc.ca/eng/internet/internet.htm.

- Work with NADC and your neighbours to leverage staff capacity and resources;
- Develop a Broadband Services Strategic plan specific to your community;
- Embed fibre network requirements in internal IT planning processes; and
- Accelerate currently planned IT infrastructure deployment.
  - Leverage Planned Civil Works:
    - Develop a policy for including installation of fibre conduit as part of applicable and appropriate town and county linear infrastructure projects, such as road (re)construction and water / wastewater projects.
  - Position for the future
    - Require that the inclusion of fibre conduit be a mandatory requirement in all applications for new residential and businesses development permits; and
    - Adopt an inside wiring standard with Cat-5 wiring as the minimum standard.

As the civil construction accounts for some 70% of the cost of buried infrastructure deployment, leveraging civil works can reduce the deployment costs significantly. The only catch is that an overall plan is required upfront, thus the baseline need for a Broadband Facilities Master Plan, particularly if the work is to take place over a number of years – fibre ducting must be appropriately sized, have breakout points in suitable locations, and, mesh with other components deployed.

5.4   Negotiate with Current Providers

5.4.1   *Work with the Carriers and Seek their Investment*

Over the past few years, both TELUS and Axia have been interested in and indeed installing fibre-to-the-premise (FTTP) networks in communities throughout Alberta. As shown in the adjacent summary slide of TELUS deployments, since 2014 and at a cost of $430M, TELUS' fibre has been deployed to 107,000 Alberta premises.[67] In addition to those in the table, TELUS has laid fibre in Cold Lake, Grande Prairie, Slave Lake, and Fort McMurray. TELUS plans to spend another $1.2 billion by year-end 2019.

Community	Premises	Community	Premises
Blackfalds	3.1k	Peace River	3.3k
Bonnyville	1.3k	Ponoka	0.9k
Calgary	33.3k	St. Paul	2.7k
Coaldale	2.8k	Stettler	2.6k
Didsbury	1.7k	Taber	3.6k
Drumheller	2.9k	Vegreville	3.1k
Edmonton	17.5k	Wainwright	3.3k
Edson	3.4k	Westlock	2.0k
Hinton	5.0k	Wetaskiwin	5.3k
Innisfail	3.2k	Misc Communities	13k

TELUS fibre in the selected communities is deployed at no cost to the municipality. Home and property owners are under no obligation to obtain services when granting permission for TELUS to place the fibre drop directly to their premises. Over fibre, TELUS offers Internet services at rates up to 150 by 150 Mb/s. Axia offers symmetric 1 Gb/s business and 100 Mb/s residential services[68] together with an option for other service providers to lease their fibre access lines. On the other hand, the CRTC will require TELUS to provide wholesale access to their fibre on some yet to be determined basis, whereas Axia will not be so encumbered.

At this point, TELUS does not provide their retail service offerings over community fibre networks, even in smaller centres in which TELUS has not upgraded their plant to fibre, and in which community networks

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[67] Mawji, Zainul; *Expanding Broadband Networks;* 12 September 2016.

[68] On Sept. 6, 2017, Axia began upgrading all 50 and 100 Mb/s subscribers to a symmetric 1 Gb/s service at no charge.

could provide TELUS with significantly more capacity than is available on TELUS' aging copper plant and do so with no requirement for a capital outlay. Given the momentum for community approaches that is developing within the province, though, TELUS' appears to be revisiting their approach and has recently expressed a renewed interest in working with communities to find an arrangement that works for both.

On the other hand, in return for access to a municipality's rights-of-way, Axia is offering to deploy fibre infrastructure throughout individual communities and offer Internet services at up to 1 Gb/s for residential and business clients should 30% of the addressable premises in the municipality show interest in subscribing to Axia's services. The offer is contingent on due diligence by Axia and the towns of Barnwell, Hanna, Fort Macleod, Nanton, Nobleford, Stirling, Raymond, and Vulcan now have town-wide FTTP service. Axia has also announced FTTP services for Fairview, Magrath, and Pincher Creek. Though Axia has approached a number of towns and villages in the study region, as of yet, none are moving forward.

While merits of an essentially hassle-free and free, fibre infrastructure are self-evident, the Axia offer is neither without cost nor risk. All revenues from the network would accrue to Axia's shareholders and once deployed, Axia would have monopoly control over critical civic infrastructure. No infrastructure would be deployed into the surrounding MD and the network would not be open in the traditional sense of the term.

5.4.2 Establish a Private-Public Partnership (PPP)

While there is a lot of merit to PPP arrangements, care must be taken to ensure ongoing alignment of private and public interests. The two largest broadband deployments to date are in Ontario – the Eastern Ontario Regional Network (EORN) and the SouthWest Integrated Fibre Technology (SWIFT) initiative – and are both PPP arrangements. While in both cases, significant public money was/is involved, after seven years, the EORN network assets vest to the private partners while the SWIFT funding recipients gain the option to divest some or all of their network assets at that time. Once control of the infrastructure moves to private industry, the communities may lose many of the gains made.

A second more subtle concern is that of minimizing conflict of interest and ensuring a level playing field when the focus of the PPP arrangement is to deploy and operate infrastructure on an open-access basis and when the private partners are vertically integrated players wishing to utilize the network to deliver their own service portfolios. To maintain transparency and ensure a level playing field, operators of open-access networks must be structurally separate from those providing retails services over the network.

5.4.3 Subsidize a Private Partner

The traditional market driven, private sector led business model is not providing many municipalities within the LSLEA region with the infrastructure they desire due to a lack of financial incentives. By directly subsidizing a private operator, municipalities could provide that operator with adequate incentive. Given that this approach in essence anoints a select supplier, it does provide the supplier with a market advantage in an area where market forces do not prevail and municipalities need to carefully consider the terms under which these arrangements are made. On the plus-side, the arrangement keeps the infrastructure deployment and operations in the hands of private sector players and minimizes Council involvement and resources. On the other hand, the selected supplier will end up with a defacto monopoly in the municipality.

When the arrangements involve fixed wireless players, additional issues arise from the fact that the infrastructure does not scale well. While an upfront subsidy may result in infrastructure adequate for current requirements, additional capital infusions will likely be required to meet ever increasing capacity demands.

In lieu of a direct subsidy, some counties reduce the cost of services deployment in rural areas by providing tower infrastructure for the ISPs to use. The Special Areas Board in southeast Alberta adopted this approach and then contracted a single provider, Netago, to provide services. With input into where the towers were located, the arrangement has been a successful one. Parkland County, on the other hand, wished to promote competition amongst ISPs in the County and operate the tower infrastructure on an operating cost recovery basis. To attract mobility and the Alberta First Responders Radio Communications System (AFRRCS) equipment onto the towers to help cashflow, robust (expensive) towers were constructed at sites which were a compromise amongst the requirements of the Mobility, ISP, and AFRRCS providers. Few liked the locations, competition amongst the ISPs did not materialize, and the County is now struggling to find a way to make things work.

5.5   Develop a Community or Regional Fibre Network

Given the lack of interest from the incumbent telecom and cable operators to serve much of the NADC region, the municipalities, including the Counties and MDs in the LSLEA region, may wish to consider establishing their own community and/or regional fibre network. Indeed, with an appropriate and sustainable business model, individual municipalities and/or sub-regions could establish, either on their own or in partnership, a fibre-based community and/or regional broadband network and operate it as a fourth utility. Inclusive, county-wide initiatives are currently being established in Big Lakes County, the County of Vermilion River, and the County of Grande Prairie. Potential business models are shown in Figure 26.
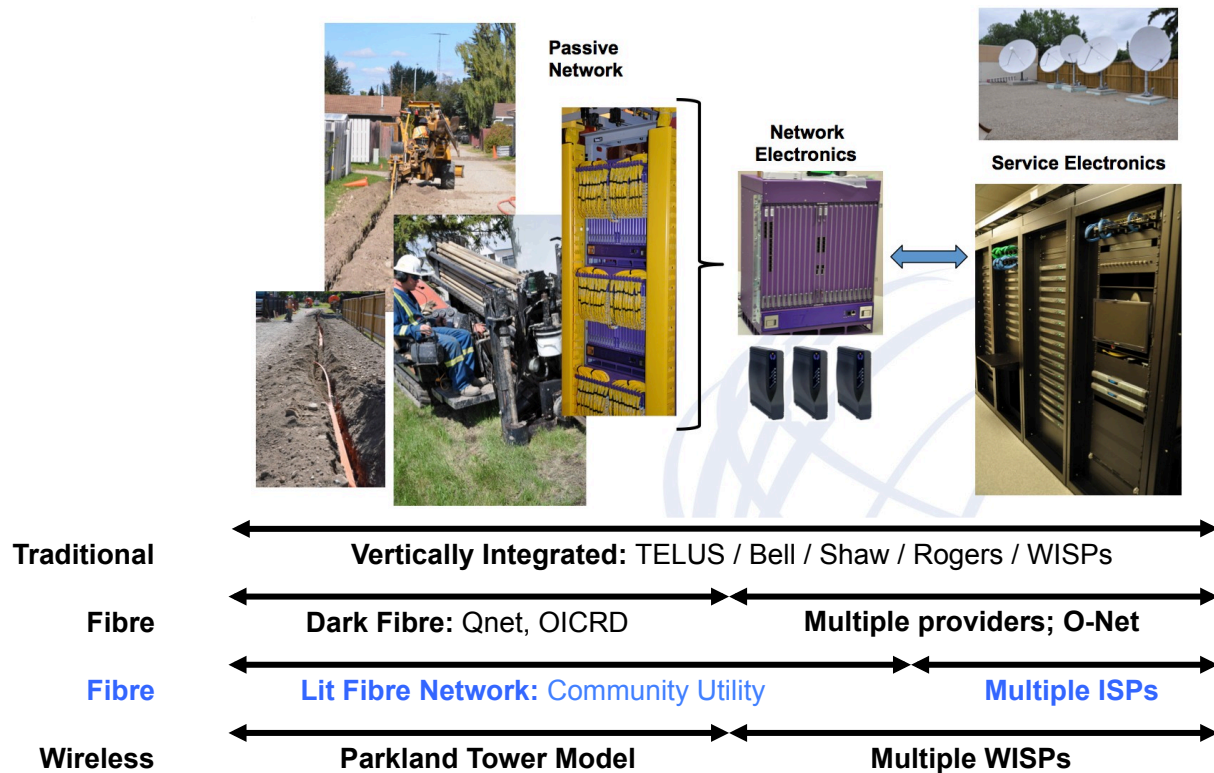

Figure 26 – Types of business models.

As shown by deployments throughout Europe and the Far East, utility infrastructure could enable a municipality to provide competitive service providers equal access to unmatched symmetric bandwidth capabilities and thereby enable the delivery of a variety of novel community-based intelligent community services (as well as entertainment services such as HDTV) to its residents and businesses.

Should a municipality wish to consider this option, a number of the more common business model, financing, and governance options available to help make it happen appear in Table 12. Common models are outlined in more detail in Appendix 16.2. Should either a community or group of communities elect to move forward, these options are typically evaluated as part of the business case / business planning process.

While regional and municipal options do involve more responsibilities and risks than simply transferring control to private enterprise, they come with significant advantages. As well, to manage the level of their involvement, close to turn-key options do exist and can be easily incorporated into regional, sub-regional, and community deployment programs – once the community has decided upon the business and governance structure, operational arrangements, and financing.

Table 12 – Common Business Model, Financing, and Governance Options

Business Model	Funding	Governance
• Conduit only • Wholesale fibre: dark or lit • Retail: open or closed and with or without service partners	• Debt financed via ACFA • MSI Funding / Grants • Co-operative • Utility/Power • Private-public partnership (PPP) • Private Equity • Combinations of the above	• Commission • Municipality • Municipal Services Corporation • Co-operative • Not-for-profit • Private