Other Infrastructure Owners

Starting in the 2010s, rural communities began looking for less traditional, more cost-effective ways to get broadband services to their communities. Several of their ideas are outline below, including opportunities to coordinate connectivity projects utilizing transportation and infrastructure corridors in Alberta:

Electricity transmission towers

Transmission tower fibre optics, or optical ground wire (OPGW), is located at the topmost position in the high-voltage power transmission structures that are distributed throughout Alberta. This wire is positioned to take advantage of an electric utility's transmission right-of-way to transport large amounts of data.

Optical ground wire generally serves two main purposes:

1. Protects electrical infrastructure by grounding lightning strikes and fault currents, and
2. Carries optical signals for the protection and management of the transmission line.

The data capacity of the OPGW in almost all cases greatly exceeds the needs of the transmission facility operators, leaving room for others to make use of the utility as a high-speed fibre connection.

Canadian Pacific Railway and Canadian National Railway

Fibre optic cables traverse existing rail rights-of-way. Rail lines are well suited for housing fibre backbones, as the corridors and associated rights of way are owned by a single entity.

Petroleum and natural gas pipelines

Modern pipelines often employ fibre-optic monitoring systems along the length of the pipeline corridor. Like rail lines, pipeline corridors are well suited to hosting fibre backbones, as the long-range rights-of-way are already negotiated.

Community & Volunteer Initiatives

In the UK, several rural communities have championed broadband initiatives by leveraging support from a collective of volunteers, landowners, farmers, private investors, and government funding sources. These projects include Tove Valley Broadband, Broadband for the Rural North Ltd (B4RN) and Fibre for Rural Nottinghamshire (F4RN). The initiatives are dependent on wayleave agreements between the broadband organization and the farmer/landowner to enable work to be carried out on their privately owned land. This includes access approval for network installation, maintenance and repair.

Volunteers from the community help with the administration of the project, recruitment of landowners, and even the physical labour involved (including digging trenches and laying duct work on the properties). Investor funding for the projects is raised by selling shares in the company (e.g. B4RN, F4RN). Shares are also offered as compensation to landowners[169].

This innovative use of community and funding resources has considerably reduced the cost of fibre deployments in these areas. For example, B4RN was able to complete its network for a total of £2.7 million through a mixture of purchased shares (£1.4 M), loans (£1.3 M) and volunteer effort. This represents savings of £800,000 compared to the estimated commercial cost to deploy the fibre network.

A similar strategy of leveraging local volunteer capacity and farmer / landowner involvement could be considered for rural Alberta, to reduce the costs of deploying rural broadband networks.

Progress to date

Many of the opportunities outlined above looked promising in the early 2010s as lower cost solutions, but none have yet been acted on in Alberta. There are several factors that have hindered this progress:

1. **New SuperNet contract**. The Alberta SuperNet contract was initially due to expire in 2015, and a new contract may have been able to include new opportunities for rural broadband. The contract was subsequently extended to 2018. With the 2018 Bell contract for SuperNet, there are new opportunities that need to be explored for rural solutions.

2. **Government of Alberta Provincial Broadband Strategy.** In line with a new SuperNet contract, there have, for years, been hints of a broadband strategy being developed by the provincial government that could assist rural Alberta with new opportunities, possibly aligned with the SuperNet. This strategy has yet to be rolled out.

3. **Low Earth Orbit satellite internet service solutions**. A promising solution that was first discussed in the mid-2010s, it is only now (2021) starting to provide services to Albertans.

4. **Other government initiatives**. As described in the Municipal/Community Networks section of this report, some local and regional governments have implemented more traditional solutions by paying for their own infrastructure for new network builds: either fibre, fixed wireless, or both. Several federal grant programs have helped to fund some of these initiatives.

5. **Additional rural fibre capacity**. New mobility services have required service providers to roll out vast quantities of new fibre-optic builds throughout Alberta to enable LTE and now 5G mobile services. These may have helped enable new municipal FTTH solutions, such as those being provided by TELUS (and formerly Axia) to numerous smaller municipalities.

References

[169]B4RN. Broadband for Rural North Ltd. Accessed 14 March 2021.