

## 10 Lesser Slave Lake Economic Alliance (LSLEA)

### 10.1 Current State

#### 10.1.1 Regional Profile

As shown in Table 45, the current state regional assessment for the Lesser Slave Lake Regional Economic Alliance (LSLEA) focuses on two towns, three counties or municipal districts (MDs), nine First Nations, and three Métis Settlements. Please visit LSLEA's website for more information <http://www.lslea.ca/>. The map shown in Figure 127 shows the reach of the LSLEA. It should be noted that Big Lakes County, the Town of Slave Lake, and MD of Lesser Slave River as well as some First Nations are not LSLEA members. They are part of the broader Northern Alberta Development Council (NADC) region or a member of a neighbouring Regional Economic Development Alliance (REDA).

TELUS has made a generational investment in fibre in the Town of Slave Lake; however, businesses in the town indicate that Internet capacity and coverage fall short.

Table 45 – LSLEA Communities

Towns	Counties/MDs	First Nations	Métis Settlements
Towns	Counties/MDs	First Nations	Métis Settlements
High Prairie Slave Lake*	Big Lakes <sup>▲</sup> Lesser Slave River* Opportunity	Bigstone Cree* Driftpile* Kapawe'no* Loon River* Peerless Trout* Sawridge* Sucker Creek Swan River* Whitefish Lake (Atikameg)	East Prairie Gift Lake Peavine

\*Community resides within the northern Alberta study area and the NADC region but is not presently a member of a REDA.

<sup>▲</sup>Member of Peace Region Economic Development Alliance (PREDA).

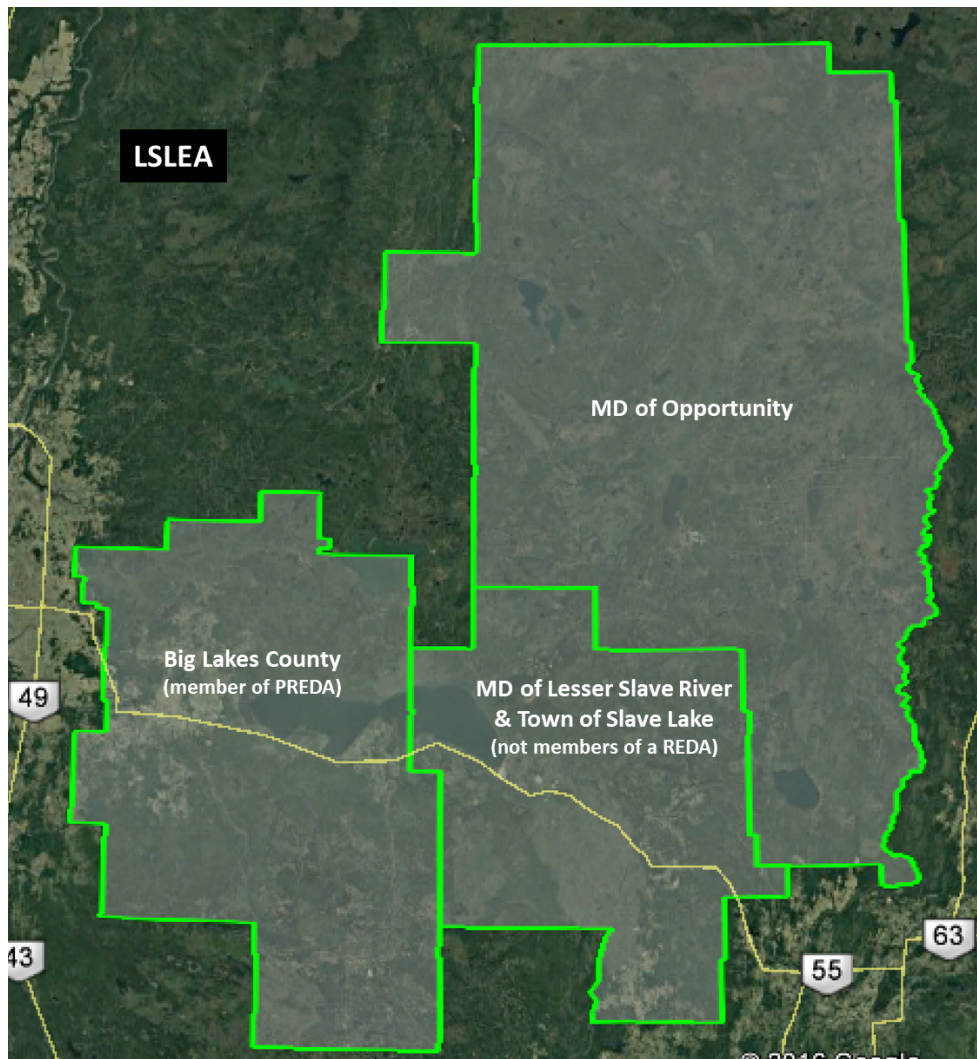


Figure 127 – LSLEA Region.

The 2011 wildfires swept through the Town of Slave Lake, the Sawridge First Nation, and the MD of Lesser Slave River. In the town, 333 single family homes and 169 apartment units were destroyed as were 3 churches, 10 businesses, and a local radio station (approximately one third of the town and mostly concentrated in the southeast corner and centre of the town). The government centre, including the provincial offices, the town hall, and the library, was lost as well. In the MD, 56 homes and a fire hall were destroyed. The Alberta government offered considerable assistance. Much of the rebuild is now complete.<sup>151 152</sup>

The Slave Lake Regional Tri-Council, which formed following the 2011 wildfires, still have separate jurisdictions and collaborate on matters of regional importance.

<sup>151</sup> Town of Slave Lake; <http://www.slavelake.ca/150/History>.

<sup>152</sup> Young, Leslie; *Slave Lake Fire Damage Map: Satellite Map of Destroyed Homes*; Global News; 2011-05-20. <http://globalnews.ca/news/117728/>.

The LSLEA region is home to approximately 29,000 residents.<sup>153</sup> Table 46 provides a breakdown by municipality (rural and urban), First Nation, and Métis Settlement as well as five-year population growth trends and CAGRs - population data are from Statistics Canada. The Town of Slave Lake and Big Lakes County are the most populated municipalities in the LSLEA region, with populations of 6,651 and 5,672, respectively. The populations of Kapawe'no and Swan River First Nations have grown significantly (each approximately 32%) during the five-year period between 2011 and 2016. Statistics Canada's 2016 Census of Population data indicate that the Sawridge First Nation population have declined significantly over the five-year period.

Table 46 – LSLEA Population &amp; Population Growth Trends

Municipality	Rural			Urban				First Nations (FN)/Métis Settlements				
	Population (2016)	CAGR (%) (2011-2016)	5-Year Trend	City/Town/Village	Population (2016)	CAGR (%) (2011-2016)	5-Year Trend	Reserve / Settlement	Population (2016)	CAGR (%) (2011-2016)	5-Year Trend	
			(%) & Direction				(%) & Direction				(%) & Direction	
Big Lakes, County	5,672	-0.8	-4.1 ▼	High Prairie	2,564	-0.3	-1.4 ▼	Driftpile	828	0.7	3.5 ▲	
				Kapawe'no				159	5.8	32.5 ▲		
				Sucker Creek				689	0.4	1.8 ▲		
				Swan River				413	5.8	32.4 ▲		
				Whitefish Lake				850	2.1	11.1 ▲		
				East Prairie (Métis)				304	-3.6	-16.6 ▼		
				Gift Lake (Métis)				658	-0.1	-0.6 ▼		
				Peavine (Métis)				607	-2.5	-12.0 ▼		
				<b>Sub-total</b>				<b>Sub Total - FN</b>	2,939			
								<b>Sub Total - Métis</b>	1,589			
Lesser Slave River, MD	2,803	-0.9	-4.3 ▼	Slave Lake	6,651	-0.4	-1.9 ▼	Sawridge	30	-15.1	-55.9 ▼	
Opportunity, MD	3,181	0.7	3.5 ▲					Bigstone Cree	2,515	-0.6	-2.3 ▼	
								Loon River	555	1.7	8.6 ▲	
								Peerless Trout	334	3.7	19.7 ▲	
								<b>Sub Total - FN</b>	3,404			
<b>Total</b>	11,656				9,215			<b>Total - FN</b>	6,373			
								<b>Total - Métis</b>	1,569			

CAGR – Compound Annual Growth Rate

Total Population = **28,813**

Source: Statistics Canada Census 2011 and 2016.

There are 1,230 businesses (with employees) in the LSLEA region. The top 10 industries in which they operate is shown in Table 47 and Figure 128 (industry classification system: NAICS). The industry mix is diverse with approximately 17% of businesses with employees engaged in the construction industry. The second largest industry on a total number of businesses basis is retail trade. These two sectors make up approximately 29% of businesses with employees in the region. The 'Other Industries' segment (14.6%) shown in the Figure 128 chart includes industries that individually contribute between 4.2% and 0.6% to the category.<sup>154</sup>

<sup>153</sup> Calculations based on Statistics Canada's 2016 Census of Population.

<sup>154</sup> Administrative and support, waste management and remediation; wholesale trade; public administration; manufacturing; finance and insurance; educational services; arts, entertainment and recreation; management of companies and enterprises; information and cultural industries; and utilities;

The region is spread over a vast geographic area comprised of boreal forest, lakes, and plains in the south.<sup>155</sup> Tolko Industries plans to reopen its Oriented Standard Board (OSB) facility in High Prairie. Production at the mill is expected to begin in the first quarter of 2018.<sup>156</sup>

Table 47 – LSLEA Number of Businesses (with employees) by Industry

Industry	Businesses	Percent (%)
Construction	207	16.8
Retail trade	149	12.1
Other services (except public administration)	125	10.2
Mining, quarrying, and oil and gas extraction	125	9.9
Transportation and warehousing	122	9.3
Professional, scientific and technical services	94	7.6
Healthcare and social assistance	65	5.3
Accommodation and food services	64	5.2
Agriculture, forestry, fishing, and hunting	58	4.7
Real estate and rental and leasing	53	4.3

Source: Calculations based on dataset provided by Alberta Economic Development & Trade, Economic Information & Analytics, Feb. 13, 2017.

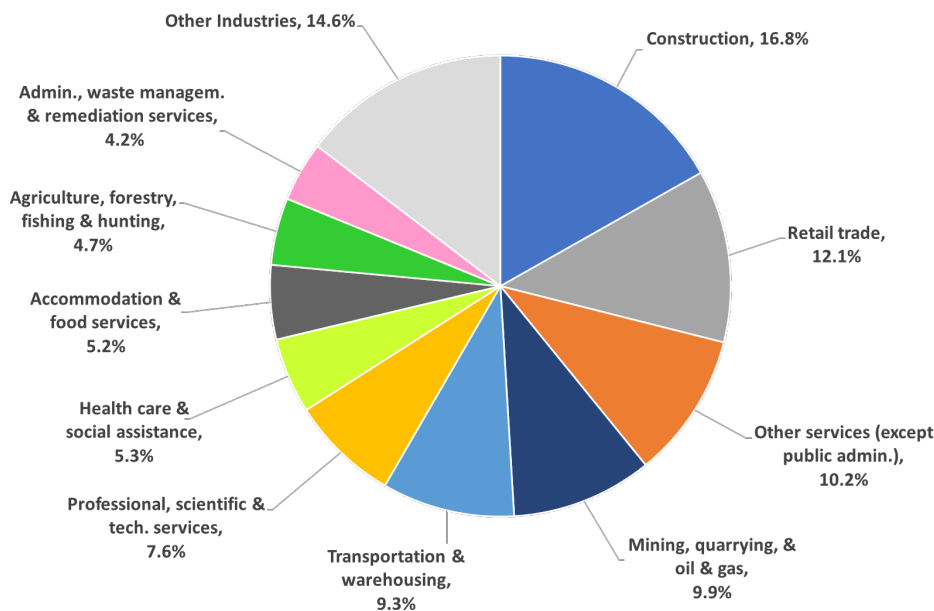


Figure 128 – LSLEA mix (based on business counts).

### 10.1.2 Municipal, First Nations and Métis Settlements Broadband Interests

Communities within LSLEA are at different stages in recognizing the importance of broadband services and connectivity to economic diversification, municipal sustainability, regional competitiveness, public

<sup>155</sup> LSLEA; 2017-02-15.

<sup>156</sup> Baroldi, Lisa; *Tolko to Restart High Prairie Oriented Strand Board Mill*; Big Lakes County; 20 June 2017.

service delivery, and quality of life.<sup>157</sup> Table 48 identifies the awareness and current state of municipal involvement and interest in broadband. Big Lakes County, High Prairie, MD of Lesser Slave River, and Slave Lake are advanced in recognizing the importance of broadband and looking for solutions to move forward.

Table 48 – LSLEA Involvement & Interest in Broadband<sup>138</sup>

Community	Enthusiastic	Interested 'Maybe'	Need Help Too Small	Too Expensive	Status Quo	Don't Know <sup>158</sup>	No Response <sup>159</sup>
Towns							
High Prairie	X						
Slave Lake – business areas	X						
Slave Lake	TELUS Fibre predominately in residential areas; partner in the <i>Inter-Municipal Broadband Discovery Project</i>						
Counties/MDs							
Big Lakes	X						
Lesser Slave River	X						
Opportunity							X
First Nations							
Bigstone Cree		X					
Driftpile							X
Kapawe'no							X
Loon River		X					X
Peerless Trout							X
Sawridge	X						
Sucker Creek		X					
Swan River							X
Whitefish Lake (Atikameg)							X
Métis Settlements							
East Prairie		X					
Gift Lake	X			X			
Peavine					X		

Big Lakes County and its partner communities recently took the initiative to obtain *Alberta Community Partnership (ACP)* funding for a detailed broadband study for the County, inclusive of the municipalities, First Nations, and Métis settlements within its boundaries – specifically High Prairie, Swan Hills, the hamlets of Enilda, Faust, Grouard, Jousard, and Kinuso, the Kapewe'no First Nation, and the Gift Lake Métis Settlement. The study – *Inter-municipal Broadband Discovery Project* – will leverage the results of this work and then develop more detailed financials to evaluate the options of most interest to the

<sup>157</sup> The five elements of broadband's importance were identified by the Calgary Regional Partnership, Economic Prosperity Steering Committee; *Request for Decision*; 2016-09-08.

<sup>158</sup> Don't Know – the respondent was unable to rate their community's interest and involvement in broadband.

<sup>159</sup> No Response – the community did not respond to the inquiries regarding their community's interest and involvement in broadband.

County. As the more detailed financials have already been developed, they will be used in the analyses presented here – thereby increasing both the accuracy and credibility of the financial results presented.

The Northern Alberta Broadband Society is an independent voluntary organization and a legal entity, created to build broadband infrastructure (i.e., fibre/hybrid) and provide broadband services to residents in the immediate Slave Lake region and along a trajectory to the Peace River area.

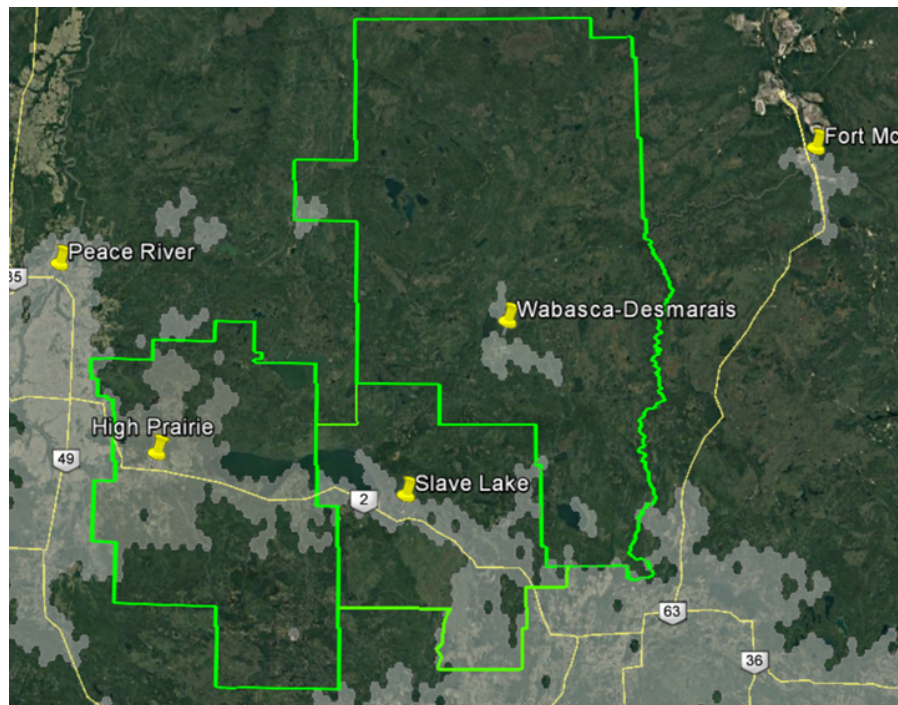
### 10.1.3 Current Service Providers, Services, and Infrastructure

#### 10.1.3.1 Fixed Wireless-based

Current Internet Service Providers using fixed wireless technology in the LSLEA region include the following. Appendix 16.3 provides the details of their service offerings (Internet only – no bundling unless otherwise stated) and geographic coverage. The coverage maps of the individual service providers are those that were available on their websites at the time of the writing of this report.

- Arrow Technology Group,
- Boreal Wireless,
- Corridor Communications (CCI),
- I Want Wireless,
- Infinity Internet Solutions Alberta,
- Lakeshore Internet Services,
- Slave Lake Communications,
- Sniper Communications, and
- XplorNet (fixed wireless and satellite-based).

According to the CRTC website<sup>160</sup>, minimal 5 Mb/s down (toward the end-client) by 1 Mb/s up (from the end-client to the network) service is available in the LSLEA region. A combined view of the fixed wireless coverage is shown in Figure 129 (light gray areas).



Source: <http://www.crtc.gc.ca/eng/internet/internetcanada.htm>

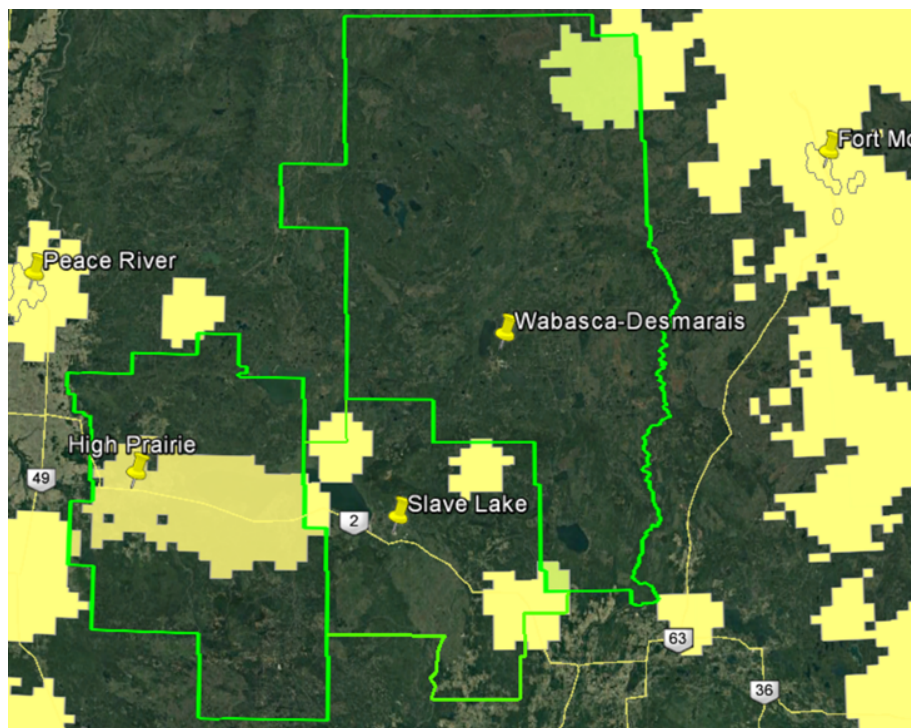
Figure 129 – LSLEA fixed wireless coverage.

<sup>160</sup> <http://crtc.gc.ca/eng/internet/internetcanada.htm>.

Since 2005, Lakeshore Internet Services (Lakeshore) has provided fixed wireless-based Internet services to First Nations and the communities in the Lesser Slave Lake area. Lakeshore's owner, the Lesser Slave Lake Indian Regional Council, is governed by its eight member/shareholder First Nations. They would like to deploy fibre to their membership – potentially starting as a pilot project. For those living on reserves, the social implications of the services and applications broadband would enable would be very significant. For example, the enhanced training and education alone would change peoples' lives.<sup>161</sup>

### 10.1.3.2 Mobility

Shown as yellow areas in Figure 130, mobility data services are available from TELUS/Bell and Rogers. Appendix 16.4.2 provides the coverage maps for each of the providers of mobility services. As discussed earlier Bell, TELUS, and Rogers are now using cellular towers and SmartHubs to provide at-home Internet services.



Source: <http://www.crtc.gc.ca/eng/internet/internetcanada.htm>

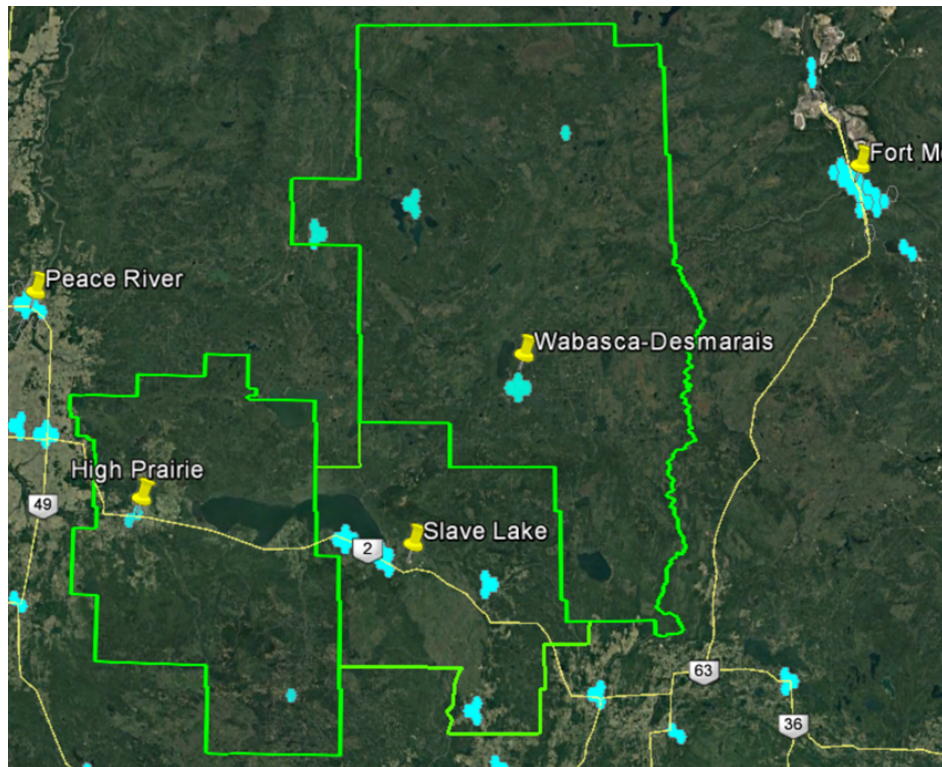
Figure 130 – LSLEA mobility data coverage.

### 10.1.3.3 Wireline-based – DSL

Digital Subscriber Line (DSL) refers to a group of last mile technologies that are used by wireline-based service providers such as TELUS in Alberta to provide broadband services over twisted-pair copper wiring. The local copper wire loop is a remnant from the days when (and how) the telephone company connected residential and business premises to the telephone company's network for the purposes of providing local and long distance telephone services (and dial-up Internet services). Since DSL's performance degrades

<sup>161</sup> Aulenback, Jaye – Network Manager, Lakeshore Internet Services; Telephone conversation; 2016-12-15.

with distance, the technology is only deployed in urban areas where access distances are less than about two miles. In Figure 131, areas served via DSL technologies are shown in blue.



Source: <http://www.crtc.gc.ca/eng/internet/internetcanada.htm>

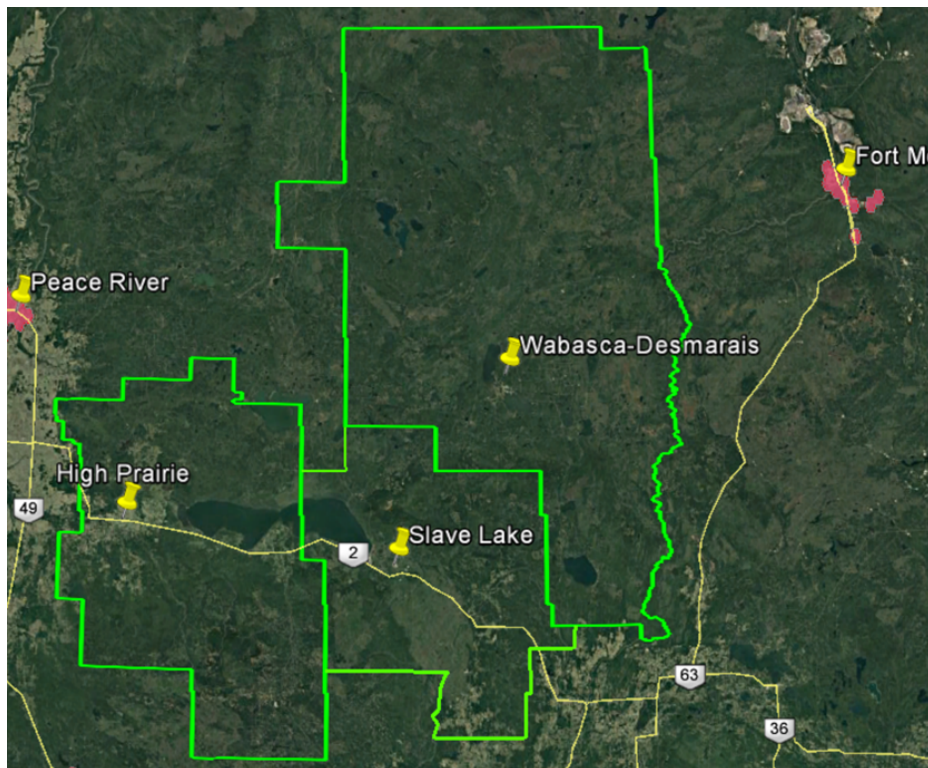
Figure 131 – LSLEA DSL coverage.

#### 10.1.3.4 Wireline-based – Coaxial Cable

Eastlink, originally a television broadcast company, uses coaxial cable and modern cable modem technology to provide broadband services. Wireline coaxial-based Internet services are available from Eastlink in Slave Lake (although it does not appear as a red area in Figure 132). The cable companies currently use the DOCSIS 3.0 standard to achieve broadband speeds of 100 Mb/s or more over coaxial cable. According to the Cybera, *State of Alberta Infrastructure Report*, “The next-generation DOCSIS 3.1 standard is expected to revolutionize hybrid fibre-coaxial cable connections by providing up to 10 Gb/s download and 1 Gb/s upload network throughput and significant improvements in latency.”<sup>162</sup>

<sup>162</sup> *State of Alberta Digital Infrastructure Report*; Cybera; 2016-09-13.





Source: <http://www.crtc.gc.ca/eng/internet/internetcanada.htm>

Figure 132 – LSLEA coaxial cable coverage.

Maximum advertised wireline offerings are shown in Appendix 16.2. Since these are ‘up to’ bit rates, during high usage periods, actual bit rates will be less – Eastlink more so than TELUS due to the way the aggregation is implemented. In both cases, the offerings are highly asymmetric – upload and download bit rates differ significantly.

#### 10.1.3.5 Internet Service Provider Wi-Fi

TELUS and Bell WiFi services are available in the LSLEA region - two TELUS locations in High Prairie as well as four TELUS and two Bell locations in Slave Lake.

#### 10.1.3.6 Axia Fibre

Axia NetMedia provides retail services to corporate clients and, through AxiaConnect, provides fibre-based retail Internet services in a number of smaller communities. In exchange for access to a community’s rights-of-way, Axia will consider investing in fibre-to-the-premise (FTTP) infrastructure in communities that can demonstrate that at least 30% of its residences and businesses are interested in purchasing Internet services from Axia once the ‘closed-access’ network is built. To date, Axia has not announced any plans for FTTP deployments in any LSLEA community.

### 10.1.4 Backhaul Availability

#### 10.1.4.1 Alberta SuperNet

The extent of the SuperNet within the LSLEA region is shown in Figure 133. The green lines represent the Bell-operated BAN portion while the blue lines represent the Axia-operated EAN segments. A more general discussion about the SuperNet is presented in Appendix 16.5.

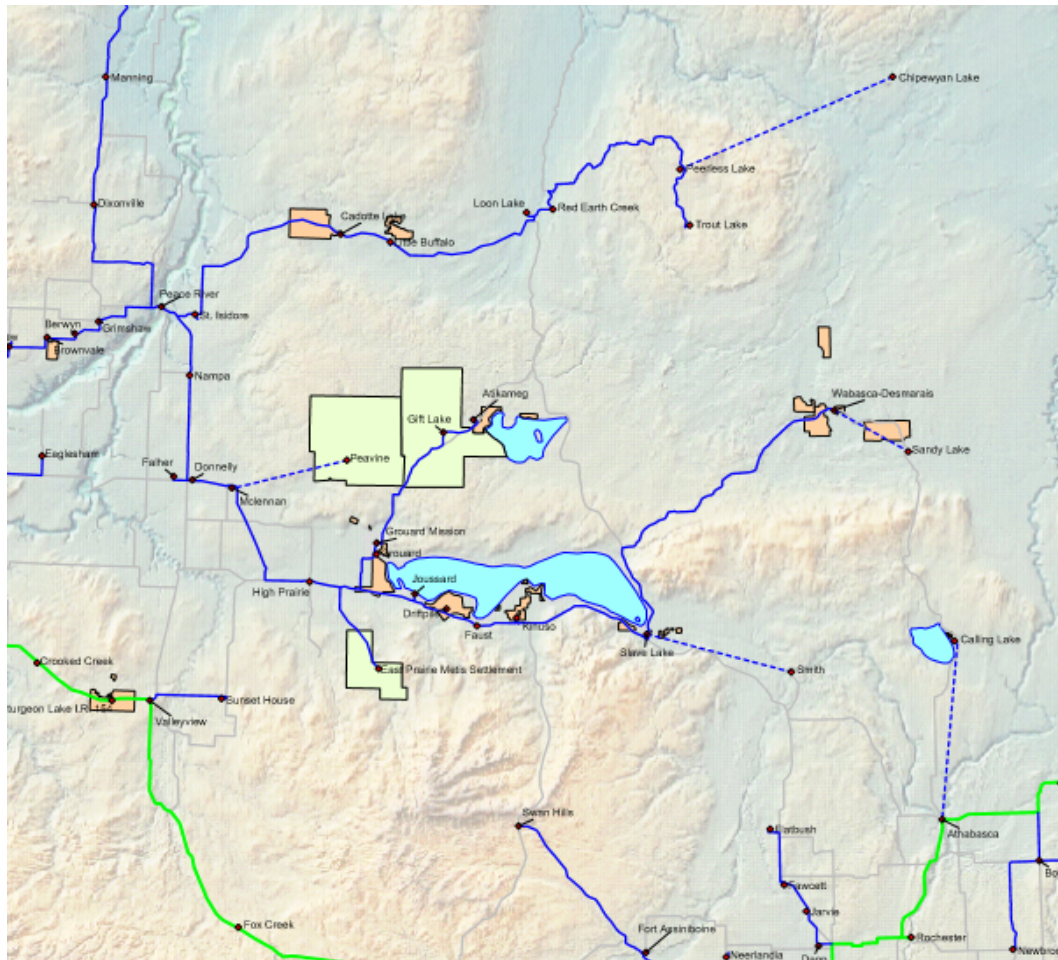


Figure 133 – LSLEA SuperNet infrastructure.

Given the uncertainty associated with the next iteration of the SuperNet contract by June 30, 2018, municipalities, First Nations, and Métis Settlements requiring access to fibre transport for backhaul to Edmonton may want to consider Bell or TELUS.

#### 10.1.4.2 TELUS Wholesale

Except under a non-disclosure agreement, TELUS does not provide maps of fibre assets.

### 10.1.5 Existing Infrastructure

#### 10.1.5.1 Towers and Other Tall Structures

When planning a broadband build-out it is important to build on what is already in place. The key inquiry for the current state analysis is what assets does the community have that can be provided at little or no incremental cost that improve the economics of the broadband deployment and operations? Assets include existing towers, fibre and community networks, which the community might be using for communications or asset management. Existing and possible access to tall structures or buildings are also important to inventory for potential placement of wireless equipment.

The only towers potentially available to leverage for a community broadband project are likely the ones owned by Kapawe'no First Nation. The First Nation received funding in the amount of \$62,250 from Alberta Agriculture and Forestry's 2012-2013 *Final Mile Rural Community Program*. Two towers are

privately owned by a band member of the Bigstone Cree First Nation. There is a CBC tower at Grouard in Big Lakes County.

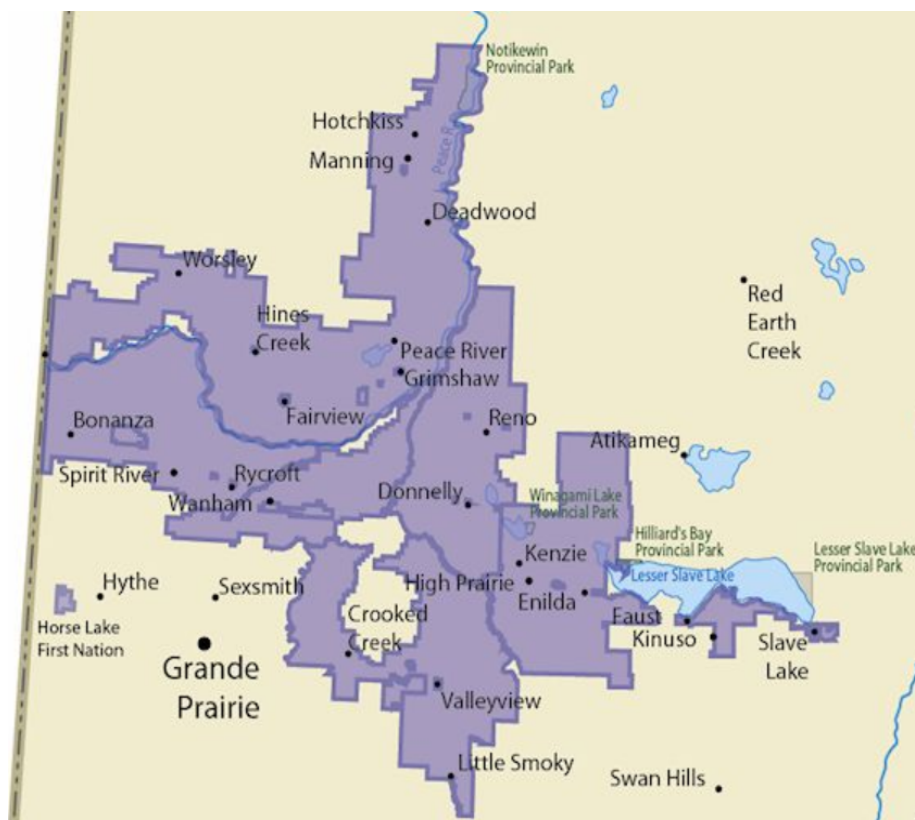
### 10.1.5.2 Utility Infrastructure

The existing overhead and underground transmission and distribution lines of electric utility companies (ATCO, Fortis) and natural gas co-operatives (co-ops) present deployment options for community broadband builds - access to and installing fibre cables to travel along utility poles, in ducts and conduit, and along rights-of-way can significantly improve the economics of broadband service expansion projects and network deployments. Inquiries about the availability of communications spaces on utility providers' poles and where multi-party trench agreements exist will be made during the preliminary infrastructure design phase of a broadband network. Appendix 16.6 shows ATCO Electric's and Fortis Alberta's respective service areas in northern Alberta.

### 10.1.5.3 Gas Co-operatives – Zone 1

In the 1960s, non-profit gas co-ops were formed to supply natural gas to rural Alberta - franchise areas were designated. The following three Zone 1 gas co-ops currently operate in the LSLEA region. Figure 134 provides a map showing the group's geographic coverage in the Lesser Slave Lake area.

- Town of High Prairie
- Prairie River Gas Co-op Ltd. (High Prairie)
- Swan River Gas Co-op Ltd. (Kinuso)



Source: Federation of Alberta Gas Co-ops, <http://www.fedgas.com/Map>. Accessed Feb. 1, 2017.

Figure 134 – LSLEA gas co-operatives.

There are several rural water co-operatives operating in the LSLEA area, as shown in Table 49.<sup>163</sup> Big Lakes County owns eight water co-ops – see Appendix 16.10 for their approximate locations.

Table 49 – LSLEA Water Co-operatives

Water Co-op	Vicinity/Service Area	Owner/Operator
8 co-ops: Big Meadow, Heart River, High Prairie East, North End, Northwest, Riverbend, Southside, West End	High Prairie	Big Lakes County
Kinuso	Southshore of Lesser Slave Lake	Members
Poplar Lane	Lesser Slave River	MD

### 10.1.5.4 First Nations Fibre Infrastructure

First Nations Technical Services Advisory Group (TSAG) is a non-profit organization established by the Chiefs of Alberta to provide technical support and training to First Nations in the Treaty 6, 7, and 8 regions. In 2008, TSAG partnered with Health Canada to develop the network components (fibre connections) at First Nations health centres to support First Nations’ telemedicine. With Health Canada funding and TSAG project management, community fibre networks connections were made to the Alberta SuperNet points-of-presence on each or close to each First Nations in 2011. Upon completion, each First Nations became the owner of its local fibre network. As shown in Figure 135, First Nations’ schools, health centres, band administration offices, and water treatment plants are now connected.

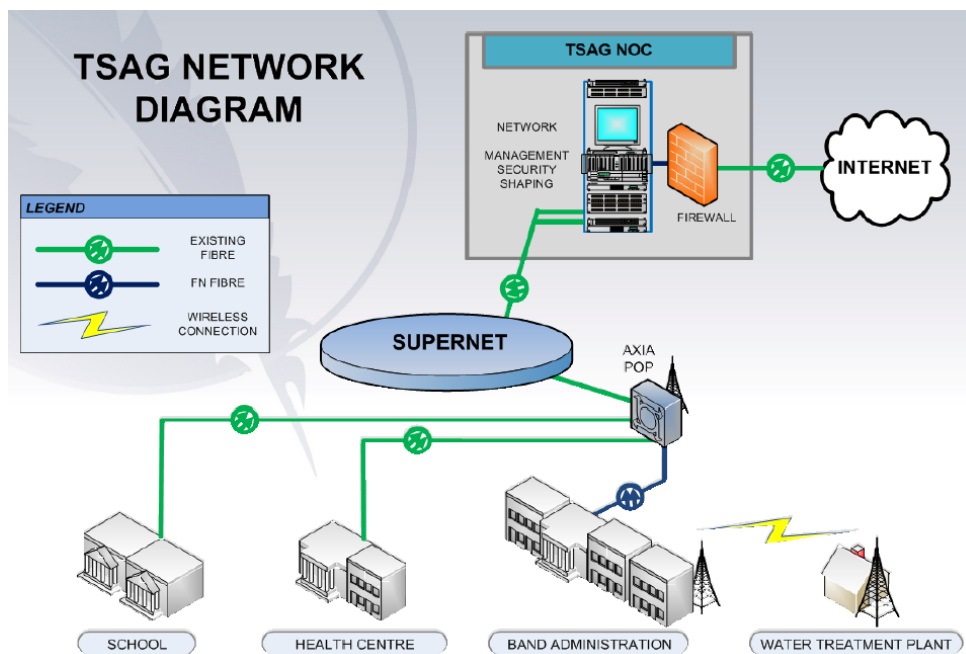


Figure 135 – TSAG network diagram.

TSAG operates a state-of-the-art Network Operations Centre (NOC). The NOC’s real time network monitoring ensures availability, network security/SPAM filtering, telehealth bridge management, and support, and applications (high-speed connectivity and remote water monitoring system for water

<sup>163</sup> Regula, Doris; *Market Opportunity Analysis*; Regula & Associates Consulting Ltd; 15 May 2015-05-15.

treatment plants, OneHealth.ca, and FirstNationsTH.ca). Onehealth.ca is a national health portal that provides information and services to health care professionals working in First Nations communities. FirstNationsTH.ca – Telehealth provides education and travel-free patient and health care assessments via video-conferencing.

### 10.1.6 Planned Infrastructure

#### 10.1.6.1 Major Projects

The LSLEA region has several private and public sector capital projects planned (Figure 136).<sup>164</sup> Where possible these projects maybe leveraged to reduce the costs associated with the deployment of broadband infrastructure.



This map shows the reach of the LSLEA. Big Lakes County, MD of Lesser Slave River, the towns of Swan Hills and Slave Lake, and some First Nations are not LSLEA members.

Figure 136 – LSLEA major projects.

<sup>164</sup> Alberta Major Projects, Economic Development and Trade; 2016-12. <http://majorprojects.alberta.ca/>.

### 10.1.6.2 Electricity Transmission Development Plans

Alberta PowerLine, a partnership between ATCO and Quanta Services, is about to begin construction north of the Athabasca River on the Fort McMurray West 500 kV transmission line.<sup>165</sup> Designed to address increased electricity demand in the Fort McMurray area, the line will run from Wabamun to the Fort McMurray area. The line will pass through the LSLEA region, see map in Appendix 16.9. The route was approved on February 10, 2017, and the facilities will be completed and operational by June 2019.

### 10.1.6.3 Municipal Capital and Civil Works Projects

Leveraging civil infrastructure projects can reduce broadband deployment costs by 75%. Given civil infrastructure costs typically account for 70% of buried deployment costs, this is significant. Capital projects that involve trenching or erecting towers or poles such as during the development of new subdivisions, road construction, or the construction of rehabilitation or water or sewer lines are typical projects that can improve the economics of community broadband projects.

The Federal *Small Communities Fund* (part of the New Building Canada Fund) for infrastructure projects, now includes a '*Connectivity and Broadband*' category. 2016 approved non-broadband projects within the LSLEA region include (figures shown are the Total Eligible Project Cost - Federal, Provincial, and Municipal):

- Slave Lake – Wastewater treatment modernization \$13.5 million, and
- Big Lakes County – House Mountain connector road and bridge construction \$9 million.

Big Lakes County's Jousard water treatment plant upgrades grant application was approved for \$3.6 million from the *Alberta Municipal Water/Wastewater Partnership (AMWWP)*.<sup>166</sup> The MD of Opportunity received the following funding from the same program:

- Regional SCADA system \$2.0 million,
- Regional wastewater SCADA system \$262,000,
- Calling Lake lagoon upgrades \$2.5 million, and
- Sandy Lake water treatment plant upgrades, \$5.8 million.

Table 50 shows the capital and civil works projects that either the municipalities self-reported or were identified by another source.

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<sup>165</sup> Alberta PowerLine; 2017-03-24. [www.albertapowerline.com](http://www.albertapowerline.com).

<sup>166</sup> Froese, Richard; *County Set to Engineer Four Water Projects*; South Peace News; 2017-08-21.

Table 50 – LSLEA Municipal Capital &amp; Civil Works Projects

Towns	
High Prairie	52 <sup>nd</sup> Avenue water and sewer line, curb, gutter, sidewalks replacement (2017)
Slave Lake	Wastewater treatment modernization
Counties/MDs	
Big Lakes	Kinuso reservoir and pumping station; bridge replacement; High Prairie airport upgrades <sup>167</sup> Joussard reservoir extension; Enilda and Grouard water reservoir expansions
Opportunity	Did not respond to project inquiry regarding civil and capital projects and no information was available on the town's website
Lesser Slave River	Road paving, force main, and lift station replacement <sup>168</sup>

## 10.2 Desired State

The range of interest in broadband varies considerably throughout the region, but even the most enthusiastic of the municipalities are still in the early stages of deciding which options to pursue and how. While a formal 'Desired State' has not yet been agreed to in any of the municipalities, what follows is based on the assumption that, over the next five years, the majority may choose to facilitate the deployment of infrastructure to support a fully scalable broadband network ubiquitously available throughout their municipality and, if possible, the region as a whole. This would typically include a combination of an underlying fibre infrastructure with upgraded wireless services where fibre is not yet practical. Market-wise, the infrastructure would be available on an open-access basis to all service providers interested in serving municipal and regional businesses and residents. Whereas the municipalities do not wish to interfere with private enterprise in the services marketplace, they will entertain options relative to facilitating the underlying lit open-access fibre utility infrastructure.

Within the LSLEA, Big Lakes County and its partner communities are advanced in recognizing the importance of broadband and looking for solutions to move forward.

**Big Lakes County, the towns of High Prairie and Slave Lake, the MD of Lesser Slave River, and the Gift Lake Métis Settlement** – Big Lakes County recently received funding from the *Alberta Community Partnership (APC) Program* for its *Inter-Municipal Broadband Discovery Project* to assess the best ways to enhance broadband in the region. Big Lakes County will lead the project. At the time of the writing of this report, the project team is in the early stages of organizing and defining their broadband project.

**Northern Alberta Broadband Society** – The Northern Alberta Broadband Society, an independent voluntary organization, plans to improve broadband connectivity between the immediate Slave Lake region and the Peace River region.

**Southshore Area First Nations and Lakeshore Internet Services** – Lakeshore Internet Services (Lakeshore) provides fixed wireless-based Internet services to the First Nations and the communities in the Lesser Slave Lake area. Lakeshore's owner, the Lesser Slave Lake Indian Regional Council, is governed by its eight member/shareholder First Nations. The eight members include Driftpile, Duncan's, Horse Lake, Kapawe'no, Sawridge, Sturgeon Lake, Swan River, and Sucker Creek First Nations. Lakeshore strongly believes broadband will provide the infrastructure needed to develop and deliver advanced applications and services that will bring greater economic and social benefits to their communities and bridge the gaps

<sup>167</sup> Big Lakes County Council Meeting Minutes; Big Lakes County; 2017-04-26, 2017-05-10, 2017-05-24.

<sup>168</sup> MD of Lesser Slave River; 2017 Capital Budget.

that exist in employment, learning (online education), and healthcare. They would like to deploy fibre to their membership – they envision a pilot project as a way forward.

Figure 137 shows the communities within LSLEA that have near-term broadband plans. The details of each community's issues and challenges and 3-, 5-, and 10-year visions for broadband can be found in the Appendix 13.11.

## 10.3 Town of High Prairie – A 1,000+ Premise Utility Network

### 10.3.1 Context

Within the LSLEA, Big Lakes County and its partner communities are the most advanced in recognizing the importance of broadband and looking for solutions to move forward. Indeed, Big Lakes County took the initiative to obtain Alberta Community Partnership (ACP) funding for a detailed study for the County, inclusive of the municipalities, First Nations, and Métis settlements within its boundaries. The study – *Inter-municipal Broadband Discovery Project* – will leverage the results of this work and then develop more detailed financials to evaluate the options of most interest to the County.

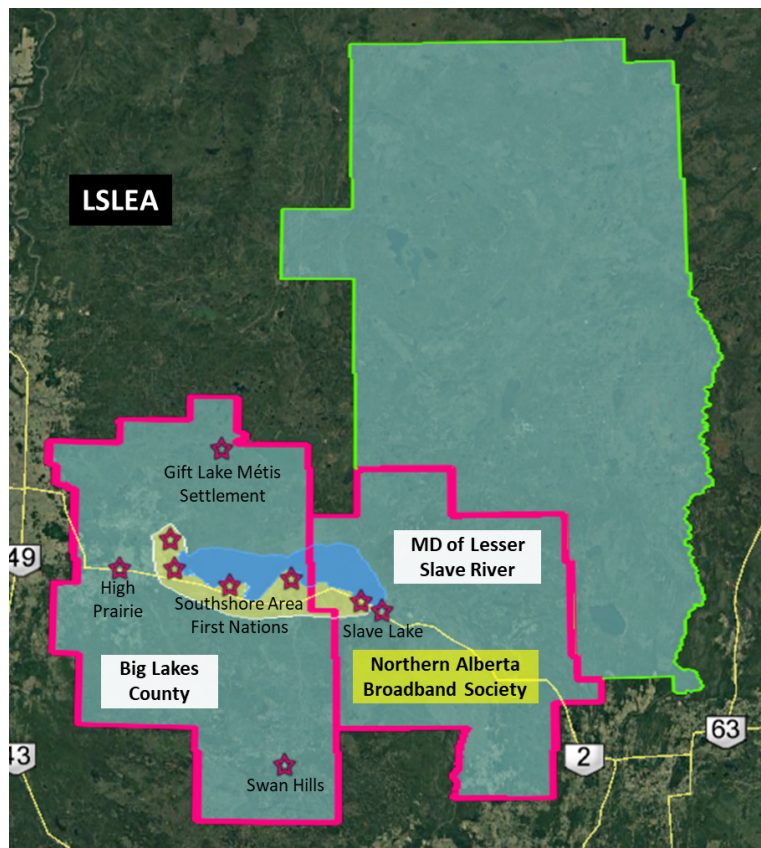


Figure 137 – Communities with near-term broadband plans.

At the time of writing, neither the MD of Lesser Slave River nor the MD of Opportunity were ready for such a study. As such, the analyses below will focus on the results for Big Lakes County. As will be seen, the business case for an inclusive, open-access utility network focused on providing both FTTP networks in each of these communities as well as an inter-community connecting network within Big Lakes County, goes cashflow positive after seven years. Going forward, the model could be expanded to encompass options for both the MD of Lesser Slave River and the MD of Opportunity.



It is hoped that the Big Lakes work will be leveraged by the Southshore Area First Nations and Lakeshore Internet Services as both realize the importance of broadband to deliver advanced applications and services that will bring greater economic and social benefits to their communities and bridge the gaps that exist in employment, learning (online education), and healthcare. They would like to deploy fibre to their membership – they envision a pilot project as a way forward. The models developed for Big Lakes should help make that possible. Partnering with Big Lakes would improve the financials for both.

### 10.3.2 Business Structure

In the analysis for High Prairie below, the business structure, opto-electronics and backhaul, operations, drop capital, and markets and revenues assumed are those outlined in the default implementation scenario presented in Section 6.5. In this case, the local network entity established to house the local fibre operation will be referred to as HP-Net.

### 10.3.3 Deployment Capital

A pre-conceptual buried fibre design was completed for the Town of High Prairie. For this, the town was divided into four parts as shown in Figure 138. In the map, feeder lines are in magenta and the distribution cabling is in cyan.

The estimated deployment costs appear in the Table 61. Assuming reasonable ground conditions, a buried fibre deployment that passes every premise in the Town of High Prairie would cost about \$2.46M. For the Central area, this amounts to approximately \$1,683 per premise. In the industrial East district, the comparable cost increases to \$10,300/premise because the distances are greater and the density lower.

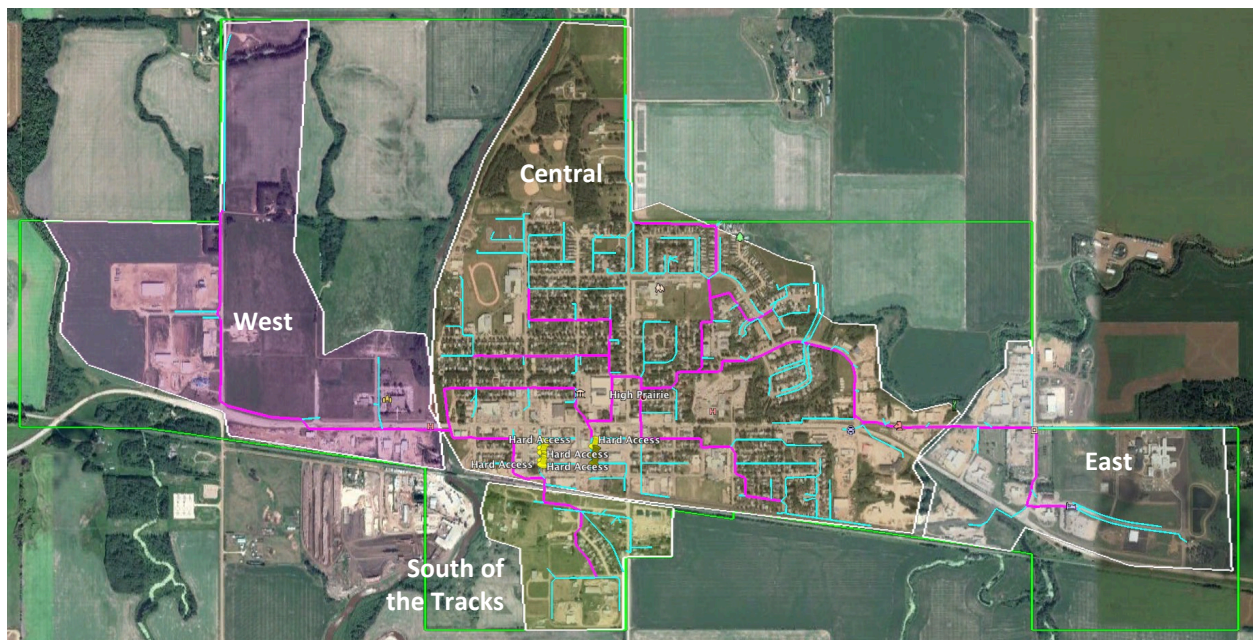


Figure 138 – A pre-conceptual fibre plan for High Prairie.

### 10.3.4 Deployment Schedule

This business case assumes that the network would be deployed throughout High Prairie over the spring, summer, and fall of 2018.

### 10.3.5 Opto-electronics and Backhaul

Capital cost estimates over the first five years of operation for the proposed scenario come to \$4.26M – the breakdown appears in Figure 139. In the chart, the \$2.68M outside plant (OSP) deployment estimate (core and drops) includes the feeder and distribution plant required to pass every premise and provide drop connections to those premises that take service.

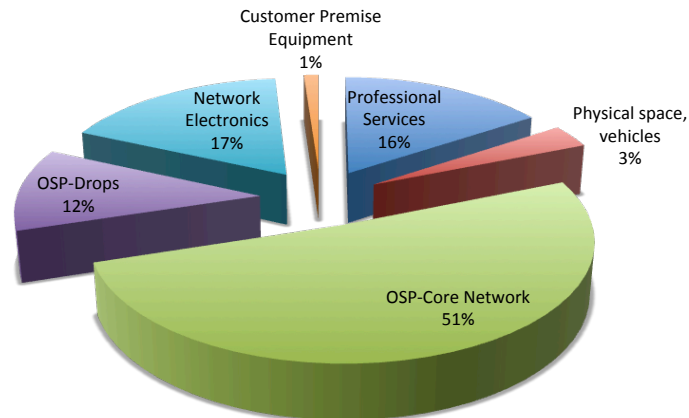


Figure 139 – Cumulative capital expenditures from 2018 to 2022.

### 10.3.6 Operations

The operational costs for wholesale network operation are straightforward as most are handled via outsourced contracts. Once the network build is completed in 2018 and the target penetration rates are realized, operational costs stabilize and a view of those calculated for 2022 are shown in Figure 140. In the chart, Admin, ops, and o-e refer to administration, operations, and opto-electronics, respectively. The numbers assume that the Town provides both equipment and storage space at no charge.

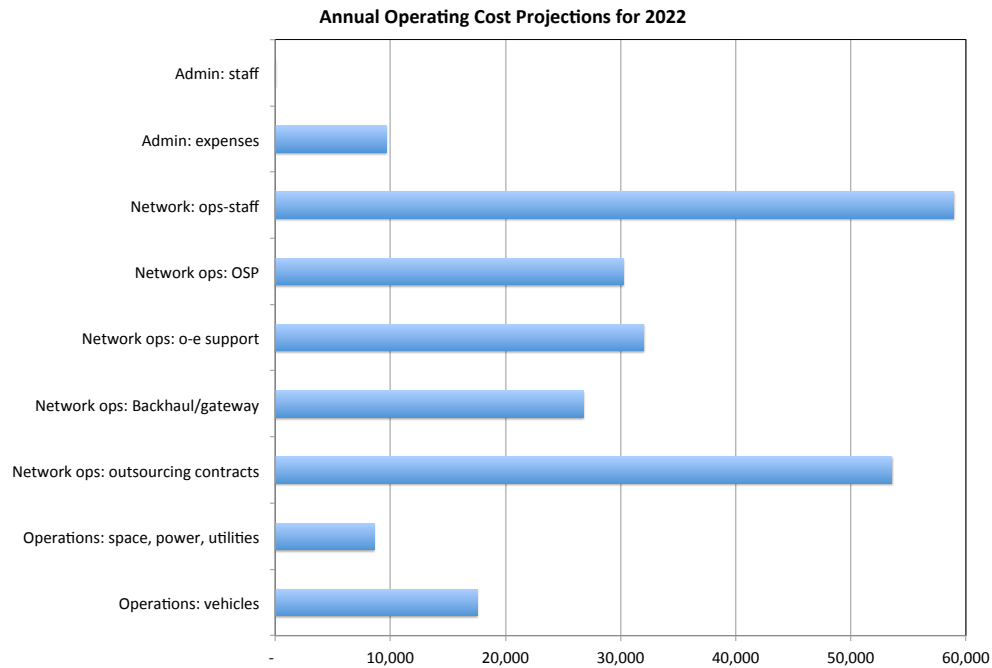


Figure 140 – Projected operational costs in 2022.

### 10.3.7 Financial Projections

Cashflow results for this scenario are summarized in Table 51. Though the operation goes cashflow positive in year 4<sup>169</sup>, with debt servicing considered, the overall financials do not go cashflow positive until year 12. As the required capital must therefore be sufficient to cover an 11-year deficit, some \$4.98M in capital will be required to fund the operation. By year 15, approximately \$19,371 is being returned to the Town annually.

Table 51 – Utility Model Results Summary for High Prairie

	Results
Years to positive cashflow	
Operating	3
With debt servicing (p&i)	11
Financing	
Start-up capital required	4,984,587
Net Cashflow - before debt servicing	
Profit - annual at 10 yr	104,498
Profit - annual at 15 yr	190,381
Net Cashflow - after debt servicing	
Profit - annual at 10 yr	0
Profit - annual at 15 yr	19,371

In graphical form, the non-discounted cashflow chart for the proposed utility appears in Figure 141. The capital (red) required to finance the project is shown to pretty much all be required upfront and the financing must be sufficient to maintain a net cashflow of at least zero. Operational sustainability is determined by the gap or difference between the revenue (blue) and operational expenditure (green) lines whereas overall sustainability, which includes principal repayment, is the difference between the

<sup>169</sup> With three years to positive cashflow, the project goes cashflow positive in year 4.

revenue (blue) and the operational + principal repayment (dotted blue) lines. The bigger the gap, the better. The net overall cashflow line is the dotted orange line.

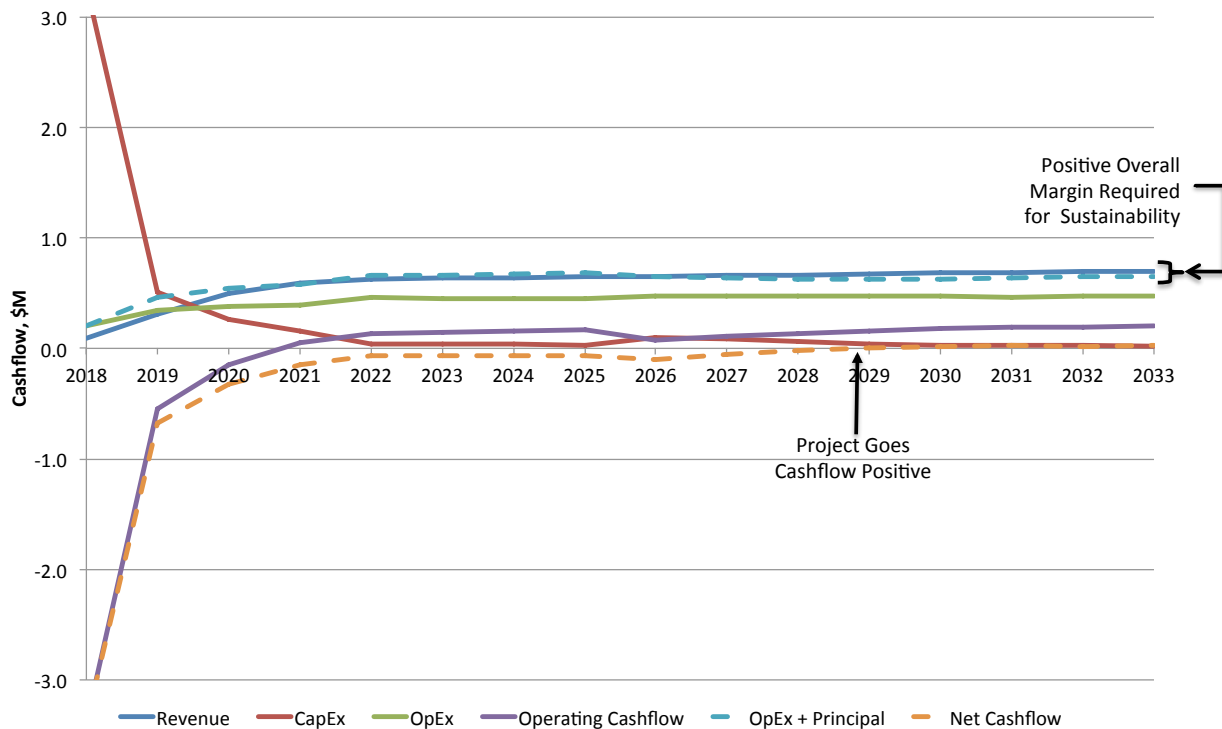


Figure 141 – Non-discounted cashflow projections for High Prairie.

The operating margin is positive in year 4 and, with debt service payments, the operation goes cashflow positive in year 12. While technically these numbers work, operationally, the risk is too high due to the negligible margins and resulting deficits. Given the small client base available in High Prairie and the importance of scale to operational sustainability, these initial results are typical for communities with populations less than around five thousand people.

Options to improve margins sufficiently that a community might elect to pursue a deployment are outlined in Sub-section 6.5.10.

## 10.4 An Inclusive Regional Network

Within the LSLEA, Big Lakes County and its partner communities are the most advanced in recognizing the importance of broadband and looking for solutions to move forward. Indeed, Big Lakes County took the initiative to obtain Alberta Community Partnership (ACP) funding for a detailed study for the County, inclusive of the municipalities, First Nations, and Métis settlements within its boundaries. The study – *Inter-municipal Broadband Discovery Project* – will leverage the results of this work and then develop more detailed financials to evaluate the options of most interest to the County. The results may be found in Section 11.3.2.

## 10.5 Extrapolating the Results

### 10.5.1 Municipal Networks

Being over twice the size of High Prairie, a utility fibre operation in the Town of Slave Lake has the potential to be considerably more sustainable than that for High Prairie. More importantly, though, as TELUS has

already deployed fibre to the residential areas, a municipal fibre operation in Slave Lake could focus solely on the business community – enabling a relatively small deployment footprint to serve high value business clients.

As all other communities within the LSLEA region are smaller than even High Prairie, establishing a sustainable, stand-alone access network in any of them will be a challenge. Partners or a regional network as proposed above, however, provides them with a valuable option.

### ***10.5.2 Regional Networks***

Given the importance of scale, should Big Lakes County proceed to establish a regional network operation, the operation could easily be expanded to encompass both the MD of Lesser Slave River and the MD of Opportunity – to mutual benefit of all communities involved.