

# BUILDING A BETTER TOMORROW

## Municipal FTTx FAQ



### What is FTTx?

FTTx, or **fiber-to-the-x** (fiber-to-the-home, fiber-to-the-premise, etc.), is the next generation platform for local access telecommunication networks. Also referred to as the “last mile” of the telecom network, FTTx represents the link that connects metro and transport networks to the residential and business users.

### What is PON?

PON, or **passive optical networking**, is a network architecture that uses unpowered (or passive) optical splitters to enable a single fiber to provide network communication signals to multiple (typically 32 to 128) network users.

### What can FTTx do for my community?

- **Improve Quality of Life.** Next generation fiber optic local access networks can provide your community with access to the full range of cutting-edge voice, video and data services available today.
- **Attract Business Investment.** Many businesses today require a connection to high bandwidth telecommunications networks in order to remain competitive in the increasingly national and global economy.
- **Population Retention and Attraction.** Increasingly, users are demanding high bandwidth access to the internet in order to remain connected to friends and family, and to participate in the larger global community.
- **Telecommuting and Green Solutions.** The telecommuting options made available by a fiber optic broadband network provide practical solutions to the increasing cost of fuel and the pressures to reduce GHG emissions.

### Are Alberta communities well positioned for FTTx?

Yes. Communities in Alberta are well positioned to invest in and take advantage of FTTx networks because of:

- **The Alberta SuperNet.** Alberta’s existing infrastructure provides the required link between the municipal FTTx network and the service providers and their content.
- **Our Solid Economic Fundamentals.** Alberta’s solid economic foundation and current wealth present the ideal time to invest in the next generation of telecom networks.
- **Proven Public-Private Partnerships (P3s).** Alberta’s current success with public-private partnerships provides an established template for FTTx infrastructure deployment projects.

### Why should my municipality be involved?

FTTx networks represent one of the essential services of the 21<sup>st</sup> century—high speed data access. North American municipalities are increasingly looking at local access fiber networks as the “5<sup>th</sup> utility”. Building a municipal owned, “open access” network and leasing it to private service providers means:

- **Eliminating Multiple Overbuilds.** One community owned network will eliminate the need for major carriers to overbuild each other’s private networks.
- **Lower Cost to Taxpayer.** Ultimately all plant costs (private or public) are passed onto the taxpayer. Building a single network means taxpayers won’t be footing the bill for multiple private networks.
- **Accelerate Deployment.** Many communities (urban and rural) are not currently slated for FTTx expansion by any of the private carriers in Alberta. Public development ensures that these networks are built according to the municipality’s timetable.

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### What is possible with a municipal FTTx network?

- **State-of-the-art Local Access Network.** The basic physical layer of the FTTx network is a point-to-point (P2P) or point-to-multipoint (P2MP) fiber optic network that provides local access connectivity points for residential and commercial users, typically within 25 to 100 meters of every premise.
- **Open Access Residential and Business Network.** A municipal-wide, local access, fiber optic network that can be utilized by service providers to connect to residential and business customers.
- **Municipal Government WAN.** Using the physical layer of the FTTx network, municipal governments and civic partners can also link offices and organizations, connecting to each and every site across their own, dedicated and secure, fiber optic connection.
- **Recurring Revenue Stream.** As a developer, owner and operator of the FTTx physical layer plant, the municipality is provided with the ability to generate revenue from service providers who lease the access lines. Excess revenues (over and above operating expenses) can be invested back into the community or used to grow the network.
- **Local OSP Maintenance and Operations Team.** Maintenance operations for the physical network plant are easily adaptable to most municipal Public Works and Engineering departments.

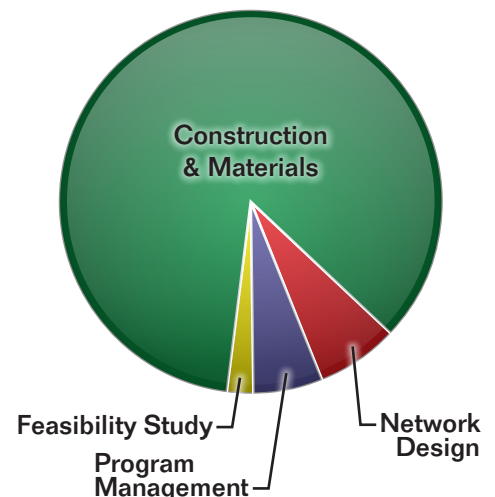
### What is the typical “roadmap” for FTTx deployment?

1. **Conduct a Feasibility Study.** The first step towards deploying an FTTx network is determining what the specific needs are, in terms of FTTx infrastructure, and then determining an overall solution in terms of the physical layer, the network layer and the services layer. These answers provide an estimate of what the capital and schedule requirements of the deployment will be.
2. **Create a Program Management Plan.** Based on the findings of the feasibility study, a business plan can be established. This will specify technical and physical layer design specifications, service delivery models and general franchise arrangements. This plan should also include details concerning project budgeting and financing.
3. **Complete Network and Plant Design.** Using the design specifications from the Program Management Plan, field engineers and designers can begin to design the network and engage permit authorities. Included in the design package should be a complete bill of materials and a detailed listing of work orders for individual construction activities.
4. **Construct the Network.** Negotiate subcontracts, establish self-performing work crews, order materials, distribute network design packages, coordinate design changes, collect as-built information, and commission the network.

### FTTx Deployment Budget Breakdown

The following table and chart provides an approximate breakdown, by phase, of the total deployment costs associated with the development and construction of an FTTx network.

DEPLOYMENT PHASE	DESCRIPTION	DELIVERABLES	BUDGET %
1. Feasibility Study	Network planning, premise enumeration, field survey, budget and schedule planning, risk analysis.	<ul style="list-style-type: none"> <li>■ Network model and layout</li> <li>■ Project budget and schedule</li> <li>■ Risk analysis findings</li> </ul>	1–3%
2. Program Management	Business planning, network specifications planning, service and content agreements.	<ul style="list-style-type: none"> <li>■ Network and operations plans</li> <li>■ Detailed budget and schedule</li> <li>■ Service provider agreements</li> </ul>	5–10%
3. Network Design	Detailed premise enumeration, GPS surveying, drafting, permitting, design package integration.	<ul style="list-style-type: none"> <li>■ Detailed design package</li> <li>■ Permits and bill of materials</li> <li>■ Fiber management tools</li> </ul>	4–7%
4. Construction & Materials	Contract management, HS&E program roll-out, procurement and logistics, test and turn-up, work order management.	<ul style="list-style-type: none"> <li>■ Shelters, cabinets and materials</li> <li>■ OSP construction</li> <li>■ As-built records</li> </ul>	80–90%



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