Project Problem Statement

A Middle-km Broadband Problem Statement

A technology solution required to provide a cost-effective, self-configuring, high-resilience, high performance solution extending internet access service distances of 10 - 15 km from the broadband POP in a host community. This high performance residential broadband solution extends across flat expanses of farmland with a limited number of trees.

Secondary Community
(or sparsely distributed rural homes)

New Secondary POP Required

10 - 15 km

Main Community

Primary POP
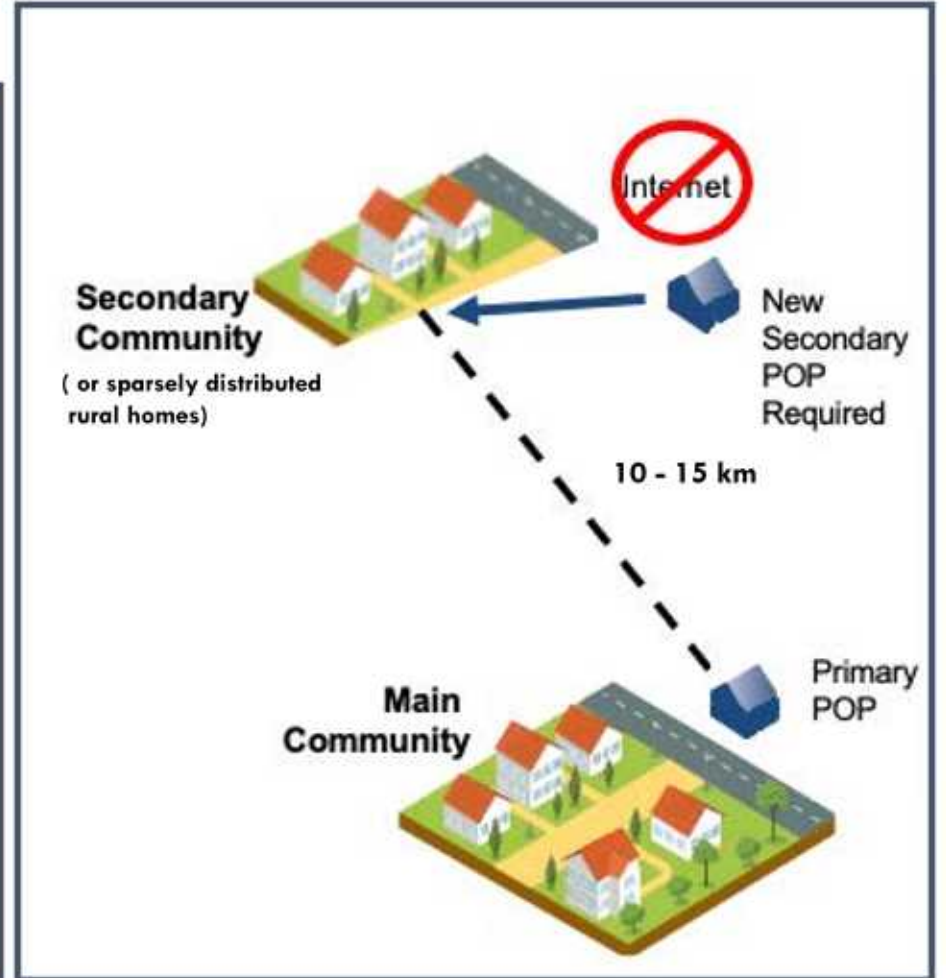
Selected Service Provider

MPV *wifi*
Connecting Rural Communities

Headquartered in
Thamesville, Ontario

Key Strengths of MPV Wifi for Residents	Rural Ontario Community Experience
• **Extensive Experience -** installing wireless networks in Rural Ontario	• **Already Serving Dawn-Euphemia Township**
• **Local Internet Service Provider**	• **Currently also offers internet access services in Chatham-Kent, Middlesex County, and Elgin County**
• **Strong Understanding of Rural and Farming Clients** needs	
• **Wide Coverage** of high-quality wireless internet access for the township	• **Over 40 towers** in MPV Wifi Network
• **Multiple Types of Wireless Services** to deal with open spaces or dense tree cover	• **600 Residential Customers** in Southwestern Ontario
• **Unlimited Data Plans** – No data cap or unexpected overage charges	
• **Wide range of Pricing and Capacity Options** for internet access services	

CENGN   Providing Middle and Last Km Access Over Open Farmland in Dawn-Euphemia Township

Extending Broadband Throughout Dawn-Euphemia Township

Multi-Technology, Multi-Tower Solution

5 GHz FWA 60GHz FWA

Hamlet of Shetland
16 Homes

5 GHz FWA
3.65 GHz
LTE FWA

5 GHz FWA
3.65 GHz
LTE FWA

Cairo

Newbury Station

Village of Florence

FTTH Service

5 GHz FWA
3.65 GHz
LTE FWA

84 Homes

4 km - of buried optical fibre

Rutherford

Internet Backhaul

Bell Tower

Desden
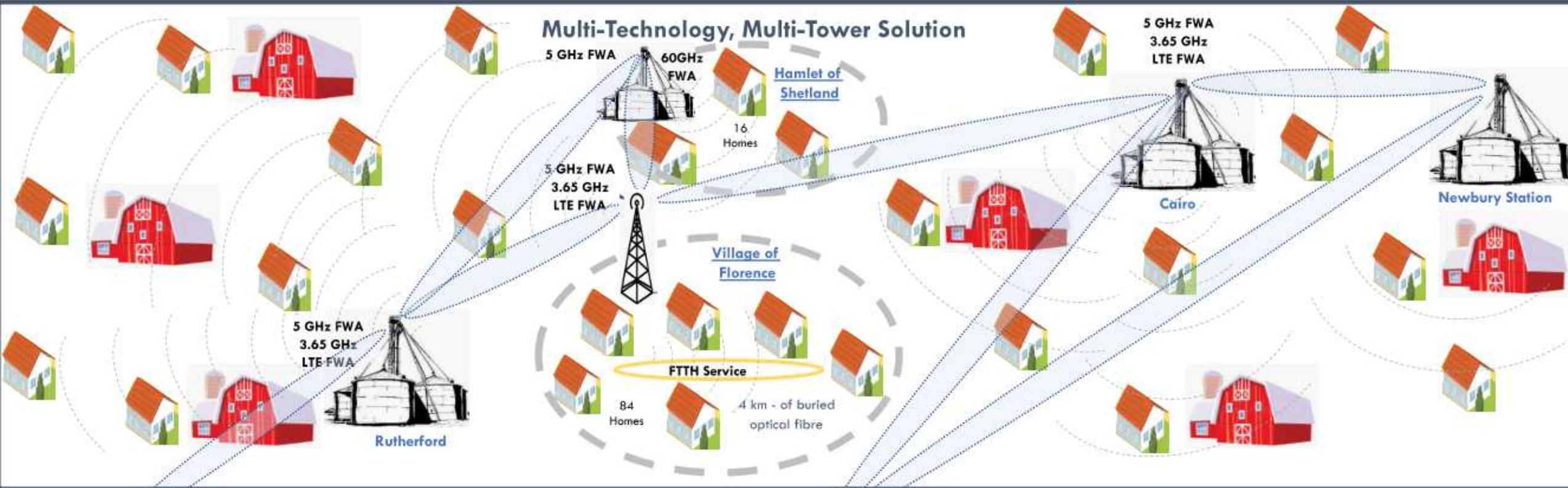
✅ **FTTH - Future-Proof Last km Solution**
- Cost-limited 4 km buried optical fibre ring

✅ **Hybrid FWA Middle km Solution**
- 5GHz for high-speed internet services
- 3.65 GHz for better tree penetration

Internet Backhaul

New Tower

200' Tower

✅ **Use Existing Grain Elevators as Towers**
- Reduced tower build costs by 80%

✅ **Mesh Network and Redundant Backhaul**
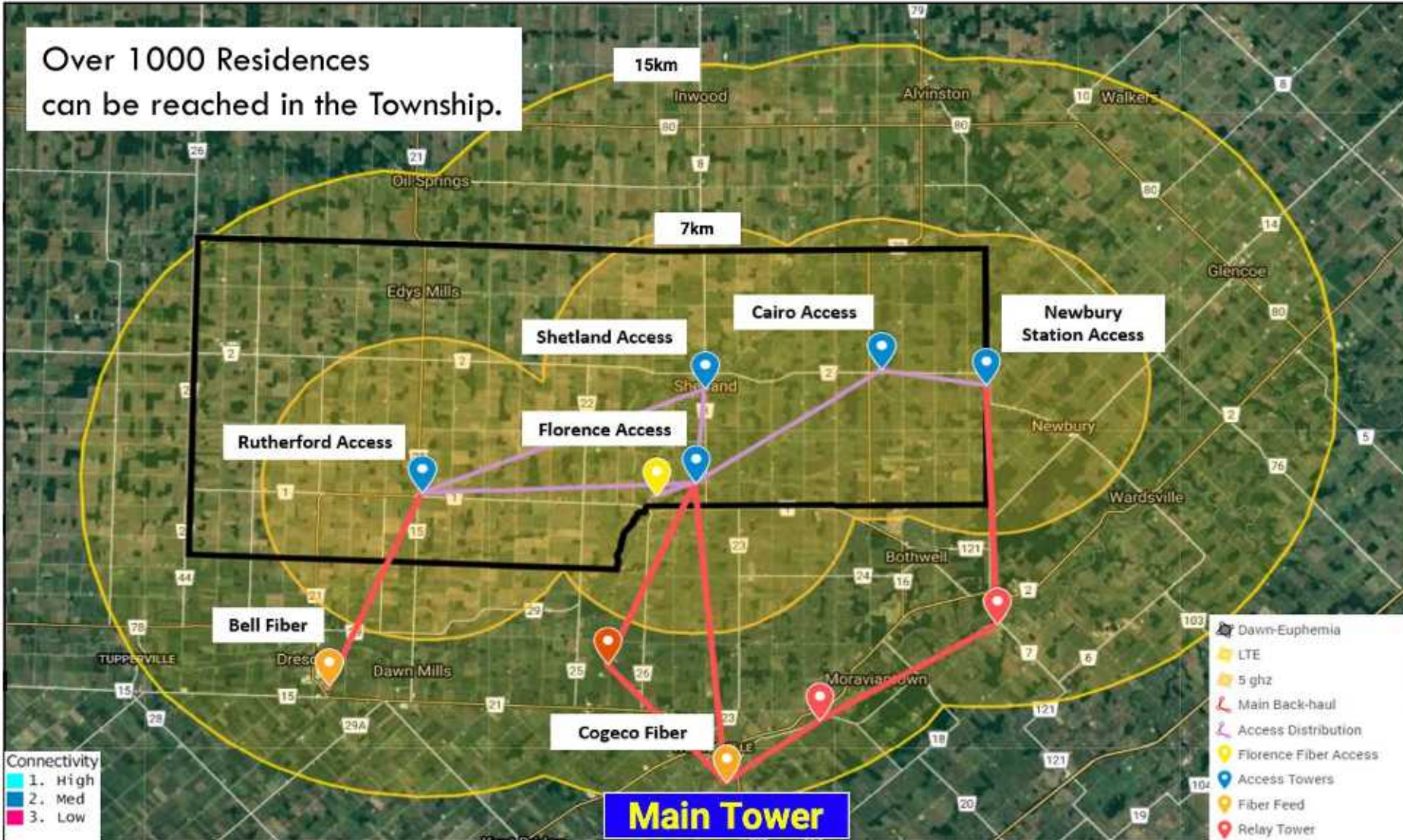- High network reliability and resiliency

CENGN

Providing Middle and Last Km Access Over Open Farmland in Dawn-Euphemia Township

Broadband Project Overview

✓ **New Fibre-Optic Internet Connectivity Throughout the Village of Florence**
  - High-speed Fibre-To-The Home (FTTH) will be available to all homes and businesses in the village

✓ **New Fibre-Speed Fixed Wireless Internet Connectivity in the Hamlet of Shetland**
  - High-speed internet access services will be available to all homes and businesses in the hamlet

✓ **New High Speed Fixed Wireless Services for a Wide Area of the Township**
  - Mix of wireless technologies, throughout the township, and FTTH only where it makes sense

✓ **New High Speed Fixed Wireless Internet Connectivity for those with Dense Tree Cover**
  - Will reduce the need for some residents to require a mini-tower on their property to receive service

✓ **New 250 Foot Backhaul Telecommunications Tower**
  - Will support more network meshing options in the township due to high height

✓ **New Wide Selection of Different Internet Access Plans with NO DATA CAP**
  - Can select from range of throughputs and lower cost options

Overview of New Internet Access for Dawn-Euphemia Township

Over 1000 Residences
can be reached in the Township.

15km

7km

Cairo Access

Shetland Access

Newbury Station Access

Florence Access

Rutherford Access

Bell Fiber

Cogeco Fiber

Main Tower

Connectivity
1. High
2. Med
3. Low

Dawn-Euphemia
LTE
5 ghz
Main Back-haul
Access Distribution
Florence Fiber Access
Access Towers
Fiber Feed
Relay Tower

- **5 distribution "tower" sites** utilized

- **Two different wireless options** for for wide coverage:

  - Higher capacity 5 GHz radio technology
    - 5-7 km out from tower
  - Lower capacity 3.65 GHz technology
    - 7–15 km from tower
    - Better tree foliage penetration

- **Fibre & Wireless** for Florence

- **High-Speed Wireless** for Shetland

- **Dual Fibre Backhaul Connections** to the internet for redundancy

- **Multiple Links** between towers and grain elevators for high reliability

Cost and Technology Innovation

Fixed Wireless POP Extension, with FTTH loop in Village of Florence

Significant Middle Km Cost Reduction   Up to $600,000 Cost Saving

✓ **No New Distribution Tower Builds** - 80% Cost Savings using 4 existing Grain Elevators instead of new towers

Hybrid Backhaul and Distribution Fixed Wireless Technology Innovation

✓ **Unlicensed 5GHz and 24GHz Backhaul Links** — high bandwidth backhaul with no annual license fees

✓ **Unlicensed 60 GHz Last Km Distribution** — 100/100 symmetrical, equivalent to fibre, much lower cost

✓ **Unlicensed 5 GHz Middle km Distribution** — 50/10 high bandwidth service, no annual license fees

✓ **Licensed 3.65 GHz Middle km Distribution** — Better tree penetration, longer distance, no annual license fees

Multiple Installation Projects Completed in Dawn-Euphemia Township

New Backhaul Tower

New 250' Tower Build
- Completed Dec 2020

Village of Florence

Installation of 4 km Optical Fibre Ring
Completed Mid-January 2020
In-service End-November 2020

Hamlet of Shetland

Installation of 60 GHz
Network Installed
In-Service
Sept. 21, 2020

Rest of the Township

Shetland Access
1263 Shetland Rd, Florence, ON N0P 1R0

Cairo Access
7708 Bentpath Line, Bothwell, ON N0P 1C0

Innovative Use of Grain Elevators

Rutherford Access
520 Dawn Mills Rd, Dresden, ON N0P1M0

Florence Fiber Backhaul Tower
6213 Mill St, Florence, ON N0P 1R0

Newbury Station Access
8547 Bentpath Line, Newbury, ON N0L 1Z0

Florence Access
6200 Fansher Rd, Florence, ON N0P 1R0

Installation of 5 GHz
Network Installed
In-Service
Aug. 15, 2020

Installation of 3.65 GHz
Network Complete
In-Service
End-November 2020

Community Benefits of the Project

✅ **High-speed Reliable Broadband Internet Services to Underserved Residents**
  - Fibre to the home access by up to 250 residents
  - Fibre-like FWA service to up to 40 residents
  - High-speed FWA services to additional 700 residents throughout the township

✅ **Future-proof Fibre Access for Florence Residents**
  - Use of fibre to the home ensures even higher speed services could be offered in the future

✅ **Range of High Bandwidth Internet Access Services**
  - Range of price options, and performance options

✅ **Improved Fixed Wireless Options without need for Mini-Tower on Customer Premises**
  - New 3.65GHz service will penetrate tree foliage much better and have longer range

✅ **No DATA CAPS!**
  - No monthly overage charges
  - Also supports the higher bandwidth needs of agribusinesses in the township

Overall Impact of the Project

✅ **High-speed Reliable Broadband FTTH Internet Services to Underserved Residents**
  - Fibre to the home access by up to 300 residents

✅ **High-speed Reliable Broadband FWA Internet Services to Underserved Residents**
  - Wireless access for up to 700 additional residents

✅ **Potential Spin-Off Projects for Dawn-Euphemia Area**
  - Many other nearby rural areas could benefit from the design approach used for this township.

✅ **300% Business Growth for MPV wifi in the Dawn-Euphemia Area**
  - Vastly expanded the MPV Wifi coverage area, new backhaul can also support other nearby townships

Contacts for More Information

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