

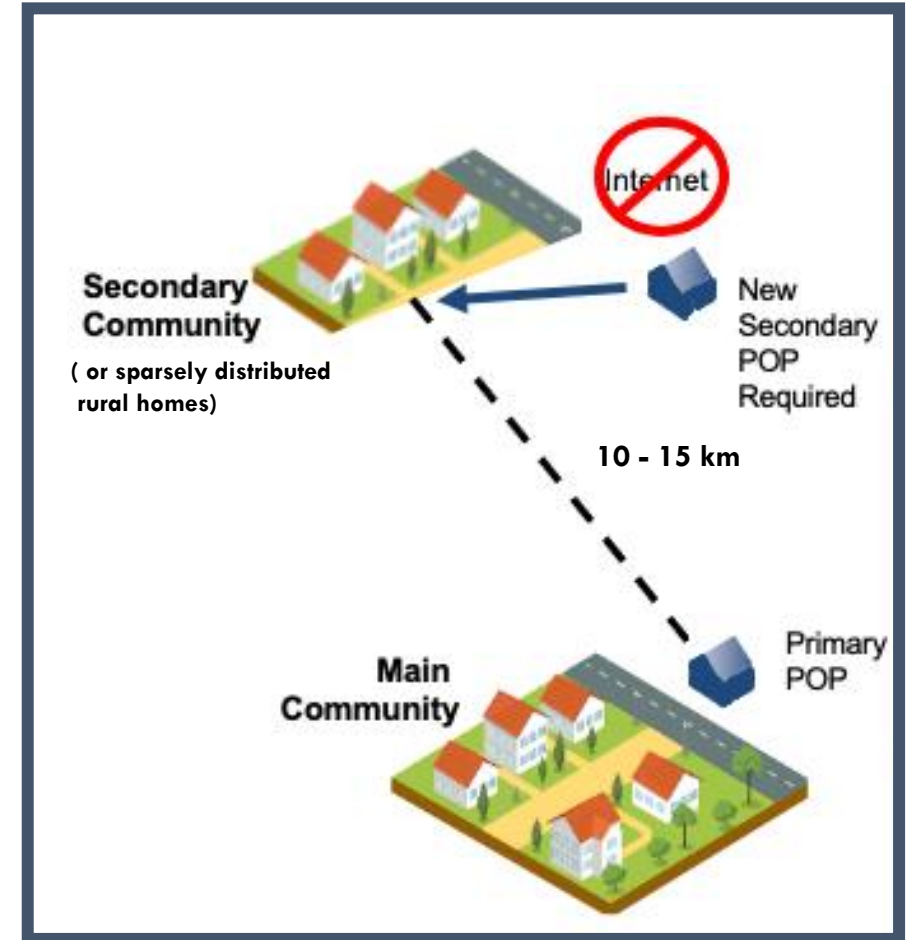


Providing Middle
and Last Km Access
Over Open Farmland
in Dawn-Euphemia
Township

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 across flat expanses of farmland with a limited number of trees.



Selected Service Provider



Headquartered in
Thamesville, Ontario

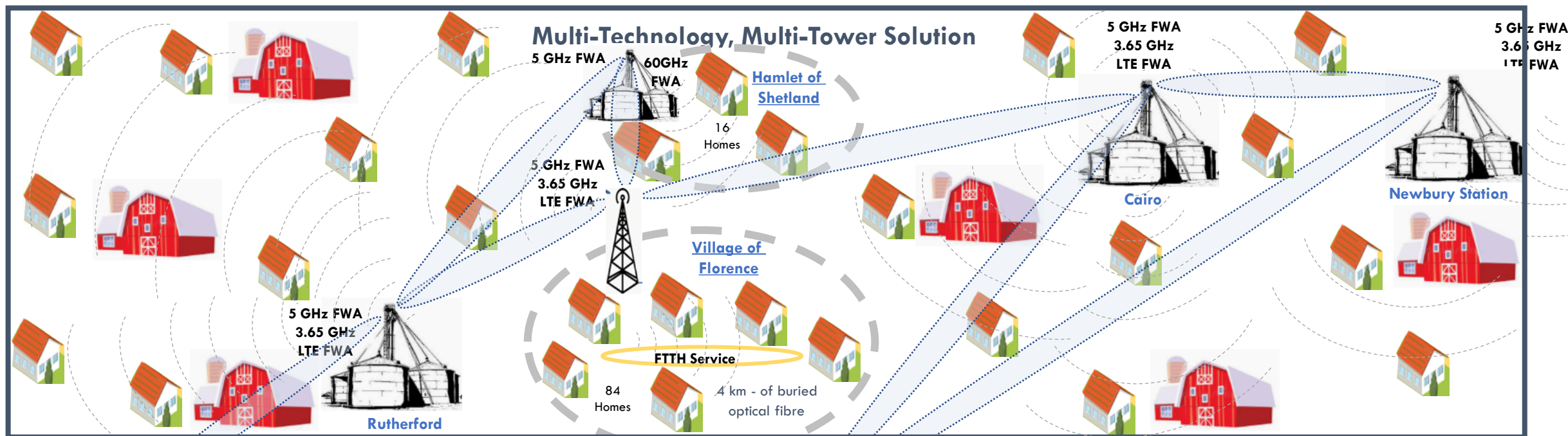
Key Strengths of MPV Wifi for Residents

- **Extensive Experience** - installing wireless networks in Rural Ontario
- **Local Internet Service Provider**
- **Strong Understanding of Rural and Farming Clients** needs
- **Wide Coverage** of high-quality wireless internet access for the township
- **Multiple Types of Wireless Services** to deal with open spaces or dense tree cover
- **Unlimited Data Plans** – No data cap or unexpected overage charges
- **Wide range of Pricing and Capacity Options** for internet access services

Rural Ontario Community Experience

- **Already Serving Dawn-Euphemia Township**
- **Currently also offers internet access services in Chatham-Kent, Middlesex County, and Elgin County**
- **Over 40 towers** in MPV Wifi Network
- **600 Residential Customers** in Southwestern Ontario

Extending Broadband Throughout Dawn-Euphemia Township



- ✓ **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



- ✓ **Use Existing Grain Elevators as Towers**
 - Reduced tower build costs by 80%
- ✓ **Mesh Network and Redundant Backhaul**
 - High network reliability and resiliency

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 who currently would require a tower on their property to receive service



New 200 Foot Backhaul Telecommunications Tower

- Will support more network meshing options in the township due to high height

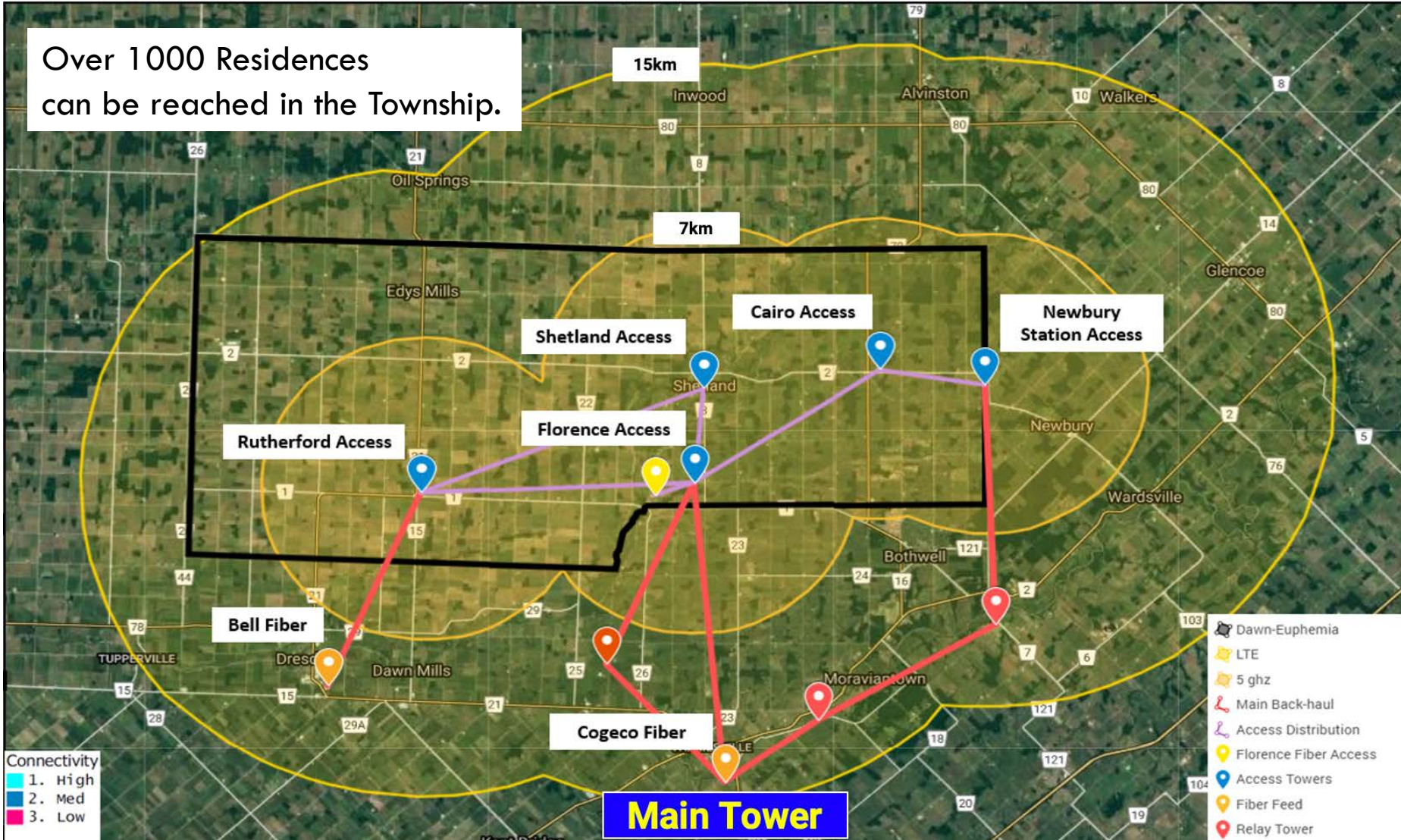


New Wide Selection of Different Internet Access Plans with NO DATA CAP

- Can select from selection of throughputs and lower cost options

Overview of New Internet Access for Dawn-Euphemia Township

Over 1000 Residences can be reached in the Township.



- 5 distribution “tower” sites utilized
- Two different wireless options 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 & 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

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



Rutherford Access

520 Dawn Mills Rd, Dresden, ON N0P1M0



Newbury Station Access

8547 Bentpath Line, Newbury, ON N0L 1Z0



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

Cairo Access

7708 Bentpath Line, Bothwell, ON N0P 1C0



Innovative Use of Grain Elevators

Florence Fiber Backhaul Tower

6213 Mill St, Florence, ON N0P 1R0








Florence Access

6200 Fansher Rd, Florence, ON N0P 1R0







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

Community Benefits of 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 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 opens up other nearby townships

Contacts for More Information

Kirby Koster

CENGN

Senior Manager,
Broadband Programs

kirby.koster@cengn.ca

1-613-291-0707

Donna Clermont

Dawn-Euphemia Township

Administrator-Clerk,

clerk@dawneuphemia.on.ca

1-519-692-5148

Matthew Vanheule

MPV wifi

Owner,
IT/Network Operations

support@mpvwifi.com

1-519-436-7846



THANK YOU!