CENGN

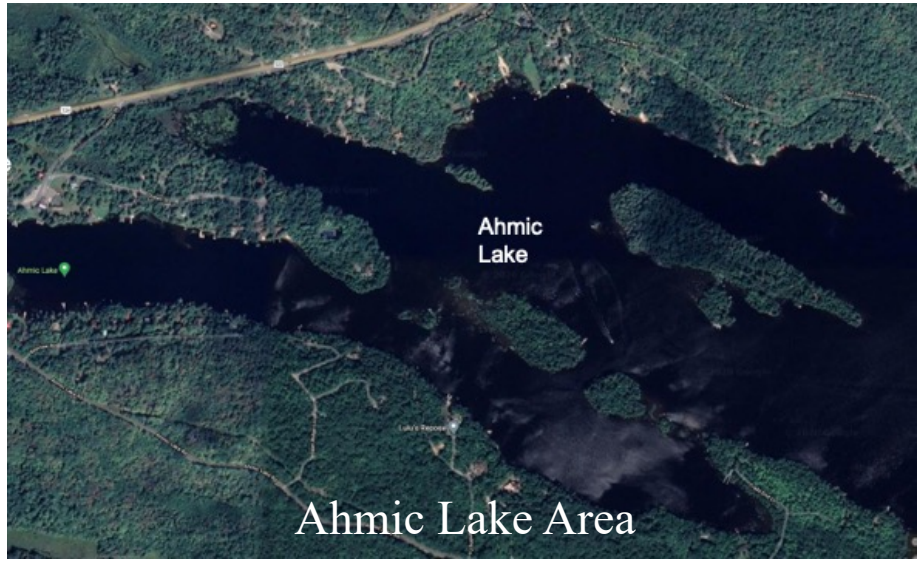
Ahmic Harbour & Ahmic Lake Project Overview

Mar.22, 2022

Northern Project#3 – Problem Statement

Village of Magnetawan


Village of Ahmic Harbour

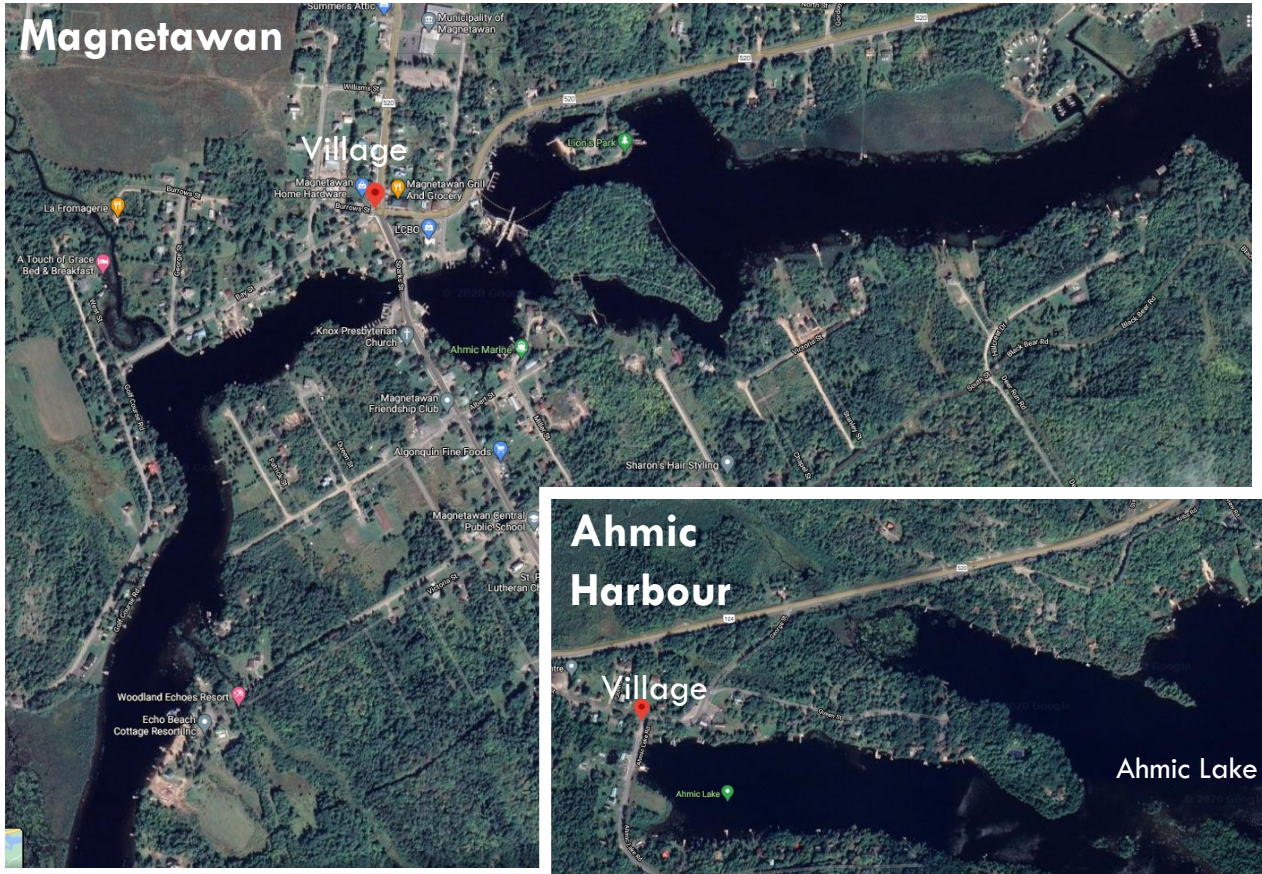


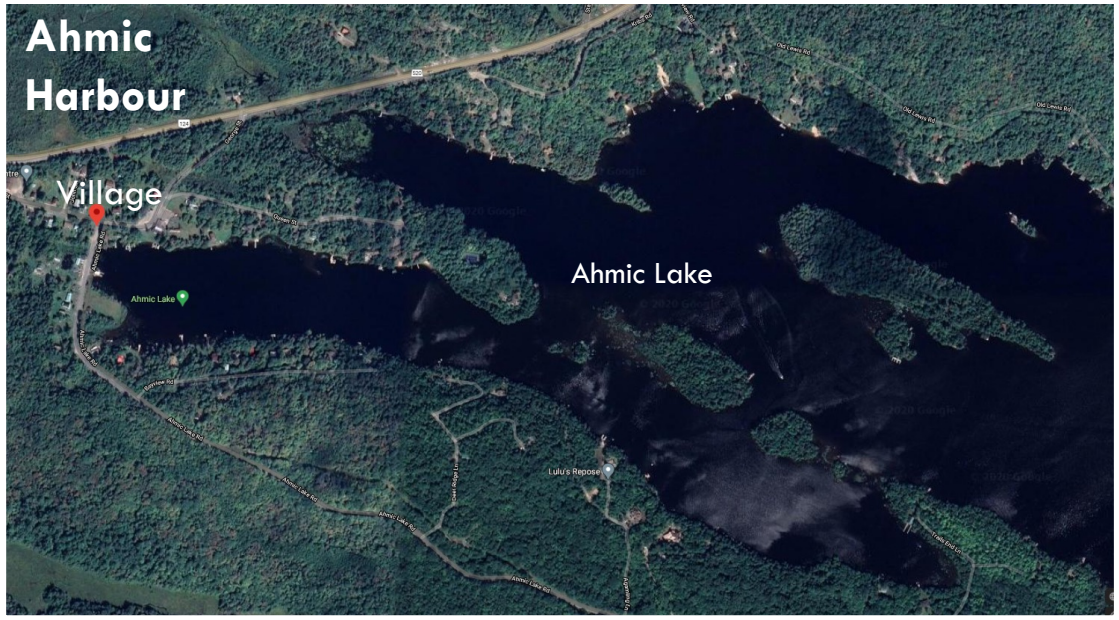
Ahmic Lake Area

The technology design proposed for the project must extend broadband services from an existing broadband POP in a waterfront community to nearby homes or residences, with limited or no broadband high-speed internet access, that are across and surrounding a large nearby waterbody (such as a lake, river, or extended wetland).

The required solution will extend broadband capacity directly from an existing broadband POP within the selected host northern Ontario waterfront community, or using a network of extended POPs, access the outlying waterfront and nearby homes to extend residential broadband access for homes and cottages up to 3-5 km away .

Ahmic Harbour and Ahmic Lake Area





Municipality of Magnetawan
- Ahmic Harbour/Ahmic Lake Selected

- Primary POP will be extended from the Village of Magnetawan to Ahmic Harbour
- Both communities have significant broadband deficiencies
- Second POP access in Dunchurch for Internet Backhaul
- Municipal tower, and Net Spectrum tower options exist
- Larger water body and number of homes on Ahmic Lake
- Lots of opportunities for subsequent phases to expand

Village of Ahmic Harbour

Municipality of Magnetawan

Village of Ahmic Harbour

- At least 50 homes in the village area
- 100s of homes and cottages across the lake
- Homes extend both directions down the arm and across the lake
- Opportunity as either a primary funded or secondary unfunded phase

Ahmic Lake

- Large Number of homes and Cottages across and down the lake from the village

Technology Overview

Combination of 3.65 GHz and 5.0 GHz Wireless Solution Proposed

- Combination of wireless technology for distribution/last km
- Prepared to use an optical POP location in a community and extend the POP out to the community using wireless network
- Building 3 towers on both sides of Ahmic Lake

Using Hybrid Radio Solutions

- Proposed mix of radio technology to deal with unique community conditions
- 25/5 service using LTE internet access
- 50/10 service using 5.0GHz internet access

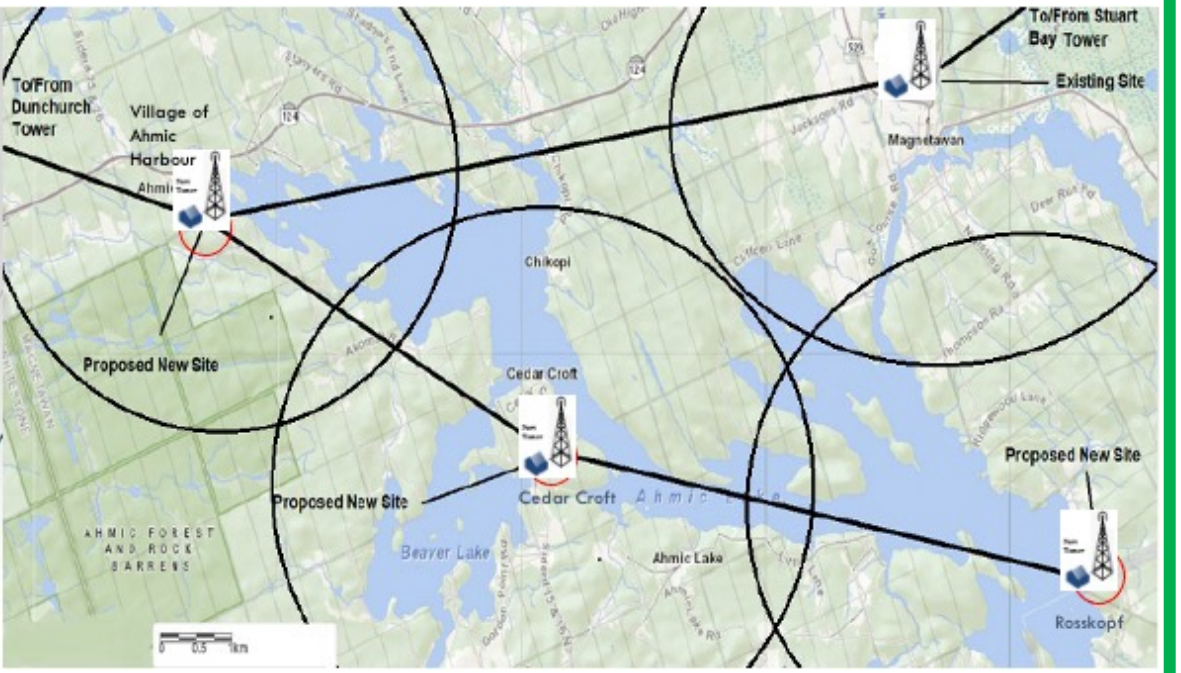
Self-supporting Tower Design Proposed

- Well suited to unused road allowance sites along the lake cottage-access roads

Strengths of Spectrum Telecom

- Local ISP
- Well Established and Experienced
  - 130 towers across northern Ontario
- Northern Ontario Experience
  - Many communities across northern Ontario
- Head Office in Sudbury. Branch offices in North Bay, Timmons, Sault Ste. Marie, Thunder Bay, and Kenora.
- Detailed understanding of municipal permitting, ISED licensing, tower approvals, and hydro pole access requirements.
- Innovative targeted approach for large lake coverage and narrow road allowance tower sites.
- In-house tower site acquisition department

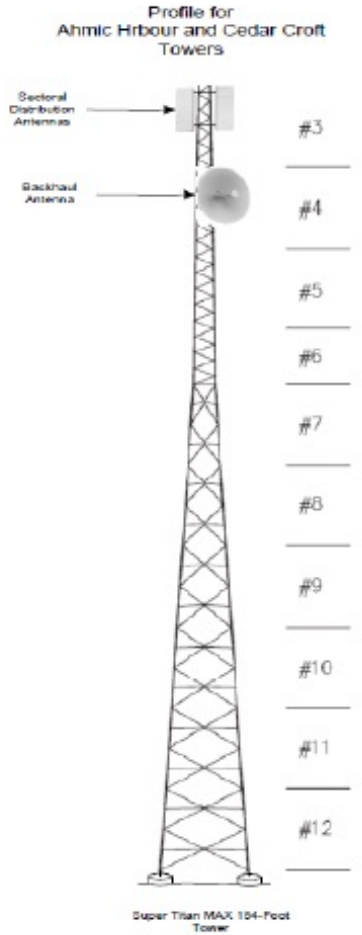
Advantages of Multi-Tower Radio Design



- **Interconnection of Sites for Higher Reliability**
- **Radio Signals from Different Directions** to reduce or eliminate radio shadows, more reliable service
- **Options for Redundant Internet Backhaul** to improve reliability and do load sharing
- **Higher bandwidth internet access** because stronger signals are available for internet access.
- **Much wider coverage down each arm of Ahmic Lake** will improve coverage for both seasonal and permanent residents.

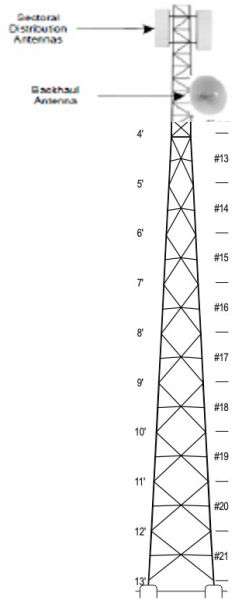
Self-Supporting Towers Built

Ahmic Harbour and Cedar Croft Tower Design



184 ft Tower

Rosskopf Tower Design



120 ft Tower

- Higher cost but significantly smaller footprint
- Towers fit on narrow unused road allowances where guyed towers would not fit
- Spacious secure climate-controlled equipment shed for each tower

- Also used an upgraded pre-existing 300 ft. guyed tower in the village of Magnetawan

Key Innovation – Small Footprint, Self Supporting Towers on Unused Road Allowance

Fully Operational Jan.20, 2022

Fully Operational Feb.11, 2022

Fully Operational Mar.03, 2022

Technology Innovation

Multi-tower Placement on Both Sides of Ahmic Lake

- Ensure wider coverage of entire lake shores and minimizes radio shadow impacts at shorelines

Self-supporting Tower Design to Minimize Tower Footprint

- Small tower footprint allows tower to fit on unused road allowances

4 Tower Design Offers Ability to Mesh and Triangulate for High Resiliency

Dual Internet Backhaul for High Availability and Load-sharing

- Access to dual internet gateways in Sudbury, and 3rd internet gateway in North Bay

50/10 Access Point Support with Low Latency

- Support for up to 238 subscribers per Access Point sector
- Low latency (10ms is typical)
- Encrypted Links
- Multi-user MIMO

Your Local Community ISP Spectrum Telecom

NETSPECTRUM.ca INTERNET SOLUTIONS

Headquartered in Sudbury, Ontario

Local wireless Internet Service Provider (ISP) for Magnetawan area, committed to provide high quality, high bandwidth, and affordably priced internet access.

- **Experienced wireless residential and commercial Internet Service Provider** (ISP)
- **Multiple wireless options** to maximize service quality, download speeds and customer satisfaction.
- **High quality protected network design** to ensure your access to the internet stays up
- **Affordably priced high-performance broadband access** – no data cap, low prices, no contract
- **Great customer support and service** – based in Sudbury, with local support staff in the area

Community Benefits of Project

High-speed Reliable Broadband Internet Services to Underserved Residents

- Fixed wireless access to the home for up to residents
- No data cap!! Range of internet access charges.

Multiple Wireless Options for Access to Residents

- Choice of technology depending on speed of access desired

This technology solution could be extended to the other nearby communities easily

- Significantly reduced incremental cost per community

New 25/5 and 50/10 Internet Access Services for Village of Ahmic Harbour and Ahmic Lake Area

- No data cap

New 25/5 and 50/10 Internet Access Services for Village of Magnetawan

- No data cap

THANK YOU!

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