



# Rural Broadband Internet Huron Shores & Manitoulin Island Community Owned Fibre Infrastructure

Technology Options for Building the Network  
December 6, 2020

Ensuring Our Future Through a  
Community Owned Network

# Community Solution for Regional Broadband

- Our Region has always had subpar telecommunications
- Years behind the technology available to suburban & urban Canada
- HNCEA, Blue Sky Net had issued RFPs in late 2019
- A unique opportunity was presented, and they chose not to pursue
- The concept of a community owned network should be considered
- Historically, Governments address the issue every 20 years
- We want to control our destiny through H&M COFI
- This presentation explains why and how it would meet our needs

The Ministry's Support will set the course for success

# Huron Shore and Manitoulin Island

- The region between Sudbury and Sault Sainte Marie is a prime Economic Development Zone.
- Located on the Northern Coast of Lake Huron
- Many Northern focused Industries
- Having the largest freshwater island
- An under-utilized Inland Archipelago

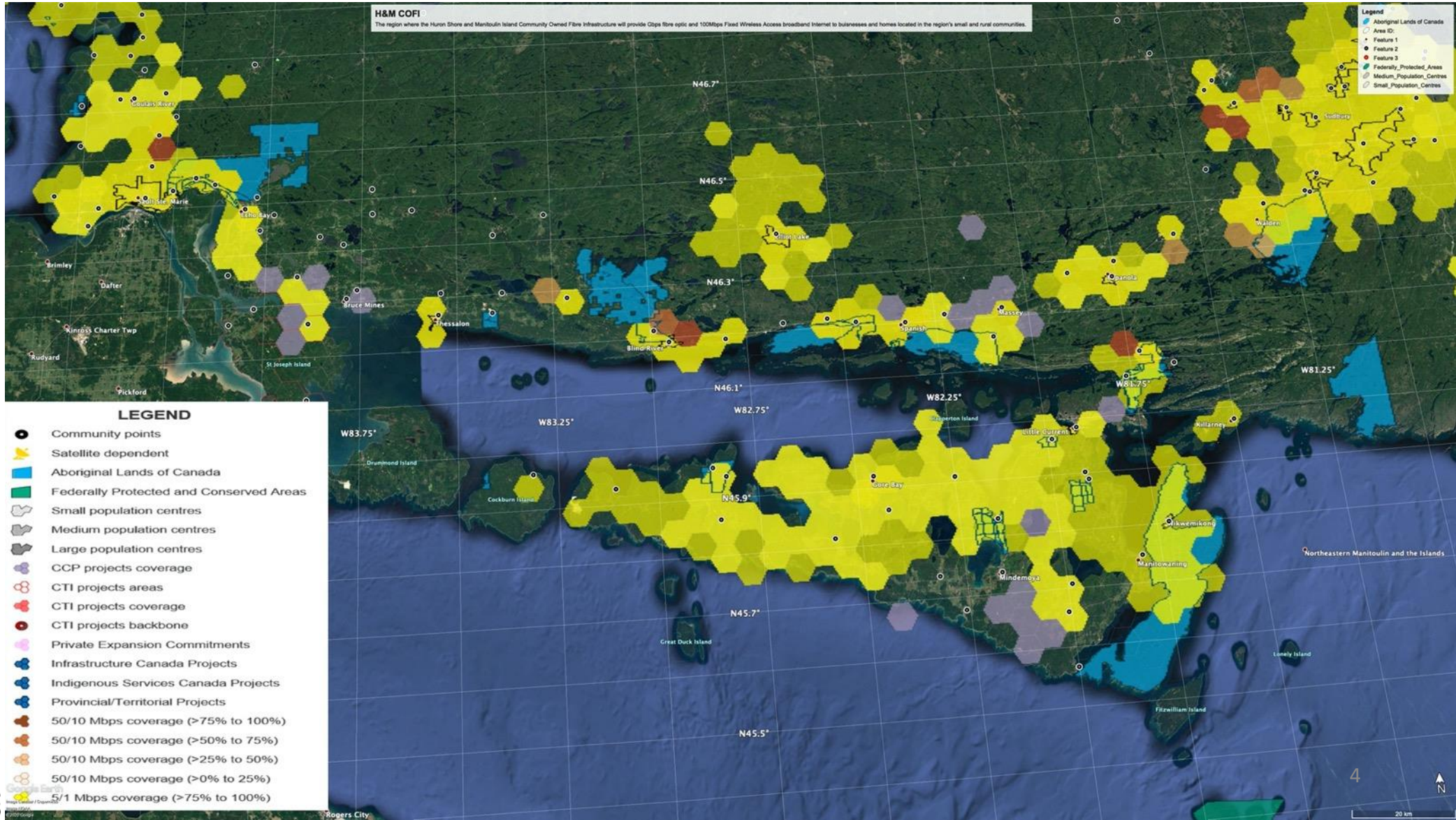
To bring our Region into the 21 Century we require

## Real Broadband Internet

Our Community Owned Fibre Infrastructure will provide Giga Bit Data Rates  
Securing Future Technological Improvements



# Current Rural Broadband Internet (Sep 2020)



# Our Community's Internet Pain

The most populated and popular corridor in Northern Ontario is:

- Underserved
- Disguised data caps through data throttling
- Always 10 to 20 years behind suburban & urban Canada
- Very expensive service
- Poor service and low speeds
- Limited Internet options

We have to upgrade the network, “Which technology or Mix of Technologies should be used?”

# NETWORK TECHNOLOGY OPTIONS

Objectives	Current				
	Cable/ Copper	Traditional Satellite	Fixed Wireless	Optical/ Fibre	Future, LEO Satellite
Low Equipment Cost	X	X	✓	X	X
Low Installation Cost	X	X	✓	X	X
Low Subscription Cost	X	X	✓	X	✓
Low Operational Cost	X	X	X	✓	X
Long Technology Lifecycle	X	✓	X	✓	TBD
High Performance	X	X	-	✓	-
Performance Limitations	Throughput Distance Cable	Throughput Weather Foliage Latency	Throughput Distance Foliage	✓	Throughput Weather Foliage
Low Latency	✓	X	✓	✓	-

Source: Centre of Excellence in Next Generation Networks

Future Technology

# NETWORK TECHNOLOGY OPTIONS

Objectives	Current				
	Cable/ Copper	Traditional Satellite	Fixed Wireless	Optical/ Fibre	Future, LEO Satellite
Typical Download Speed (Mbps)	5 -10	< 5	25	1,000	25
Maximum Download Speed (Mbps)	20	5	50	100,000	100
Typical Price / Month	\$60-\$100	\$100-\$250	\$100-\$150	\$100-\$200	\$100 Target
Replacement Cycle (Years)	Obsolete	Obsolete	5-7	30+	5-7
Open to Multiple Providers	YES	NO	Optional	YES	NO
Community Network Available	NO	NO	YES	YES	NO
HDTV, VoIP, Netflix 8K	NO	NO	NO	YES	NO
Economic Development Potential	NO	NO	NO	YES	NO

Future Technology

Source: ROCK Networks market research





# Technologies Available for Next Generation Internet: Fixed Wireless Access

- Xplornet LTE 25 is an example
- Spectrum is available as licensed (Xplornet) or Unlicensed (Wireless ISP)
- Based on either an 4G LTE technology (licensed) or WiFi (unlicensed)
- Unlicensed is subject to interference which limits throughput as more subscribers join the network
- Frequencies are 2.4 GHz, 5.8 GHz, 3.65 GHz and 600 MHz (TV White Space)
- Forecasted bandwidth 25 Mbps to 50 Mbps
- Price for User Device including external antenna \$250 - \$500 CDN
- Availability: NOW



# Technologies Available for Next Generation Internet: Low Earth Orbit Satellite

- Starlink (Elon Musk) is an example
- Other providers include Telesat (Canada), OneWeb (UK and India) and Kupier (Amazon)
- Require many satellites to offer a service
- Forecasted bandwidth 50 Mbps to 100 Mbps
- Price for User Device including external antenna \$600 - \$1000 CDN
- Availability: Starlink is in Beta trial now, Other providers are looking at late 2021-2024 timeframe for deployment

# Technologies Available for Next Generation Internet: Fiber to the Home (FTTH)

- Bell Fibe and Rogers Ignite are examples
- Other providers include Telus, Shaw, Eastlink and Community Broadband Networks such as Pictou County
- Bandwidth: 100 Mbps, 1000 Mbps (1 Gbps), 10 Gbps, 100 Gbps
- Bandwidth is essentially unlimited
- Highest Cost to deploy but the longest-lived asset (30-50 years)
- Availability: Service is available now
- Fiber is FUTURE PROOF!
  - Fixed Wireless Access or Satellite is NOT

# Fiber Optics vs. Traditional Copper / Coax

- **Fibre optics has several advantages over traditional metal communications lines:**
- Fibre optic cables have a much greater bandwidth than metal cables. This means that they can carry more data so you will not see a reduction of speed when your neighbours are all online at the same time as you.
- Fibre optic cables use digital signals (the natural form for computer data) rather than electrical, so they are not susceptible to interference from other electrical devices or radio signals.
- Fibre optic cables are much thinner and lighter than metal wires, so more fibres can be bundled into a given diameter of cable. Yet they are 4-8 times stronger, making them less likely to be damaged. This means your service is much more reliable!
- Because no electricity is passed through optical fibres, there is no fire hazard.
- Data is more secure because, unlike traditional copper wires, it is not possible to tap into a glass line without breaking it.
- Fibre-optic systems are revolutionizing telecommunications! Fibre is often said to be "future-proof" because the data is transmitted at the speed of light, so the rate of the connection is usually limited by the equipment rather than the fibre. This will permit substantial speed improvements by equipment upgrades long before the fibre itself must be upgraded.





# HIGH-SPEED INTERNET BUILT BY US FOR US

## The Vision

### COMMUNITY BROADBAND NETWORK



#### Affordable & High Quality

Serve all residential and commercial needs.



#### Equitable

Fundamental to the future economic and social prosperity, it is for all citizens and businesses; 100% coverage.



#### Municipally-Governed

It will be governed by Community Internet Board. A revenue return to the Municipalities from network usage.



#### Future-Proof

It is based on technologies that are flexible and adaptable to future changes.



#### Open Access

The network is based on a competitive Carrier-neutral model.

# The Value of the Telecommunication Dollar

- There are 17,500 and 13,500 homes in the H&M Corridor
- Based on \$100/month average price for Internet Service over 10 Years
- 31,000 homes x \$100 x 12 months x 10 years
- There is a potential of \$372M in revenue
  - Add \$50 per month for TV and Phone is an additional \$186M
- 60% Take up rate results in \$223M Baseline and \$112M extra for TV and Phone



# Why H&M COFI

- H&M COFI
  - Provides 100% coverage for the region
  - Delivering 50/10 Mbps or higher (1 Gbps is the goal)
  - In a competitive market offering the best price
- H&M COFI is the infrastructure and any ISP may operate on it
  - All ISPs can benefit, NOT just ONE Company
  - New ISPs can be started by local entrepreneurs enabling additional local jobs
- Current funding models only support large providers or Partial Solutions
  - Limiting competition
  - Only coverage for areas that deliver on their investment
- H&M COFI enables local economic development increase through keeping more telecom \$ funds in the community
  - Satellite has 0% Telecom \$ impact as the funds will leave to the US
  - FWA has some impact if a local ISP builds it. If not the funds leave the community
  - Only an Open Access Community based network enables the recycling of the telecom \$



# Next Steps

- Complete the H&M COFI Internet survey
  - If you wish to be a champion register on the survey site, and
  - Connect to the Facebook page and share amongst your friends.

Community Owned Networks is the solution to support  
Rural Broadband in Canada

**Your support will lead the way.**

# Thank You

## Questions and Discussion

Mayor Georges Bilodeau – [Mayor.Bilodeau@HuronShores.CA](mailto:Mayor.Bilodeau@HuronShores.CA)

Joe Hickey, President and CEO – [Joe.Hickey@ROCKNetworks.Com](mailto:Joe.Hickey@ROCKNetworks.Com)

Michael Groh, Technical Advisor – [Michael.Groh@ROCKNetworks.Com](mailto:Michael.Groh@ROCKNetworks.Com)