Rogers Site C9793

PROPOSED 90M GUYED TOWER

TOWN OF THE BLUE MOUNTAINS

Why do we need towers?

- Wireless telecom facilities are like a puzzle piece in a very complex radio network, working together to fill gaps and spread signal without overlapping
- As people rely more on wireless devices network improvements are required to ensure high quality voice and data services are available.

<u>Benefits of the telecom towers include:</u>

- Closing coverage gaps
  - Improve areas with low/no signal strength (no/low bars) to enhance connectivity for users
- Increased capacity on networks
  - Enhance areas with existing signal but poor call quality or slow data speeds to ensure seamless communication and browsing
    - Fixing areas you have bars, but cannot make a call/lack speeds and connection
- Increased public safety
  - Enable more reliable and widespread emergency services, including the ability for EMS to remotely assess and assist patients in transit using advanced 5G technologies.
- Improved municipal services & tourism experience
  - Boost local tourism by enabling visitors to share their experiences instantly on social media, attracting more tourists and promoting the area.
  - Facilitate efficient municipal operations with 5G-enabled services for online applications, virtual council meetings, and real-time event notifications to residents.
- Allows future development and new technology
  - Deploying 5G towers designed to accommodate both current and future technologies, enabling scalable network growth without significant infrastructure expansion.

Search Area of proposed tower

Rogers RF engineers determined a new 90m guyed tower would be required to satisfy coverage requirements in this area.

The defined search area surrounds Grey Rd 2 & Grey Rd 119. The primary area of concern for the tower to cover is Ravenna, and to take out roaming traffic data.

ROGERS WIRELESS — RADIO ENGINEERING DEPARTMENT

ABBREVIATED SEARCH MAP

SITE NAME: Beaver Valley Rd	**LOCATION CODE:** C9793
RF PLANNER: [redacted]	**TELEPHONE #:** [redacted]
DATE: 2023-05-03	

Proposed Search Map Centre: **Lat:** 44.468941 **Long:** -80.422833

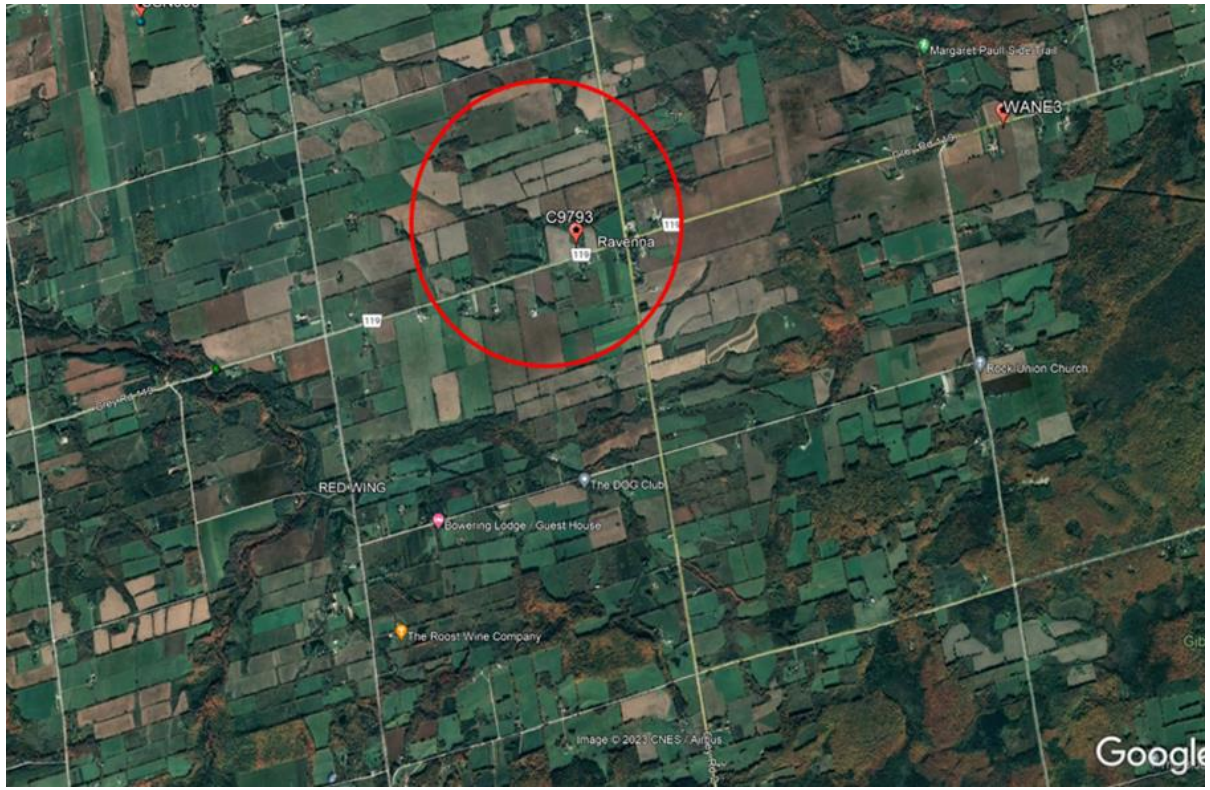
SITE DESCRIPTION: This will be a 6 sectored LTE/5G site. It will also accommodate antennas and equipment for future technology services.

Proposed Antenna Mounting Height: 90m Guyed tower

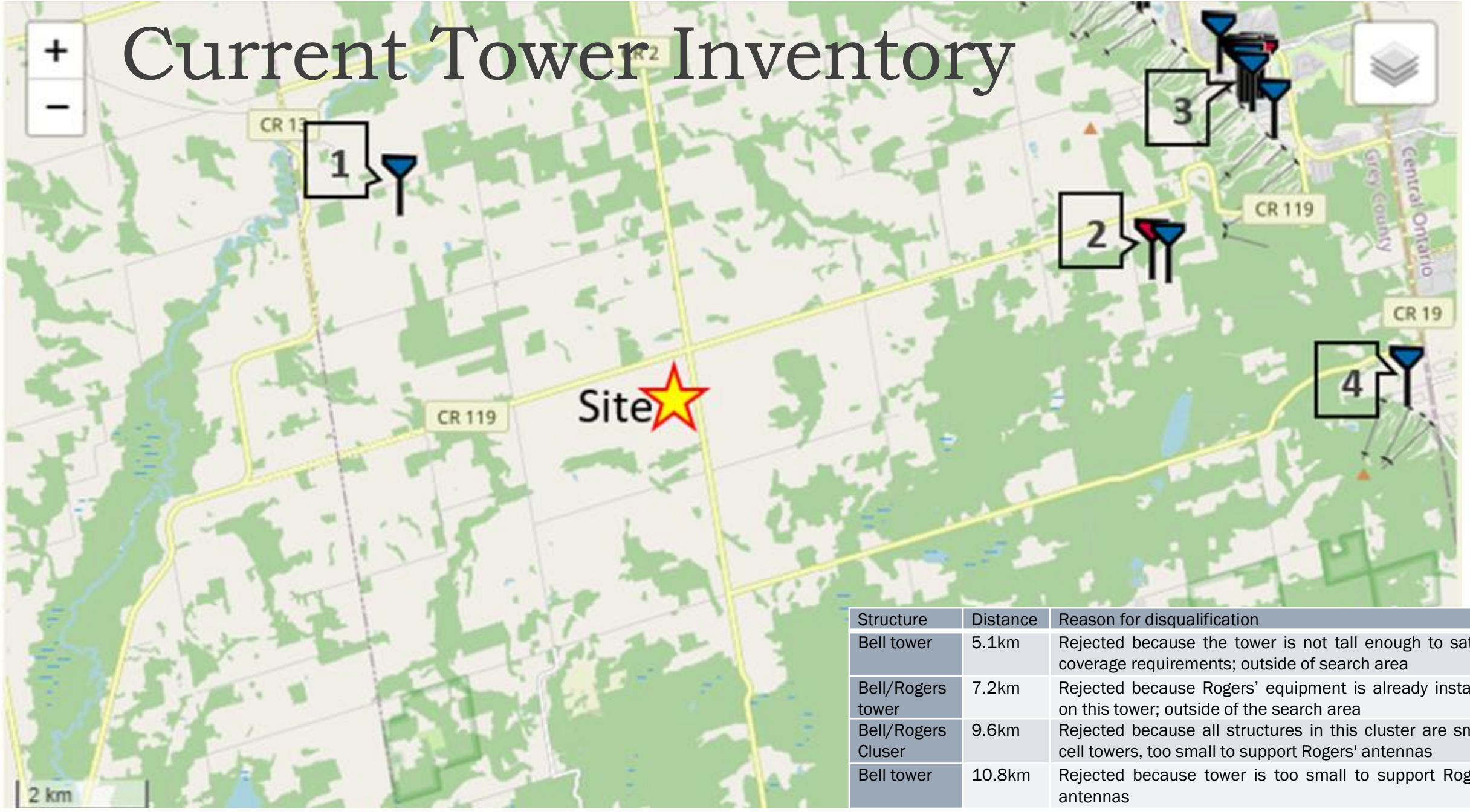
Candidates: the attached search map shows the limits of the proposed candidate.

Co-locates: NA

Special Comments: NA



Current Tower Inventory



Structure	Distance	Reason for disqualification
Bell tower	5.1km	Rejected because the tower is not tall enough to satisfy coverage requirements; outside of search area
Bell/Rogers tower	7.2km	Rejected because Rogers' equipment is already installed on this tower; outside of the search area
Bell/Rogers Cluser	9.6km	Rejected because all structures in this cluster are small-cell towers, too small to support Rogers' antennas
Bell tower	10.8km	Rejected because tower is too small to support Rogers' antennas

There are no existing towers which may be used for co-location within 2km and a new structure must be built to address the coverage deficiency.

Site Selection Considerations

- Technical Compliance: The proposed candidate meets all technical requirements for radio frequency and transmission specifications. It offers the optimal conditions for maintaining reliable wireless voice and data services in the targeted area.
- Environmental Considerations: The location of the proposed candidate minimizes its impact on environmentally sensitive areas such as the Long Point Region Conservation Authority (LPRCA) and Provincially Significant Wetlands (PSW). By maintaining required setbacks and distances, the proposed tower respects environmental regulations and preserves natural habitats.
- Residential Mitigation: Our priority was to mitigate the impact on nearby residential areas. The proposed candidate achieves this by minimizing the number of properties within the specified separation distance guidelines. This strategic placement ensures that only a limited number of private properties are within proximity to the tower, reducing visual and environmental disruptions.
- Operational Viability: Shifting the tower to other locations on the property or to alternative properties would not only compromise technical requirements but also disrupt daily farming operations on the property. The proposed candidate strikes a balance between operational viability and regulatory compliance.
- Community Impact: Placing the tower further back in the field or in alternative locations would not necessarily alleviate concerns but could instead create new challenges. The current proposed location optimizes coverage while mitigating impacts to the greatest extent possible.
- Visibility Considerations: We understand the landscape's limitations and have implemented measures to address visual concerns. Dense treed areas and forests to the north and west of the proposed site provide substantial visual mitigation. Additionally, existing hydro lines are utilized, and the tower's design blends with similar infrastructure, aligning with principles of visual mitigation.
- Agreeable Landlord: Notwithstanding all the considerations and constraints, we must have an agreeable landlord, and find a location on their property they agree to.

Tower Selection

Monopole Tower

- Available Heights: 25m – 35m
- Compound Space Required: 10 x 10m

Typical Site Conditions:

- Urban areas
- Commercial plazas
- Parking lots
- Limited compound areas

Site Notes:

- Monopole tower limits possibility of co-location of additional carriers' antennas
- Monopole tower does not allow for same size of MW dishes, required for rural application
- Monopole tower is very costly, and requires extra maintenance
- Monopole tower is only used in urban applications, with large population close to tower's signal
- Monopole tower does not allow for required height for this application

Disqualified

Lattice Tripole Tower

- Available Heights: 25m-35m
- Compound Space Required: 15 x 15m

Typical Site Conditions:

- Rural & Urban zoned areas
- Commercial Plazas
- Parking lots
- Highways
- Limited compound areas

Site Notes:

- Tripole support co-location of additional antennas
- Tripole tower offers higher capacity of antennas for future projects & able to accommodate larger MW dishes enabling it to serve rural applications compared to Monopoles
- Enhanced MW reliability compared to monopole due to its higher resistance to twist & tilt
- Lower cost with longer maintenance cycle compared to monopole
- Tripole tower does not allow for required height for this application

Disqualified

Tower Selection

Self Support Tower

- Available Heights: 40m-60m
- Compound Space Required: 25 x 25m

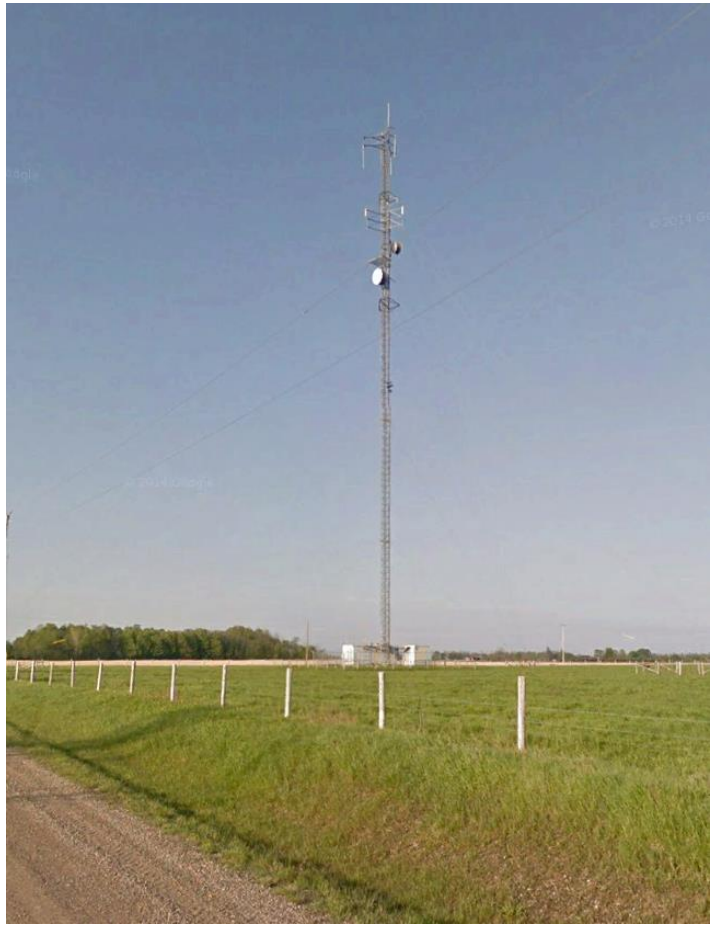
Typical Site Conditions:

- Rural & Urban zoned higher elevation areas
- Industrial properties
- Heavy forests
- Farmlands with limited space

Site Notes:

- Self-support tower does not offer required height
- Self-support tower requires much larger compound space
- Self support tower would use less farmland overall, but require larger areas at base be cut
- Self-support tower offers less visual mitigation strategies between the increased tower structure supports and the enlarged compound size

Disqualified



Guyed Tower

- Available Heights: 70m-125m
- Compound Space Required: 15 x 15m

Typical Site Conditions:

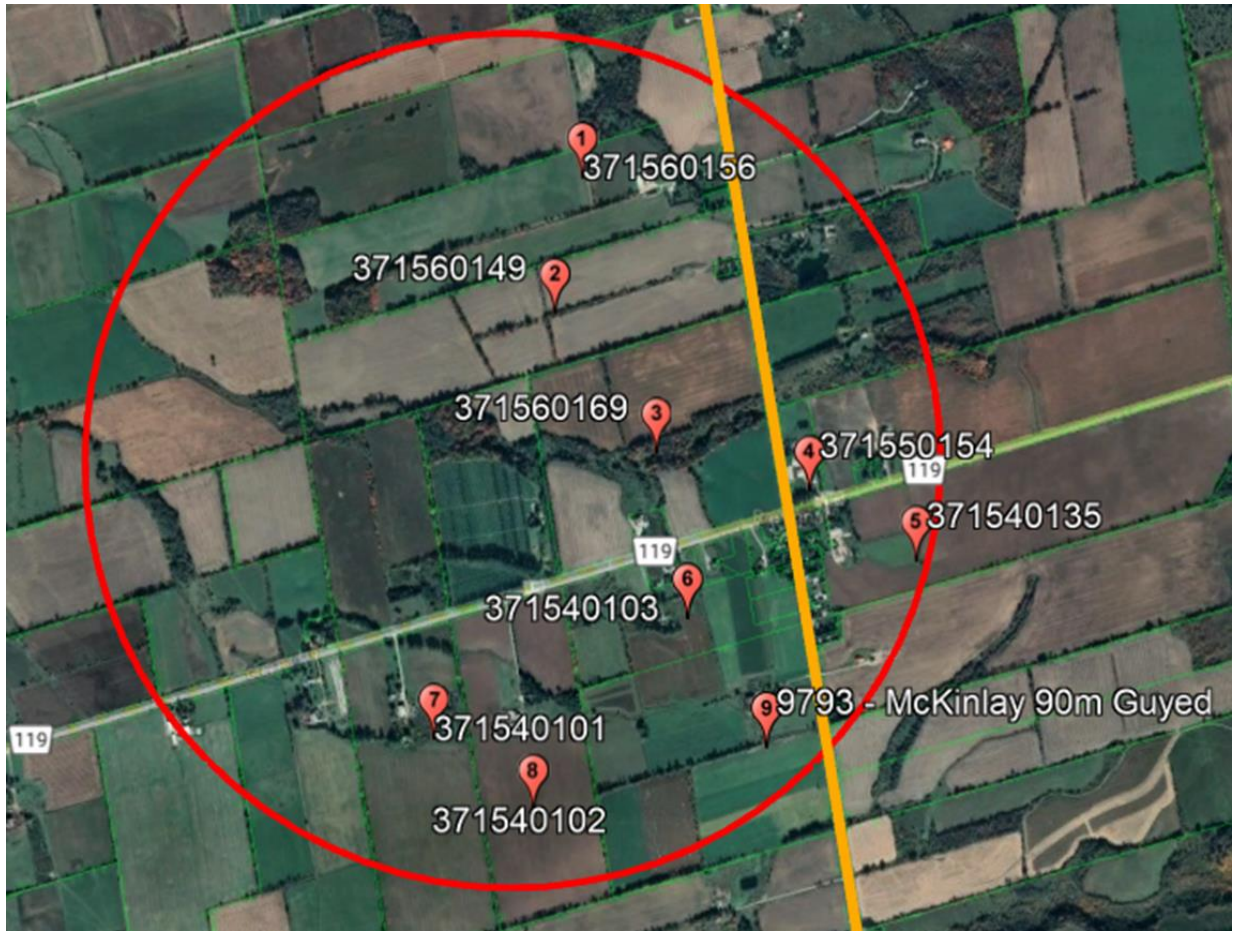
- Rural & Urban zoned areas
- Farmlands
- Forests
- Industrial properties
- Properties where land-size permits

Site Notes:

- Guyed tower allows for required height
- Guyed tower requires less compound space
- Guy wires allows landlord to safely maneuver farming equipment around and under guy wires
- Guyed tower offers greater visual mitigation opportunities with the tower being a much narrower structure that because much less visible as the distance from tower increases, and with smaller compound space required

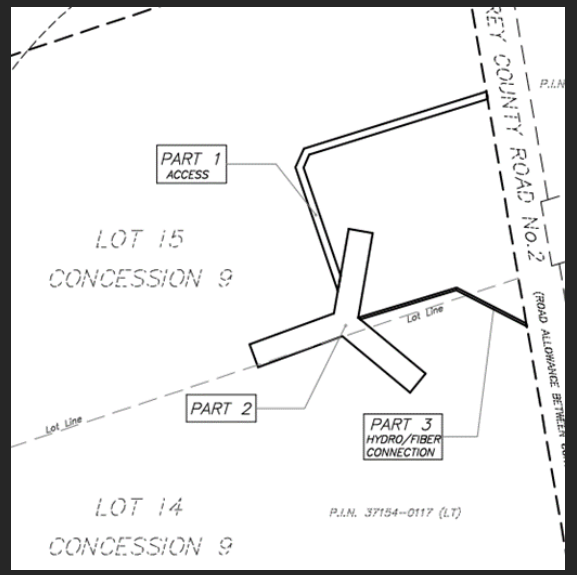
Qualified

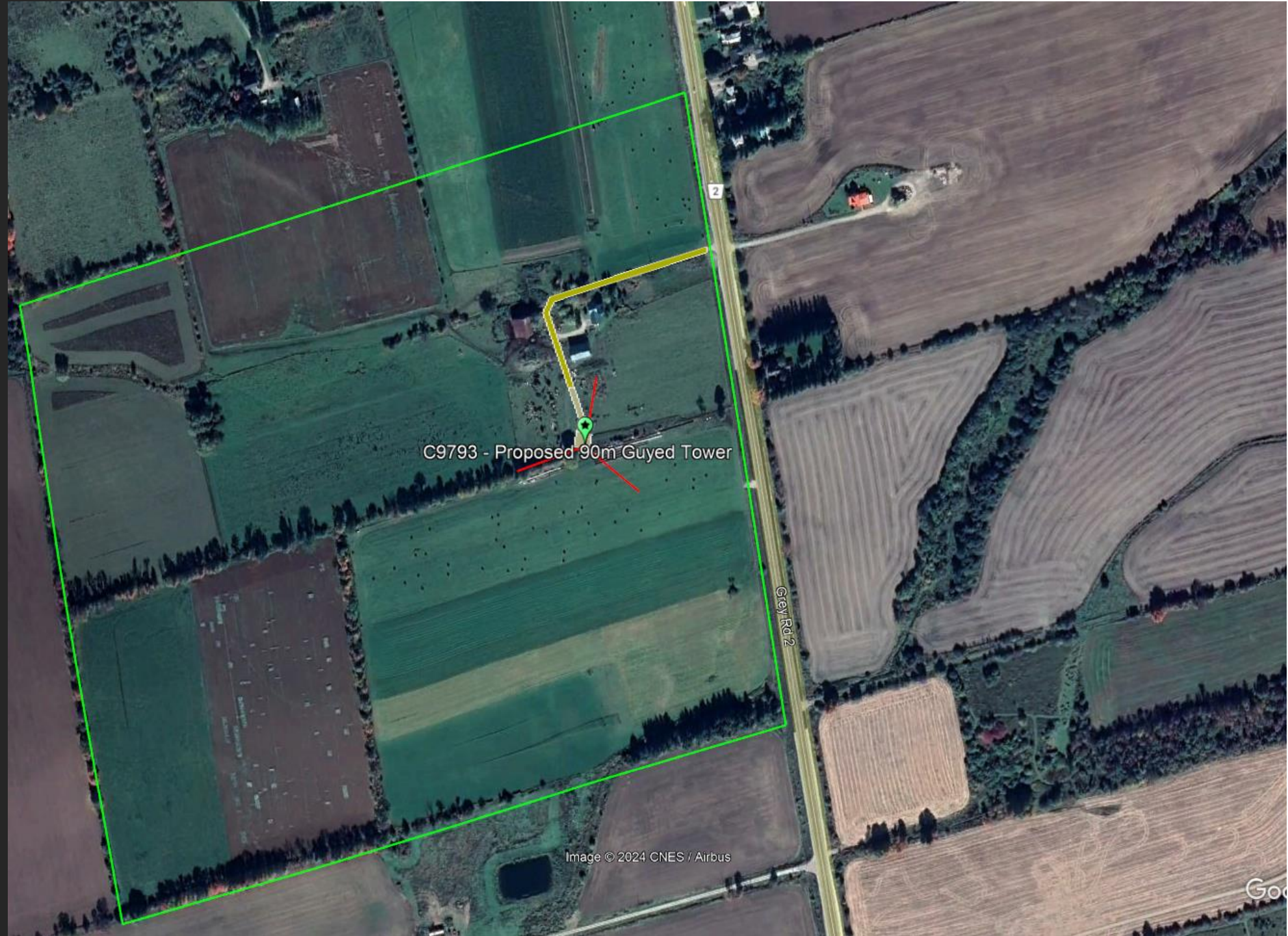
Candidate Selection



#	Candidate Review
1	Over 50m lower elevation, requiring much taller tower; utilizes arable farmland; Zoned Special Agricultural, inadequate hydro; disqualified
2	Much lower elevation; all arable farmland; zoned agricultural; not setback from Hazard zone; inadequate access and hydro; disqualified
3	Doesn't setback residential uses to greatest extent; within hazard lands; new access from road required; 30m lower elevation; disqualified
4	Ravenna Community and Memorial Park - Does not have enough space on property for guyed tower while remaining out of the way; doesn't setback residential uses to greatest extent; important viewscape location without visual mitigation from Ravenna residents; disqualified
5	Slightly higher elevation; zoned agricultural; doesn't mitigate residential uses to greatest extent possible; no visual mitigation from residents; inadequate access, crossing over arable farmland and access would be in the way; disqualified
6	Zoned agricultural; does not setback residential uses to greatest extent possible; no visual mitigation from nearby residents; 15m lower elevation; disqualified
7	Over 50m lower elevation; not in transportation corridor; zoned agricultural; inadequate hydro; less visual mitigation; disqualified
8	30m lower elevation; not in transportation corridor; zoned agricultural; inadequate hydro and access; less visual mitigation; uses arable farmland; disqualified
9	Within transportation corridor, zoned agricultural; mitigates residential uses to greatest extent possible, provides RF and TX connection, agreeable landlord, utilizes existing access and tree cover for visual mitigation, impacts least amount of arable farmland as possible; outside of NEC; selected candidate

Aerial of proposed tower location





Site Plan and Details

90m Guyed Tower

Municipal Address:

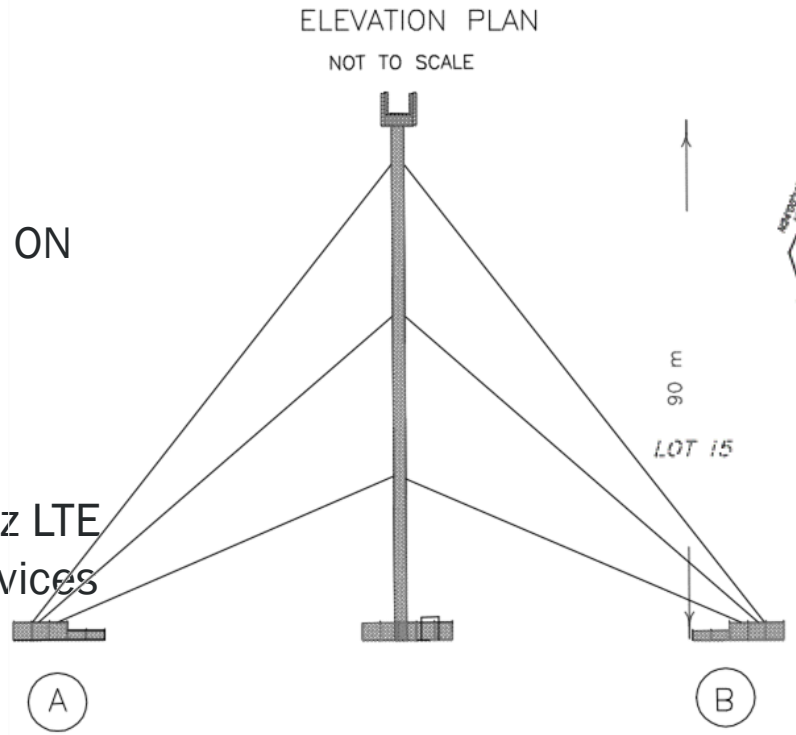
495928 Grey Road 2, Ravenna ON

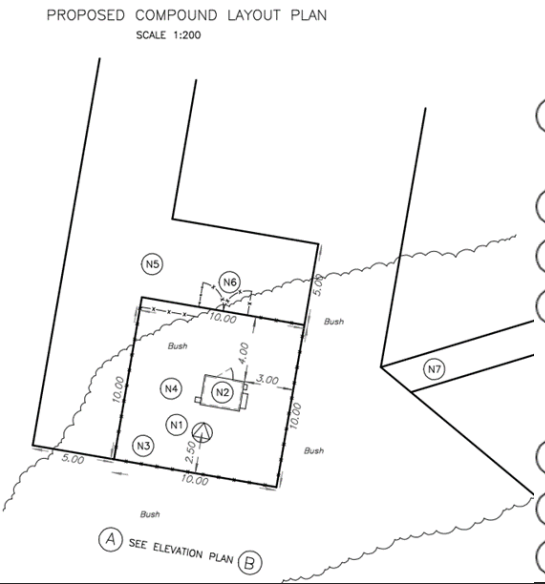
GPS Coordinates:

44.463581°, -80.418040°

Technology: 3-sectored LTE 700/2100 MHz, DSS 600MHz LTE & NR, and 5G NR 3.5GHz services

Allows future Co-location? Yes





NOTES

(N1) PROPOSED STEEL GUYED TOWER.
PAINT COLOUR SUBJECT TO NAV CANADA REQUIREMENTS.
ANTENNA NUMBER AND LOCATIONS TO BE DETERMINED.
FOUNDATION DESIGN PENDING SOIL REPORT.

(N2) PROPOSED RADIO EQUIPMENT SHELTER ON REINFORCED CONCRETE SLAB.

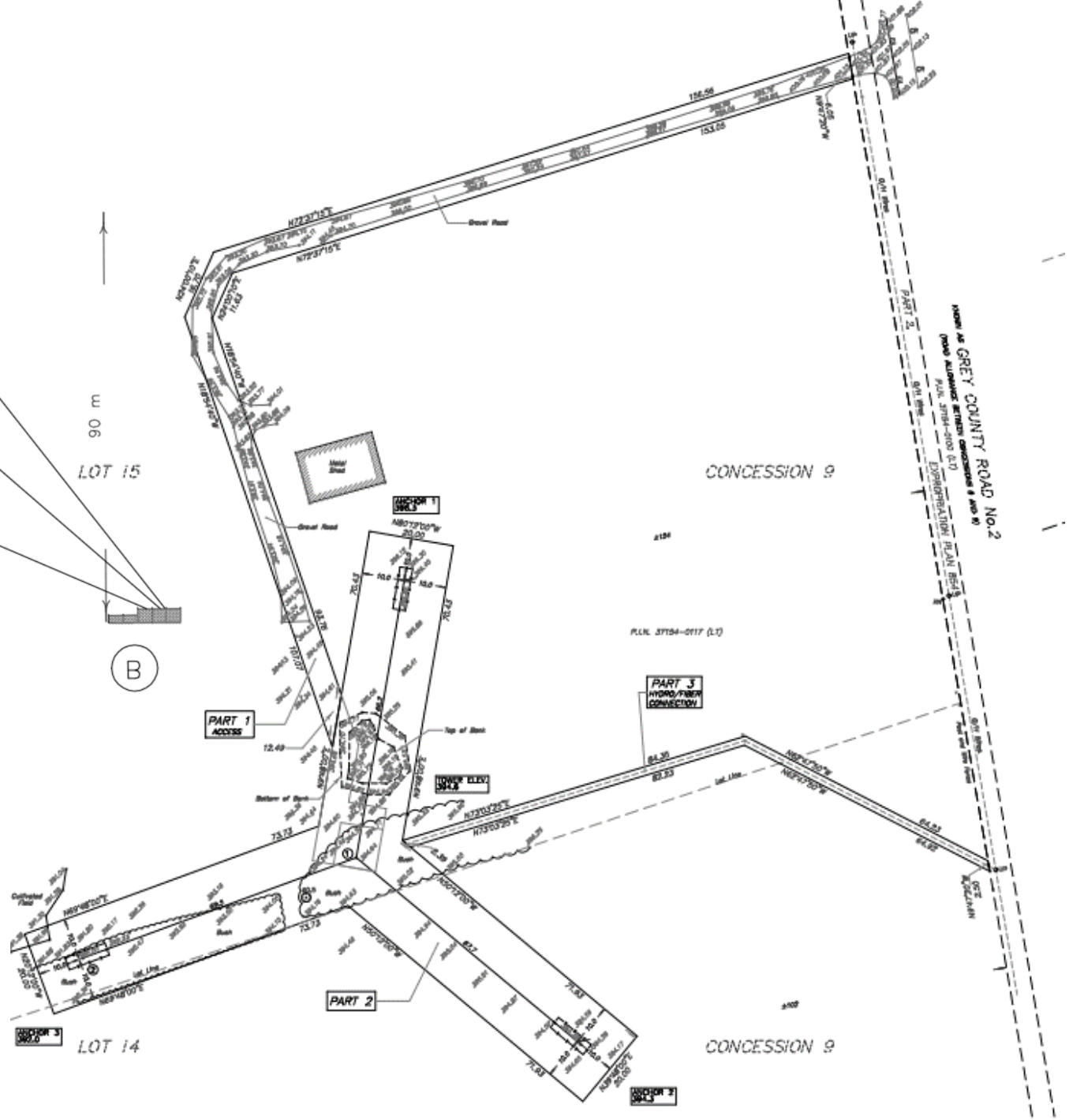
(N3) PROPOSED 2.4 m HIGH CHAIN LINK SECURITY FENCE TOPPED WITH BARBED WIRE SURROUNDING THE COMPOUND.

(N4) REMOVE EXISTING TOPSOIL, PROOF ROLL SUBGRADE AND PLACE 300 mm GRANULAR ACROSS COMPOUND AREA.
MATCH INTO EXISTING GRADES ADJACENT TO THE COMPOUND.
PROVIDE POSITIVE DRAINAGE AWAY FROM THE TOWER, SHELTERS AND HYDRO PAD TOWARDS THE NATURAL SLOPE OF THE SITE.
REINSTATE ALL DISTURBED AREAS.

(N5) PROPOSED GRAVEL ACCESS WAY.

(N6) PROPOSED CHAIN LINK GATE.

(N7) PROPOSED HYDRO/FIBER CONNECTION.



Telecom Tower VS. Fiber Service

TELECOM TOWER

Technology Type
- Wireless infrastructure providing mobile technology including voice, data, and internet
- Supports technologies including 3G, 4G/LTE, 5G, & IoT devices

Coverage Area
- Provides wide-area wireless coverage, reaching many users within a large geographic area.

Mobility
- Enables mobile connectivity, allowing users to access telecom services while on the move (smartphones, vehicles, outdoor locations).

Installation & Infrastructure
- Requires one-time installation, covering a large area with wireless signals.

User Types
- Supports a variety of devices, including smartphones, tablets, and IoT devices
- Essential for mobile users and those without access to wired internet.

Emergency and Backup Services
- Provides critical mobile communication during emergencies (e.g., natural disasters, power outages) when mobility is essential.
- Serves as a backup when fixed-line services like fiber go down.

FIBER SERVICE

Technology Type
- Wired infrastructure delivering high-speed internet via fiber optic cables to fixed locations (homes, offices)

Coverage Area
- Provides a stable, high-speed connection but only to locations with physical fiber lines.
- Limited to homes or buildings directly connected to the fiber network.

Mobility
- Fixed to physical locations; users must stay within a connected building or area to access the service.

Installation & Infrastructure
- Requires extensive ground work, including digging and laying fiber cables, which can be costly and time-consuming, especially in sparsely populated or remote areas.
- Greater environmental impact as larger area of ground need to be disturbed for install

User Types
- Primarily serves fixed locations like homes and businesses, offering high-speed internet for computers, smart TVs, etc.

Emergency and Backup Services
- Limited to fixed locations, and if fiber infrastructure is damaged, there is no mobility-based backup service.

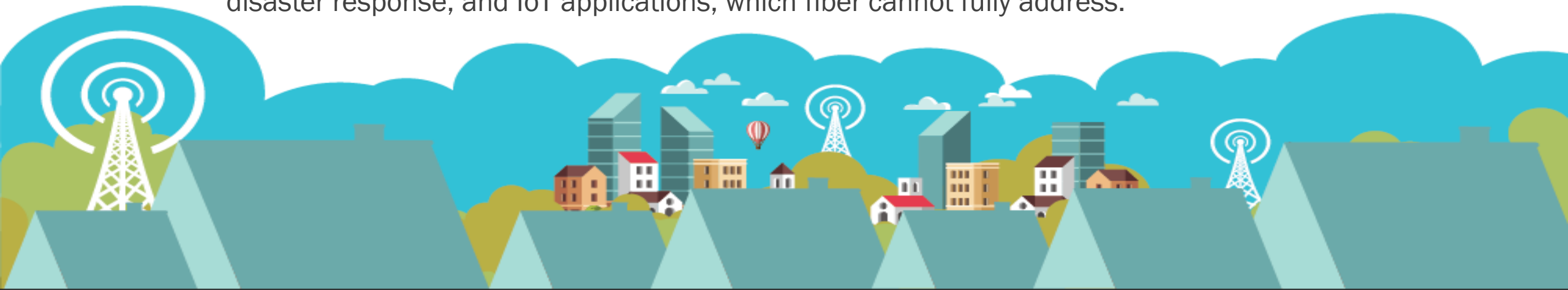
Why the Telecom Tower is Necessary

Mobile Connectivity: Ensures people can connect wirelessly while on the move, unlike fiber, which only serves stationary locations.

Broad Coverage in Remote Areas: Can provide telecom services across large areas, overcoming the limitations of fiber's fixed, localized reach.

Environmental Impact: Telecom towers require minimal ground disturbance compared to fiber, which involves widespread digging and disruption to ecosystems. The tower’s location can be strategically chosen to minimize environmental harm.

Support for Critical Services: Telecom towers are essential for emergency mobile communications, disaster response, and IoT applications, which fiber cannot fully address.



Visibility of Telecom Towers

While visibility may raise aesthetic concerns, it is essential for the functionality and effectiveness of communication services.

WHY DO TOWERS NEED TO BE VISIBLE?

Operational Efficiency:

- Towers must be elevated above trees and infrastructure to ensure reliable signal transmission.
- Height of 90m is crucial for connecting with other towers.

Signal Coverage:

- Taller structures provide coverage over long distances, especially in rural areas, addressing significant coverage gaps.

Inherent Design Characteristics:

- Antenna systems are designed to be visible due to their height and structural requirements, essential for functionality.

Regulatory Compliance:

- Towers must meet operational standards that require specific heights for effective service.

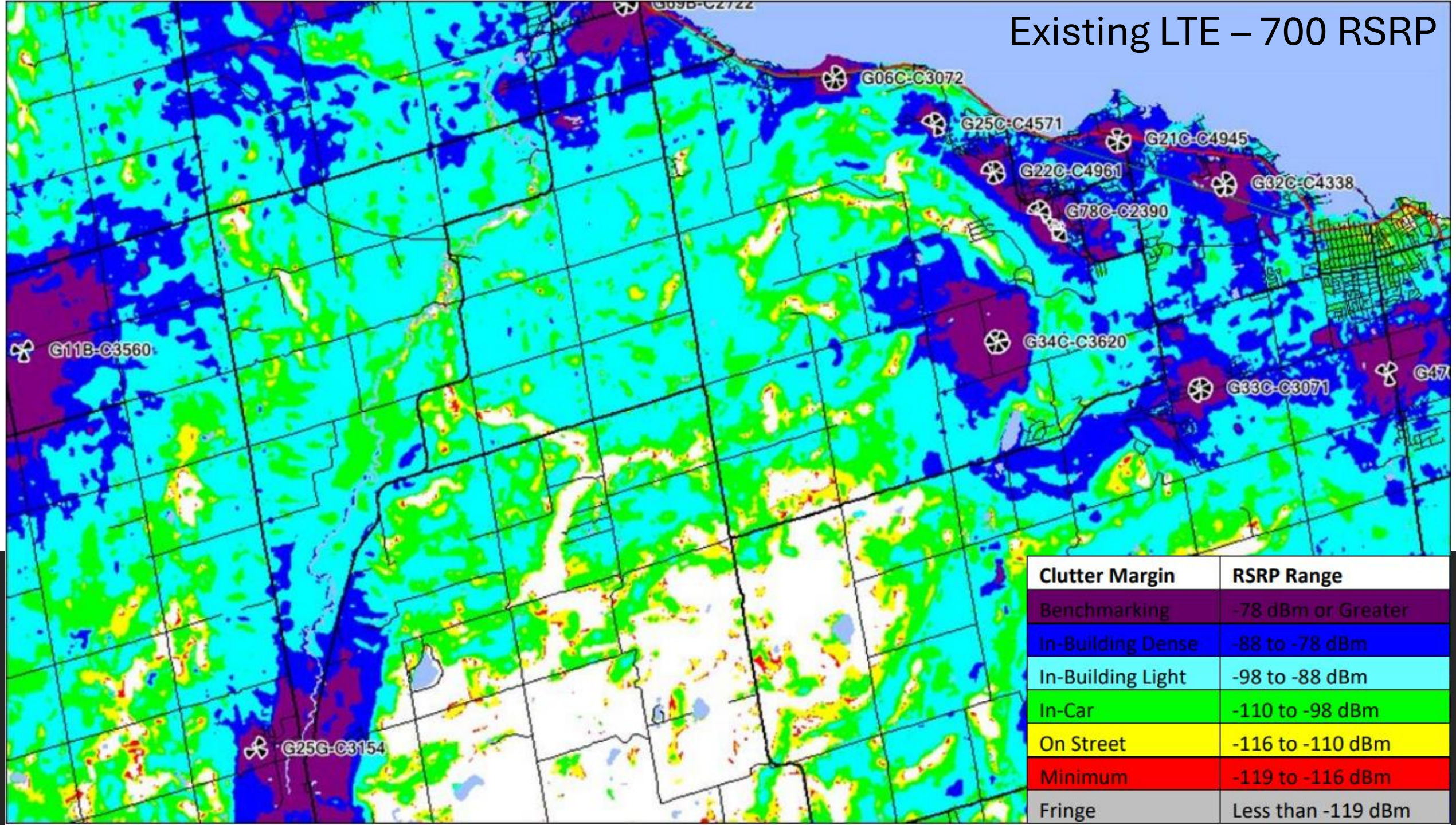
Community Connectivity:

- Strategically placed towers enhance the communication network, ensuring reliable service for users.

Existing & Future Coverage

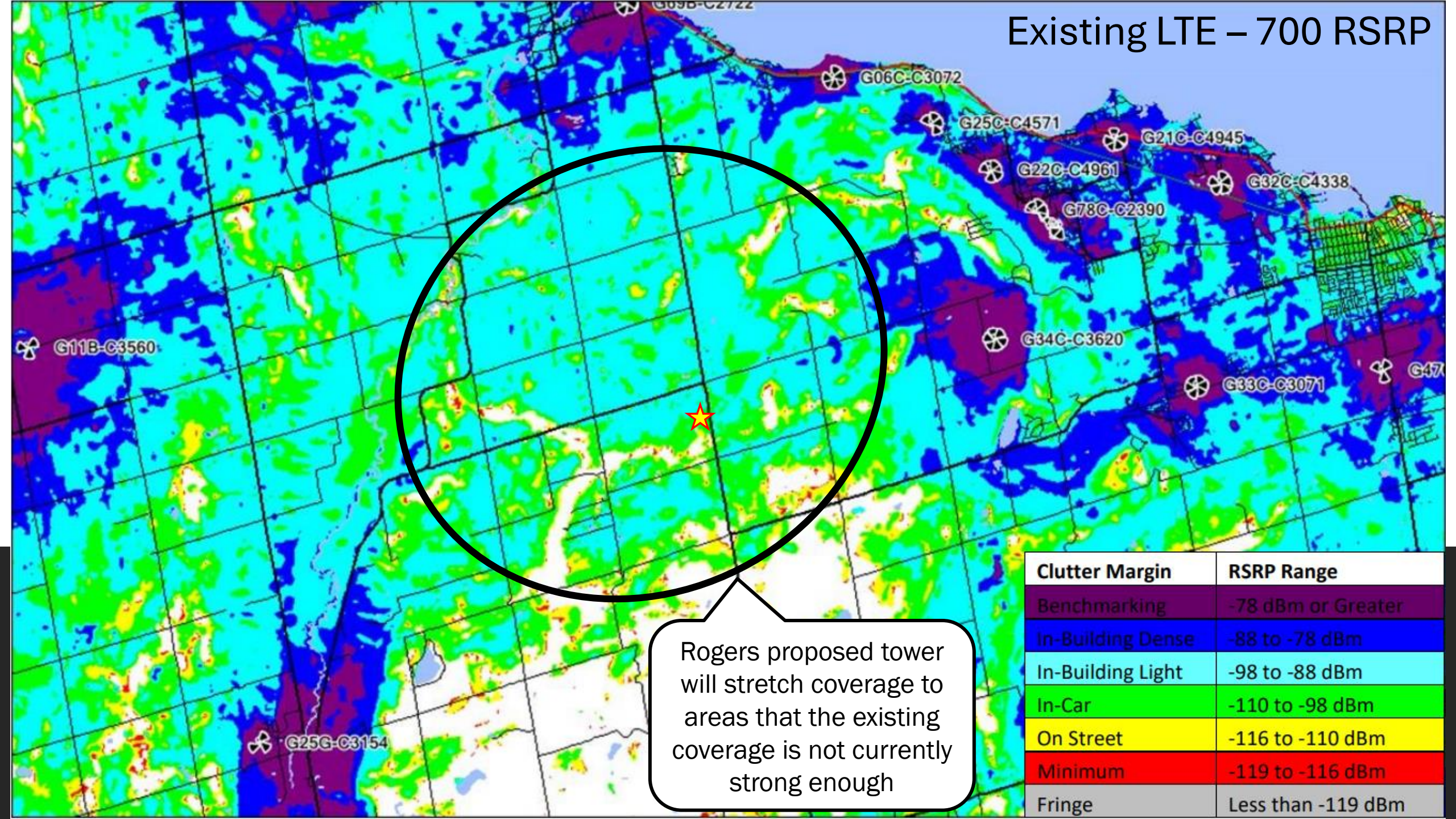
LTE 700 MHz & LTE 2100 MHz

Existing LTE – 700 RSRP



Clutter Margin	RSRP Range
Benchmarking	-78 dBm or Greater
In-Building Dense	-88 to -78 dBm
In-Building Light	-98 to -88 dBm
In-Car	-110 to -98 dBm
On Street	-116 to -110 dBm
Minimum	-119 to -116 dBm
Fringe	Less than -119 dBm

Existing LTE – 700 RSRP



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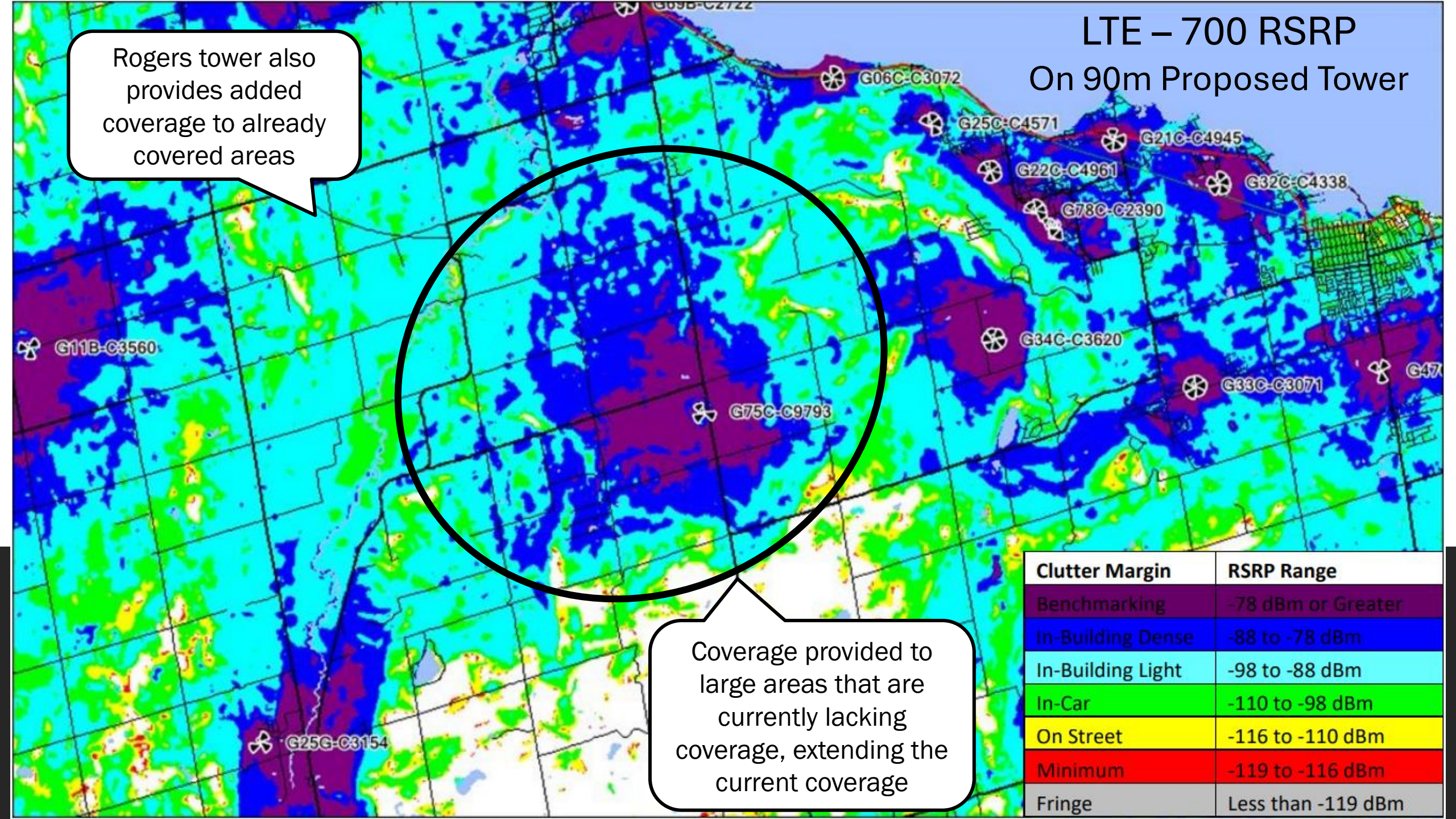
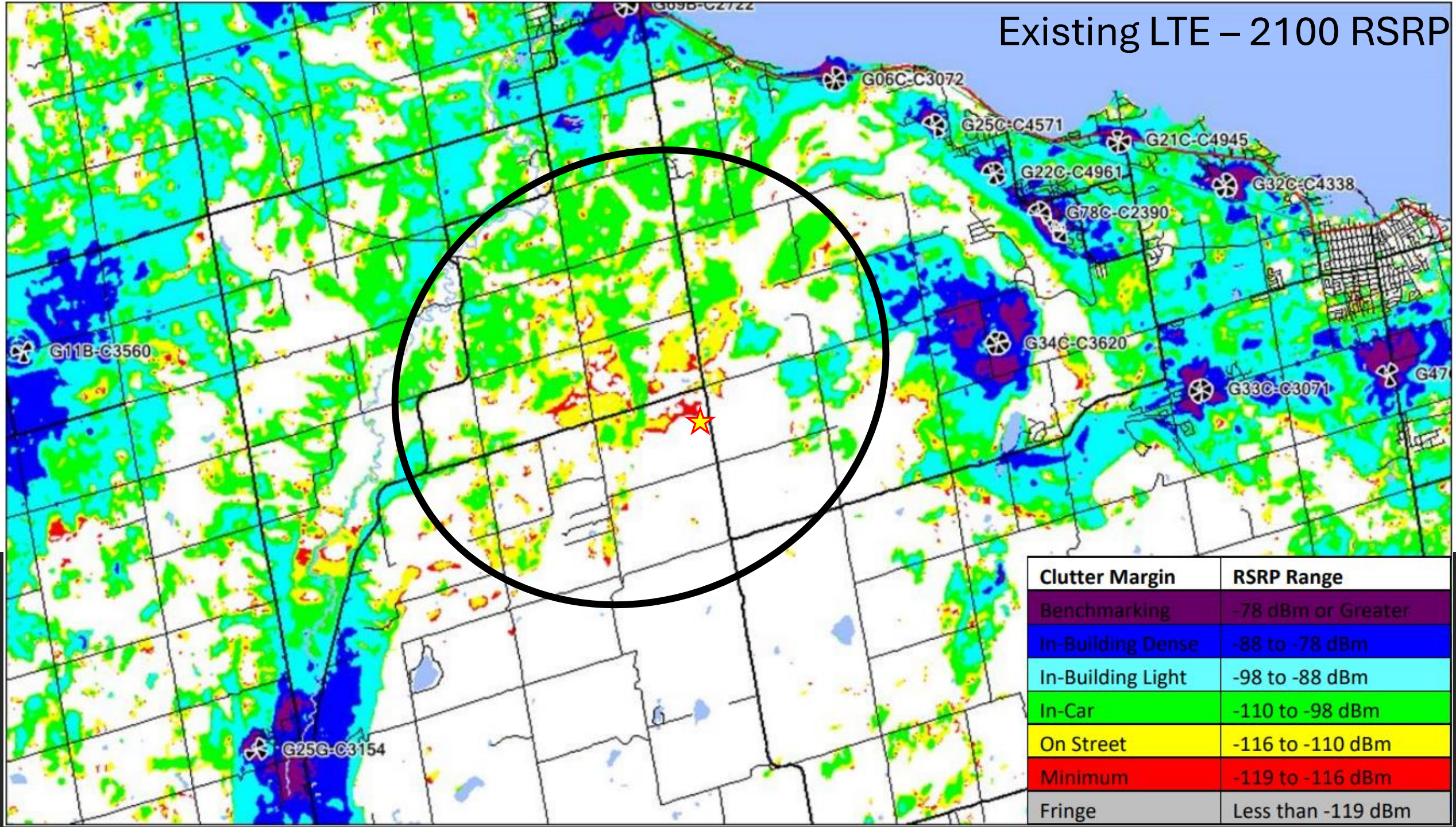

LTE – 700 RSRP
On 90m Proposed Tower
Rogers tower also provides added coverage to already covered areas
G06C-C3072
G25C-C4571
G21C-C4945
G22C-C4961
G32C-C4338
G78C-C2390
G11B-C3560
G34C-C3620
G33C-C3071
G75C-C9793
G25G-C3154
Coverage provided to large areas that are currently lacking coverage, extending the current coverage
Clutter Margin | RSRP Range
Benchmarking | -78 dBm or Greater
In-Building Dense | -88 to -78 dBm
In-Building Light | -98 to -88 dBm
In-Car | -110 to -98 dBm
On Street | -116 to -110 dBm
Minimum | -119 to -116 dBm
Fringe | Less than -119 dBm

Existing LTE – 2100 RSRP



Clutter Margin	RSRP Range
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In-Car	-110 to -98 dBm
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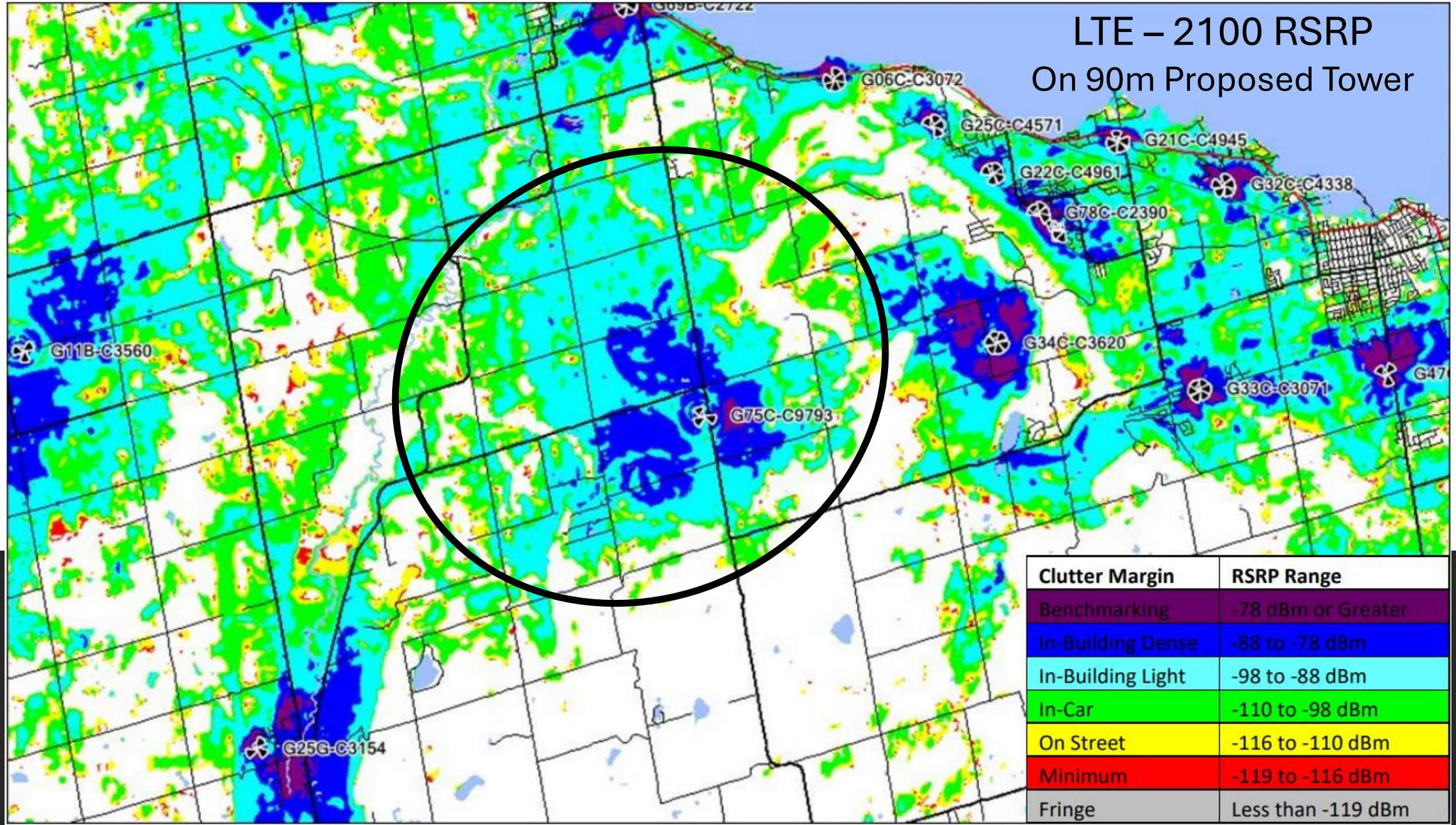
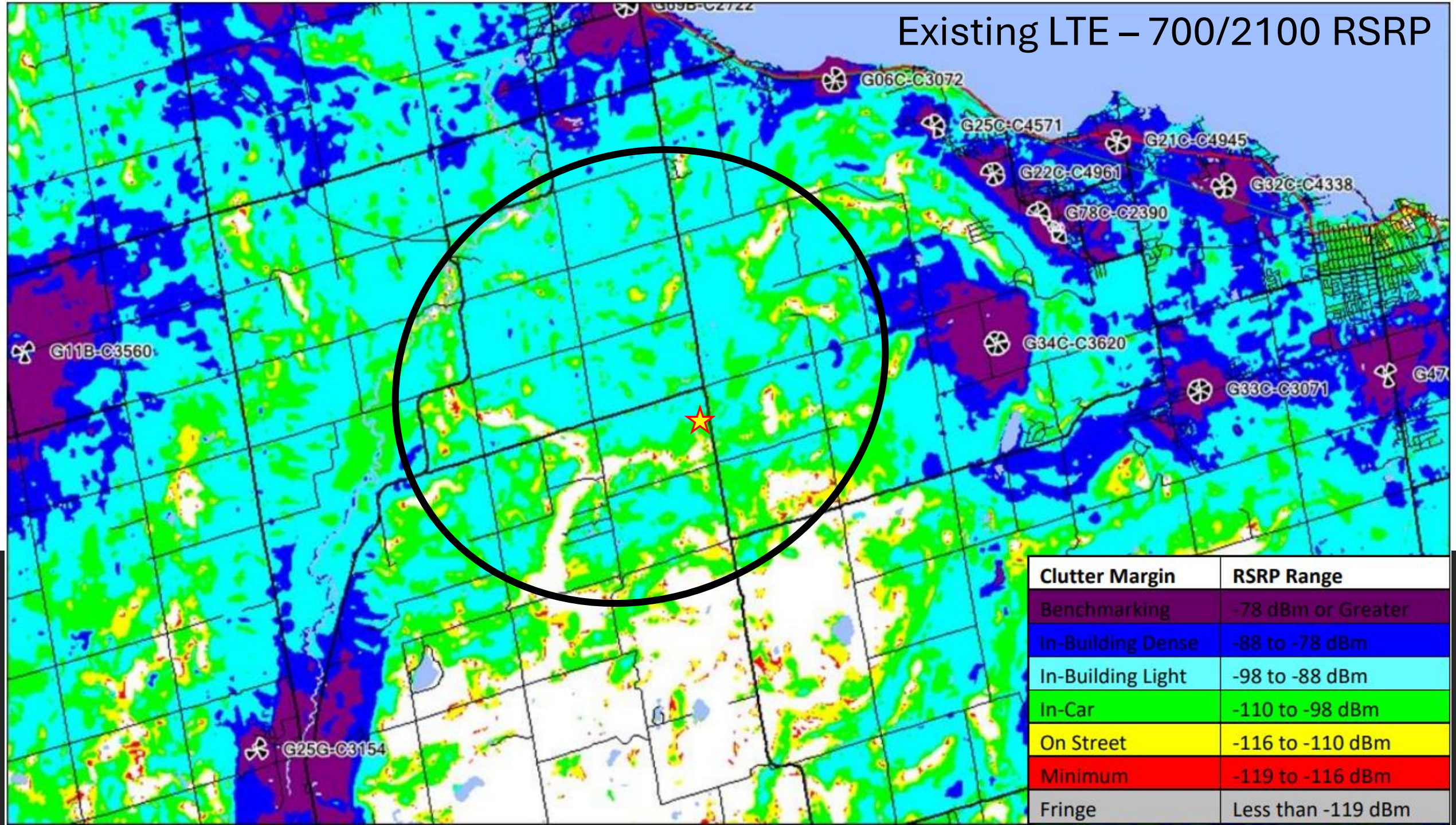

LTE – 2100 RSRP
On 90m Proposed Tower
G06C-C3072
G25C-C4571
G21C-C4945
G22C-C4961
G32C-C4338
G78C-C2390
G11B-C3560
G34C-C3620
G33C-C3071
G75C-C9793
G25G-C3154
Clutter Margin | RSRP Range
Benchmarking | -78 dBm or Greater
In-Building Dense | -88 to -78 dBm
In-Building Light | -98 to -88 dBm
In-Car | -110 to -98 dBm
On Street | -116 to -110 dBm
Minimum | -119 to -116 dBm
Fringe | Less than -119 dBm

Existing LTE – 700/2100 RSRP



Clutter Margin	RSRP Range
Benchmarking	-78 dBm or Greater
In-Building Dense	-88 to -78 dBm
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In-Car	-110 to -98 dBm
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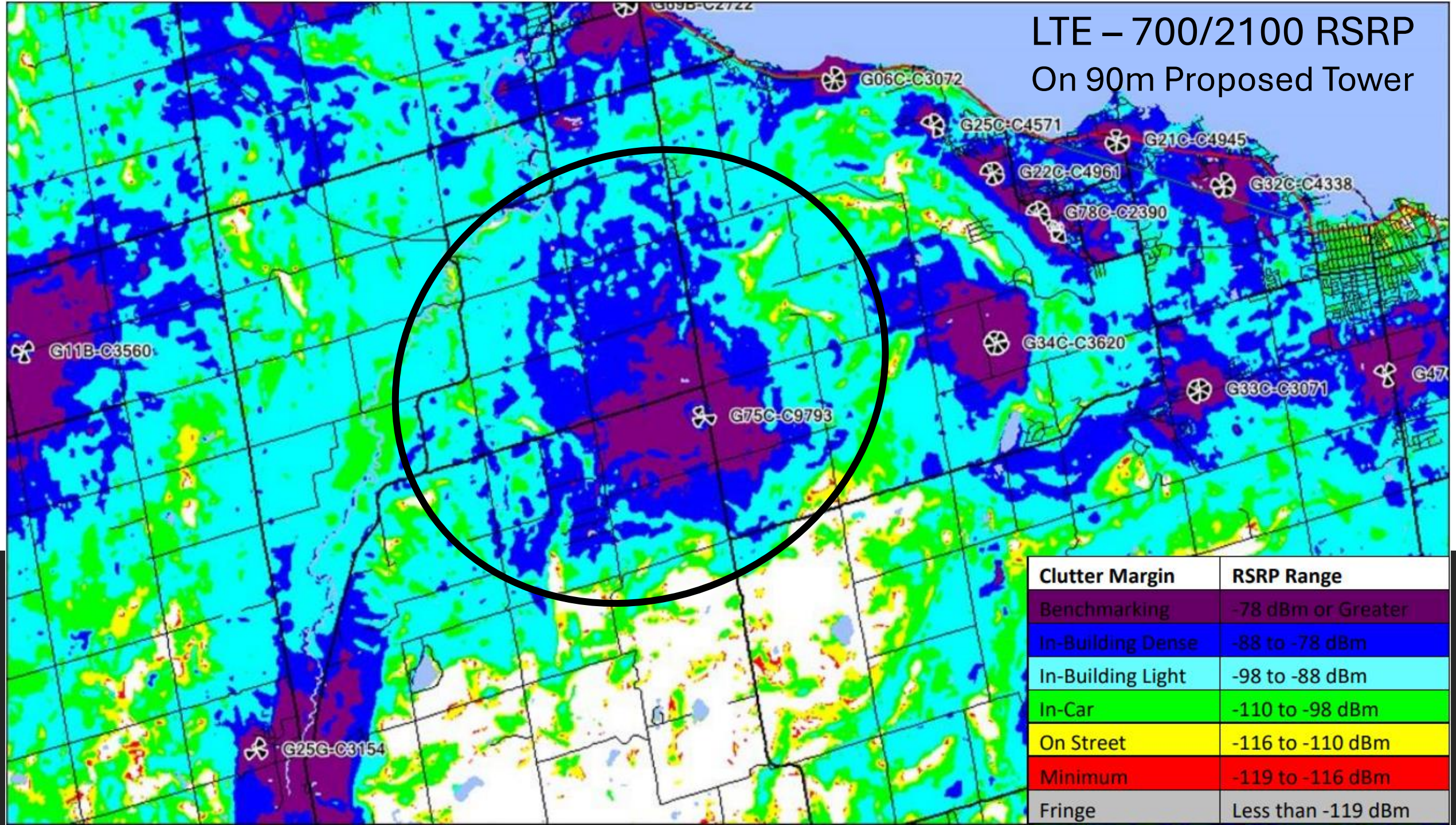
Fringe	Less than -119 dBm

LTE – 700/2100 RSRP
On 90m Proposed Tower



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Minimum	-119 to -116 dBm
Fringe	Less than -119 dBm

Lighting

Our obligation as a Proponent is to comply with the regulations of Transport Canada and NAV Canada in this respect, which we do.

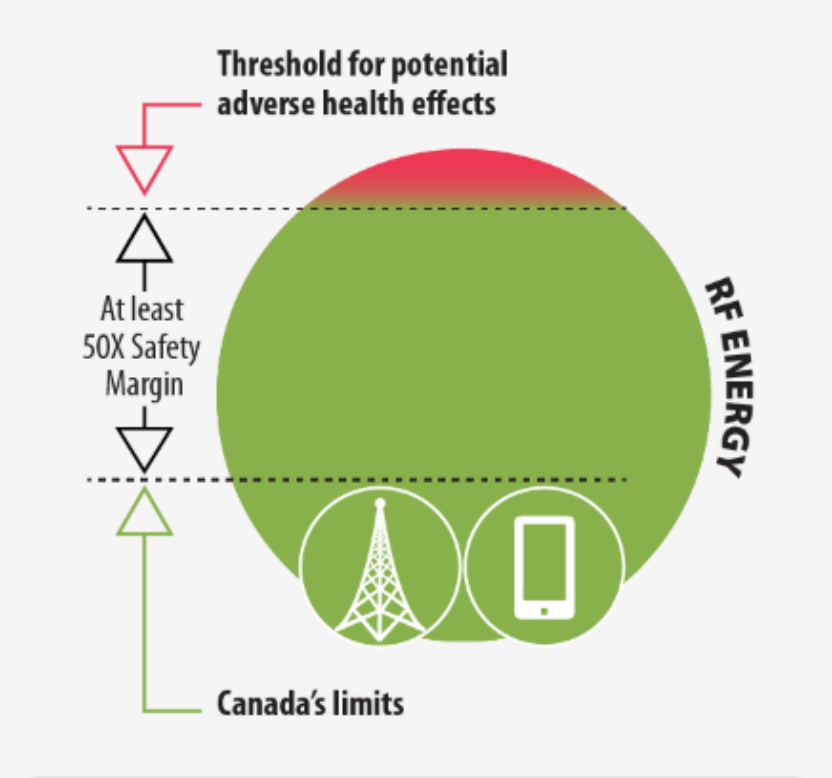
- If lighting is required, “Community Friendly Lighting System” will be utilized
- White in daylight (90 watts) and red during the night (25 watts)
- Downlighting and ground scatter are minimized
- Safety is the number one requirement

Health & Safety

The federal government dictates what is considered relevant and not relevant to the public consultation process.

- It is the federal government's responsibility to ensure the health of all Canadians by establishing appropriate limits.
- Our obligation is limited to one of compliance with the governing regulations of Safety Code 6, which we do.
- Safety Code 6 ensures all protection for all age groups, including children, around the clock. Continuous exposure to RF energy within these limits poses no adverse health effects.

HTTPS://WWW.CANADA.CA/EN/HEALTH-CANADA/SERVICES/VIDEO/5G-TECHNOLOGY-SAFETY.HTML



The Canadian limits incorporate a safety margin of at least 50-fold from the threshold for possible adverse health effects.

Safety Code 6

Rogers Communications Inc–Calculating RF Power Densities – Validating Safety Code 6

2.1 Assessment of maximum radio frequency (RF) levels at the site

Based on a cumulative analysis of all antenna systems, the maximum radio frequency exposure within a Publicly Accessible Area is approximately 1.51% with respect to the standard for the 2015 Safety Code 6 for Uncontrolled Environment.

In conclusion, the radio frequency exposure level within a Publicly Accessible Area is calculated to be approximately 60 times lower than the allowable maximum limit specified in Safety Code 6 with respect to the standard for the Uncontrolled Environment.

2.2 Mitigation Measures

No further action is required.

2.3 Safety Code 6 Compliance Statement

ATTESTATION: I attest that the information provided in this report is correct and has antenna placements and heights have been validated through a site survey; that a technical report was prepared and information contained therein is correct; that the site evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed and the site was found to be in compliance with Safety Code 6 limits.

Signature: A.R. Torabian **Date: September 24, 2024**

Safety Code 6 was formally reviewed and determined to have more than adequate safety margins to accommodate 5G without any health concern to the public, even at the base of the tower.

- For this tower, the SC6 certificate indicates that the tower operates at 1.51% of the SC6 limit
  - At the base of the tower the RFE level is **67 times lower than the SC6 limit**, which is the maximum allowable limit
  - The SC6 limit is **50 times under the established threshold** for potential health effects.
  - The RFE level at the base of the tower is approximately **3350 times below the limit for potential health effects**.

Health Canada's Safety Code 6 guidelines are set well below the levels of all known potential adverse health effects and provide protection for all age groups, including children, on a continuous basis (24 hours a day, seven days a week).

Health Canada continuously monitors the research on this issue and revises its recommendations as needed to continue to provide protection for all Canadians.

Environmental Considerations

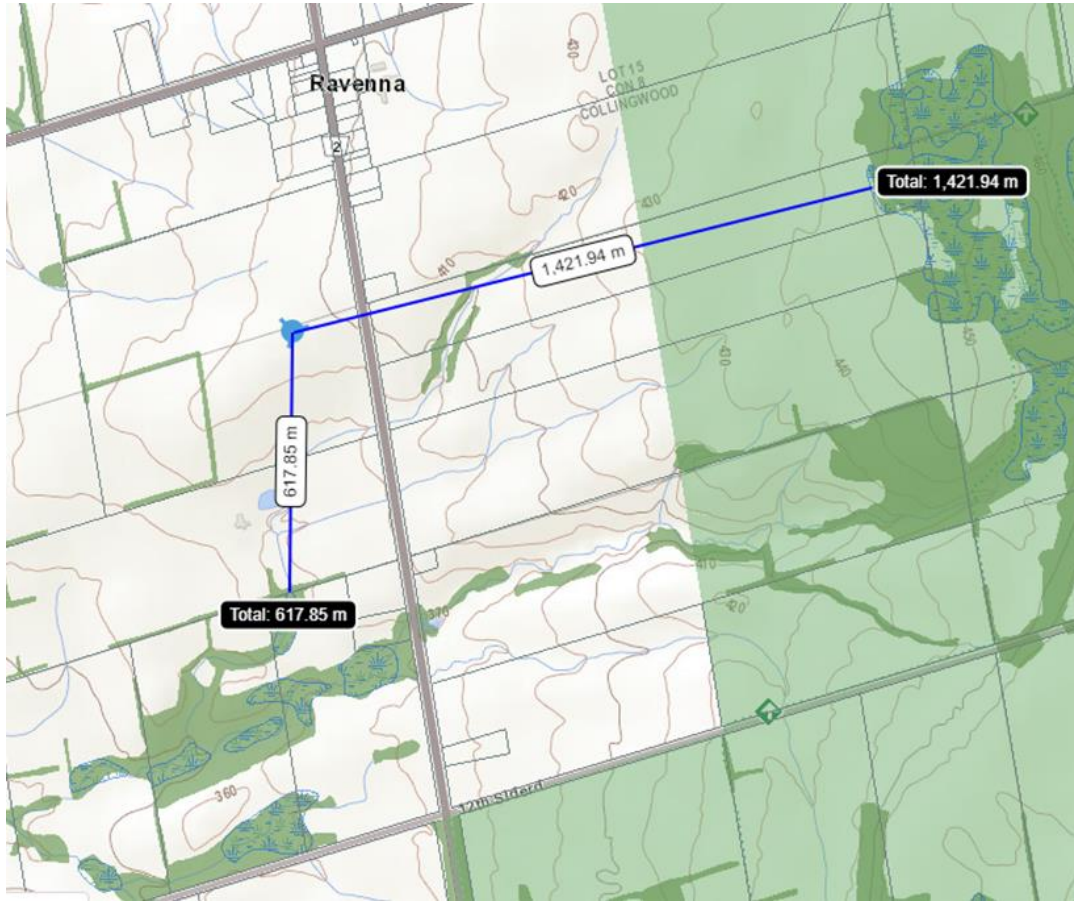
The federal government recognizes the immaterial impact on wildlife and natural heritage features of telecommunications towers and accordingly exempts them from EA intake and review. In respect of issues related to wildlife, birds, insects, plants, ground water and the like, this undertaking complies with all regulatory requirements. Questions whether governing legislation, procedures or processes are valid or should be reformed are not relevant to this process.

Nonetheless, a study is prepared for each tower location's surrounding natural areas contained within the 1km x 1km grid from Natural Heritage Information Centre (NHIC) data which includes:

- Ontario's rare species
- plant communities
- wildlife concentration areas
- natural heritage areas

In this case, the only noted rare species, species at risk, rare plant communities, or wildlife concentration areas reported in this grid over the last 50 years are Eastern Meadowlark and Bobolink, reported frequently through out Eastern Ontario on the SAR table, but are not provided suitable habitat within the tower field.

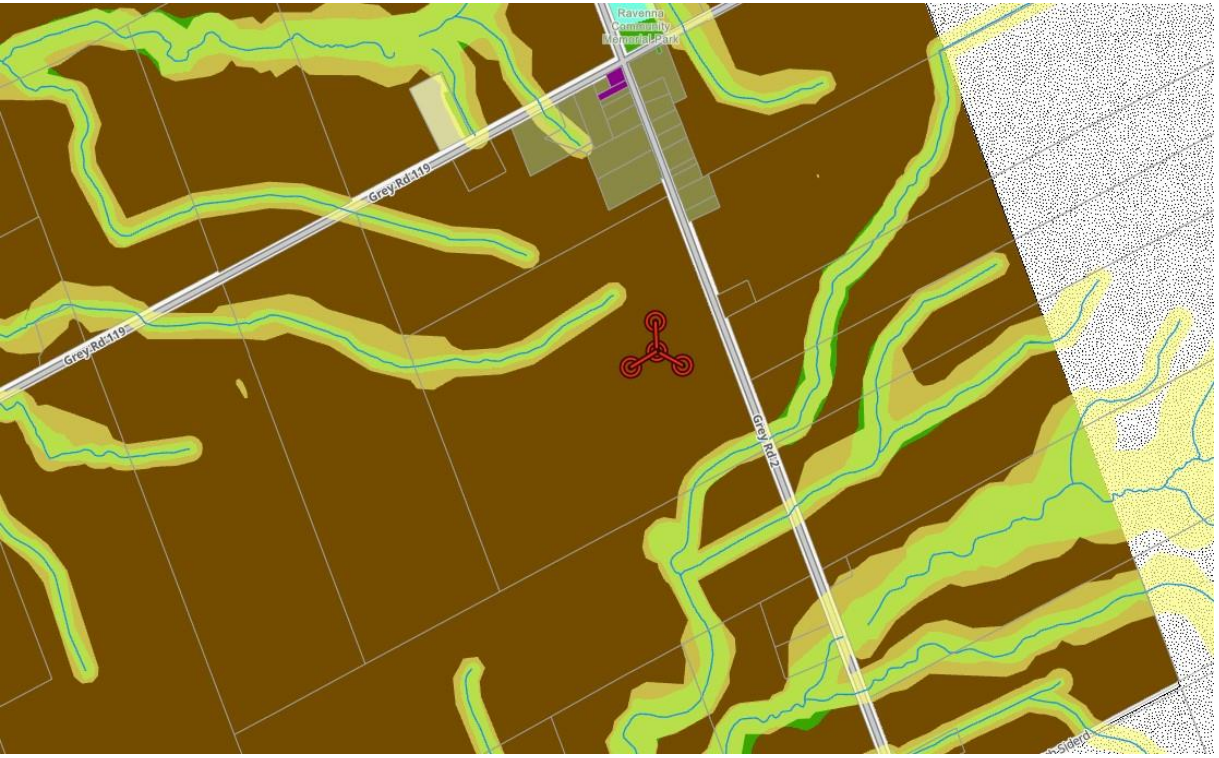
OGF ID	Element Type	Common Name	Specific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT
948197	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	17NK4623
948197	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	17NK4623



Assessment Parcel
Assessment Parcel
ANSI
ANSI
Earth Science Provincially Significant/sciences de la terre d'importance provinciale
Earth Science Regionally Significant/sciences de la terre d'importance régionale
Life Science Provincially Significant/sciences de la vie d'importance provinciale
Life Science Regionally Significant/sciences de la vie d'importance régionale
Wetland
Evaluated Wetland
Provincially Significant/considérée d'importance provinciale
Non-Provincially Significant/non considérée d'importance provinciale
Unevaluated Wetland
Woodland
Woodland
Conservation Reserve
Conservation Reserve
Provincial Park
Provincial Park
Natural Heritage System
Natural Heritage System

Conservation & Natural Heritage

THE PROPOSED SITE IS LOCATED OUTSIDE OF GSCA REGULATION LIMITS



THE PROPOSED SITE IS LOCATED OUTSIDE OF THE NIAGARA ESCARPMENT PLAN AREA

Facts About Towers

The Government of Canada has released an infographic (seen to the right) on their “Facts about Towers” webpage.

To view the infographic and for more information, please visit: www.ic.gc.ca/antenna

Towers are safe

All antenna towers have to satisfy Innovation, Science and Economic Development Canada's general and technical requirements and comply with Health Canada's Safety Code 6, which imposes strict limits on the radio frequency energy sent out by any antenna tower. Innovation, Science and Economic Development Canada routinely audits the radio frequency energy at tower sites. Find out more on Safety Code 6.

Towers are necessary

Canadians want faster and more accessible service so they can reliably use their wireless devices to keep in touch with loved ones and stay informed. Businesses, emergency services and air navigation systems also depend on radiocommunications and wireless services 24-hours-a-day. This requires towers, located in the right places.

There are rules on building towers

Companies cannot build towers on a whim. Companies must first study the possibility of sharing existing towers in an area. If none are suitable, they must then follow specific steps to build new towers. They must also consider the municipality's requirements—such as consulting the public and adhering specific requirements for tower siting. Find out more.

We hear your concerns

This is an important issue for many Canadians. Recently, the government modernized its tower siting policy. Now, wireless providers are required to consult the public on all tower locations, regardless of height. Companies must also build the tower within three years of the consultation.

Public Consultation

- The Town of The Blue Mountains has a locally enacted protocol for tower installations, which has been followed
- Notice of the proposed tower and the Public Meeting have been provided to all property owners with 6x tower height from the tower
  - This is much larger than ISED Canada's federal consultation radius of 3x tower height from the tower, but aligns with the local protocol
- The Town also shared more information regarding this project on their Planning & Development Projects page, with a link included in the mailed notices.
- A large format sign has been installed on the proposed property
- Following the Public Meeting (today) all questions and comments will be formulated into a matrix for us to provide answers to. The matrix will serve as a record of communication with the public, will be included in reports associated with the application, and will be provided to the local ISED office

Telecommunication Tower Approval Process

- The establishment of new telecommunication facilities is under the exclusive jurisdiction of the Federal Government.
- Innovation, Science and Economic Development (ISED) Canada is the approval authority for telecommunication towers
- ISED requires proponents to consult local planning authorities to ensure local protocols and surroundings are considered during the mandated site selection process.
- The Town of The Blue Mountains Protocol for Establishing Telecommunication Facilities outlines the public consultation process which must be followed for each telecom tower application within the tower.
- ISED Canada outlines questions and concerns that are deemed to be relevant and those that are not relevant to the consultation process, as a part of their protocol.
- Following completion of the public consultation process, the Proponent requests a statement of concurrence from the Town, noting whether the consultation process has been completed as indicated or not.

Further Questions?

- Facts about towers
  - www.ic.gc.ca/antenna
- Radiofrequency Energy and Safety
  - ised-isde.canada.ca/site/spectrum-management-telecommunications/en/safety-and-compliance/facts-about-towers/radiofrequency-energy-and-safety
- Canada.ca Safety of 5G Technology Video
  - https://www.canada.ca/en/health-canada/services/video/5g-technology-safety.html
- CPC-2-0-03 — Radiocommunication and Broadcasting Antenna Systems (Antenna Tower Siting Procedures)
  - https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08777.html
- Local ISED Office:
  - 2 Queen Street East
    Sault Ste. Marie ON P6A 1Y3
    Telephone: 1-855-465-6307
    Fax: 705-941-4607
    Email: spectrumenod-spectredeno@ised-isde.gc.ca