

If you require this information in an alternate format, please contact the Accessibility Coordinator at accessibility@northumberland.ca or 1-800-354-7050 ext. 2327



## Report 2025-003

**Report Title:** Northumberland Radio Tower Project Update – January 2025

**Committee Name:** Public Works

**Committee Meeting Date:** January 6, 2025

**Prepared by:** Carol Coleman  
Associate Director of Public Works  
Public Works

**Reviewed by:** Denise Marshall  
Director of Public Works  
Public Works

**Approved by:** Jennifer Moore, CAO

**Council Meeting Date:** January 22, 2025

**Strategic Plan Priorities:**  Innovate for Service Excellence  
 Ignite Economic Opportunity  
 Foster a Thriving Community  
 Propel Sustainable Growth  
 Champion a Vibrant Future

---

### Information Report

**That** the Public Works Committee, receive Report 2025-003 ‘Northumberland Radio Tower Project Update – January 2025’, for information; and

**Further That** the Committee recommend that the County Council receive this report for information.”

---

### Purpose

The purpose of this report is to provide an update on the Northumberland County initiative to upgrade radio equipment to a new Digital Mobile Radio System. The new system provides County wide coverage for all Fire and Public Works departments within Northumberland County.

## Background

The Northumberland County's communications system was a single site solution built around the 300-foot tower on County Road 45, erected in approximately 1967. At the time, this site was developed as an analog repeater for Fire dispatch and roads, which was seen as an improvement over using simplex frequencies. However, the single site solution still did not provide proper radio coverage throughout the County.

Over the years, individual municipalities applied to Industry Canada and obtained frequency pairs and installed radio systems within their own geographic area to provide better communications locally. While this has resolved most individual municipal needs, it created a multi-channel scenario that does not provide a seamless County-wide system.

The systems still had coverage issues especially for Fire and emergency operations that use portable radios. As well, each municipality has a single point of failure with each radio system that they use to conduct day-to-day operations.

In addition to this, the County tower has exceeded the normal life span of such a structure and requires replacement.

In preparation for the removal of the tower, the County and member municipalities met with Turris Communications (now BearCom Communications) to discuss the possibility of a joint communication system. As a result, BearCom provided a layout for a Digital Mobile Radio (DMR) system that links individual radio systems and provides County wide coverage for all radios.

On June 5<sup>th</sup> 2023, Public Works staff brought forward a report to the Public Works Committee entitled, "Joint Fire Service and Public Works Communications Tower Update". At that meeting Council passed the following resolutions:

**That** County Council direct staff to proceed with upgrading to a Digital Mobile Radio (DMR) System to provide County wide radio coverage for Fire Services and Public Works according to the updated Statement of Work prepared by BearCom Communications dated May 16, 2023 in the amount of \$492,671.14 (excluding HST and contingency), noting a total project cost of \$526,342.15 (including non-recoverable HST and contingency) which is over the existing project budget by \$163,942.15; and

**Further That** County Council approve the budget shortfall of \$163,942.15 to be paid fully by the County, being transferred from the County General Reserve; and

**Further That** County Council approve the annual maintenance and operation costs, to be borne solely by Northumberland County."

The scope of work for the project includes:

1. Planning and designing a new system with both an analog paging system and a DMR system to meet the radio communication needs of Northumberland County and member municipalities;
2. Installing radio system hardware, radio frequency combiners and antenna at eight tower locations across the County;

3. Installing and verifying the hardware components for the Backhaul Network and optimizing the equipment (the Backhaul Network provides the link between each tower and the core network);
4. Installing new backup generators at three locations to ensure continued coverage during power failures;
5. Stress testing and commissioning of new system;
6. Programming of pagers and radios for all Fire and Public Works departments;
7. Coordinating with Innovation, Science and Economic Development Canada (ISED) to update licenses based on the new system;
8. Providing training and as-built drawings; and
9. Scheduling, overseeing and coordinating the removal of the existing County tower.

The project does not include any work associated with operations such as dispatch services or purchase of new handheld radios. However, some member municipalities have upgraded their radios to be compatible with the new system.

### **Consultations**

The project has been undertaken with regular communication and collaboration with member municipal Fire chiefs and Public Works managers.

### **Legislative Authority / Risk Considerations**

Implementation of this initiative to upgrade to a DMR system is required to ensure County wide radio and paging coverage for municipal Public Works and Fire departments. For the past ten years, the County has received inspection reports advising that the existing tower is an aged infrastructure at risk of failure and needs to be removed.

Communication between Fire and Public Works departments is important for day-to-day operations and becomes critical during emergencies. By upgrading the system there is a significant decrease in the risk of loss of communications from poor coverage or single point failures.

### **Discussion / Options**

The following provides an update on the progress of the project to date.

- Licensing and access agreements for each of the eight tower owners have been completed. The final agreement was executed on September 24, 2024.
- Installation of equipment at all eight towers was completed in mid-October 2024.
- Site commissioning and stress testing of the new equipment was completed at the end of October 2024.
- Programming of Public Works radios for all municipalities was completed in November 2024.
- County Public Works was switched to the new system in mid-December 2024.
- Member municipality Fire pagers and radios will be programmed in December 2024 and January 2025.
- Decommissioning of the County tower is planned for early 2025.

## Financial Impact

**Total Approved Project Budget** **\$526,342**

Original BearCom Contract (including non-recoverable HST) \$501,342

### Additional Costs

Remove and relocate osprey nest at Alderville tower	\$2,600	
Fence extension at Alderville tower	\$7,000	
Engineering design services for Cobourg water tower assessment	\$6,500	
Remove ant infestation at County tower	\$569	
Additional assistance for technical consulting, agreement consultation, ISED assistance for re-organizing tower licenses and legal meeting	\$17,457	
<b>Additional Costs To Date</b>		<b><u>\$34,126</u></b>

**Overbudget** **\$9,126**

Further additional costs may be required for:

- BearCom to create an operating manual for users
- Installation of a new generator for the Trent Hills tower which currently has a battery backup system

As directed by Council, the operating costs will include all annual maintenance and operating costs of the new DMR system equipment owned by the County. This will include costs for tower leases, electricity, generator maintenance, equipment maintenance, licenses and propane.

Estimated operating costs are provided below.

**2025 – \$106,000**

**2026 – \$109,000**

### Member Municipality Impacts

The DMR system will provide improved connectivity and coverage for Fire Services and Public Works for the County and the seven member municipalities. This will result in seamless communication between all municipalities. In addition, this enhanced coverage will allow for coverage overlap that will prevent single site failures from knocking out communications for individual municipalities by sharing available resources.

As well, member municipalities may realize cost savings for annual operations and maintenance of the communication system as the cost for County owned equipment will be paid solely by the County.

The new DRM will have a separate system for each Public Works and Fire department. In addition, a shared channel will be available for all municipalities to assist during emergencies.

The County will prepare agreements with the member municipalities about who is responsible for various costs and services. Member municipalities will still be responsible for the operation and maintenance of equipment owned by the municipality such as:

- Towers
- Generators and propane
- Equipment at Fire stations and Public Works buildings
- Handheld radios, including licensing

### **Conclusion / Outcomes**

Northumberland County's radio tower project is progressing well and is expected to be fully implemented early in 2025. While there have been some minor delays, all efforts are being made to ensure that the system is working as designed before switching all Fire and Public Works departments to the new system.

The new Digital Mobile Radio system provides County wide coverage for Fire and Public Works services. The new system meets the objectives of the project to ensure communication across the County for Fire Services, mutual aid and Public Works departments; avoids unreliable mobile services; is the most cost effective compared to other options; and exemplifies a shared services approach to communication across the County

### **Attachments**

N/A