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## Report 2025-055

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

**Committee Name:** Public Works

**Committee Meeting Date:** March 31, 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:** April 16, 2025

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

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### Information Report

**“That** the Public Works Committee receive Report 2025-055 ‘Northumberland Radio Tower Project Update – March 2025’ for information; and

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

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### 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**

In preparation for the removal of Northumberland County's aged 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.

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 the 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 and Fire radios for all municipalities was completed in February 2025.
- All Public Works and Fire Departments were switched to the new system in January and February 2025.
- The removal of the Northumberland County tower has been deferred until the snow melts. This is because there is too much snow in the forest to access the tower and removal of the snow would damage the vegetation.

Work still to be completed as part of the scope of work.

- Minor deficiencies,
- As built drawings of the new DMR system,
- Detailed user manual for the system, and
- Northumberland tower decommissioning.

### **Responsibilities for Future Operations and Maintenance of Radio Equipment**

The Radio Tower Project will be closed out once the existing tower has been decommissioned. Going forward it is important to understand what Northumberland County's responsibilities will be and what member municipalities will be responsibilities for.

The new DMR system involved installing radio system hardware, radio frequency combiners and antenna at eight tower locations across the County. The locations and tower owners are listed below.

**Table 1: Tower Locations and Owners**

<b>Location</b>	<b>Tower Owner</b>	<b>Generator Owner</b>
<b>Municipality of Port Hope</b>	Municipality of Port Hope	Municipality of Port Hope
<b>Hamilton Township</b>	Canadian Coast Guard	Northumberland County
<b>Town of Cobourg</b>	Lakefront Utility Services Inc.	Lakefront Utility Services Inc.
<b>Alderville First Nation</b>	Alderville First Nation	Northumberland County
<b>Cramahe Township</b>	Rogers	Cramahe Township
<b>Alnwick/ Haldimand Township</b>	Xplore Fibre	Xplore Fibre
<b>Municipality of Trent Hills</b>	Municipality of Trent Hills	Municipality of Trent Hills *
<b>Municipality of Brighton</b>	American Towers	myFM

\* Currently there is no generator in Trent Hills. Backup power is provided by battery power. Staff intend to work with Trent Hills to install a generator at this location.

Responsibilities for ongoing operations, maintenance and replacements are provided in Table 2 below.

**Table 2: Ongoing Operations, Maintenance and Replacements**

<b>Item</b>	<b>Responsible Party</b>
<b>Property maintenance including winter maintenance</b>	Tower owner
<b>Back-up power/ generators repair and maintenance</b>	Generator/ back-up power owners **
<b>Propane contracts for generators</b>	Generator owners **
<b>Radio equipment at towers</b>	Northumberland County
<b>Radios and pagers</b>	Municipal Fire and Public Works Departments
<b>Tower License Agreements</b>	Northumberland County

\*\* The new generator and propane in Port Hope is maintained by Northumberland County

Northumberland County has developed a Standard Operating Procedure for the monthly inspection and maintenance of the three generators included as part of the DMR project.

BearCom and Northumberland staff have reached out to each generator owner to confirm that the generators will be maintained on a regular basis. LUSI has confirmed that inspection and maintenance is done on a weekly basis. Xplore Fibre's maintenance is completed on an annual basis. Staff will follow up with the remaining authorities regarding maintenance schedules.

The radio licenses under Innovation, Science and Economic Development Canada (ISED), will continue to be the responsibility of each member municipality except for the new equipment on radio towers which the County be responsible for.

**Table 3: ISED Radio Licenses**

<b>Equipment</b>	<b>Responsible Party</b>
<b>Radio equipment at towers</b>	Northumberland County
<b>Radio equipment at Fire Stations and Depots</b>	Municipal Fire and Public Works Departments
<b>Radios and pagers</b>	Municipal Fire and Public Works Departments

## Financial Impact

<b>Total Approved Project Budget</b>	<b>\$526,342</b>
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Original BearCom Contract (including non-recoverable HST)	\$501,342
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### 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	
Radio System User Manual	\$2,530	
Additional Costs To Date		<u>\$36,656</u>

<b>Overbudget</b>	<b>\$24,925</b>
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The additional cost for the project will be covered under the 2025 operating budget for the DMR system equipment owned by the County. Other costs for 2025 will include costs for tower leases, electricity, generator maintenance, equipment maintenance, licenses and propane.

## Member Municipality Impacts

The DMR system has improved connectivity and coverage for Fire Services and Public Works for the County and the seven member municipalities. The system has provided seamless communication between all municipalities. In addition, this enhanced coverage allows 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 DMR system has separate channels for each Public Works and Fire department. In addition, a shared channel is available for all municipalities to assist during emergencies.

The County will ask member municipalities to sign off to confirm that both Fire and Public Works radios are working per the original scope of work. Further, the County will prepare agreements with the member municipalities that outline who is responsible for various costs and services, as provided in this report.

## Conclusion / Outcomes

Northumberland County's radio tower project is now fully operational. The Northumberland tower will be removed in the spring and minor deficiencies will be completed shortly.

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