



TOWNSHIP OF WOOLWICH
ENGINEERING AND FIRE DEPARTMENTS

MEMO TO: Mayor and Council

DATE: December 10, 2013

FROM: Rick Pedersen and Dan Kennaley

SUBJECT: Region of Waterloo Voice Radio Infrastructure Replacement Report

FILE I.D.: N/A

On November 12th 2013, the attached report CR-FM-13-020 was presented to Regional Council. The recommendation is for the authorization of the issuance of a Request for Proposal for the replacement of the Region of Waterloo Voice Radio System (WRVRS). This would take place early in 2014 with a planned contract awarded by mid-year.

The system was to be replaced in 2018, however the current equipment is outdated and replacement parts are difficult to obtain. The WRVRS would replace the current analog system with a digital system.

The expected cost of the replacement is to be at least \$26 million.

As members of the Voice Radio Steering Committee, we want to ensure that your needs are met with the replacement and that costs are responsible.

The RFP process is necessary because possible suppliers were unable to offer reliable estimates without more detailed information on what the users will require.

The RFP will be written to include the following:

- Best use of the existing infrastructure
- Evaluation of the cost and feasibility of operating parallel systems
- Evaluation of own/operate(in house)and contracted hosted service models
- Evaluation of the timing options for transition of users to the new system
- Bulk purchasing opportunities for users to replace handset and base station equipment

The Region is responsible for the purchase and maintenance of the Voice Radio System used by the Waterloo Regional Police, Fire Departments, Municipal Operations, Grand River Transit and the Grand River Conservation Authority. It is the responsibility of the Township Fire Department and Engineering and Planning Departments for the purchase and maintenance of the Township handheld, vehicle and base station radios.

The Voice Radio Steering Committee members have been asked that we review our existing budgets with Council. Staff does have expected costs in the Capital forecast and will report back to Council with definite costs of the equipment replacement when the platform for the Voice Radio System has been selected.



REGION OF WATERLOO

Report: CR-FM-13-020

CORPORATE RESOURCES Facilities Management and Fleet Services

TO: Chair Tom Galloway and Members of the Administration and Finance Committee

DATE: November 12, 2013

FILE CODE: A20-30 (A)

SUBJECT: VOICE RADIO INFRASTRUCTURE REPLACEMENT

RECOMMENDATION:

THAT the Regional Municipality of Waterloo authorize the issuance of a Request for Proposal for replacement of the Waterloo Region Voice Radio System, as outlined in report CR-FM-13-020, dated November 12, 2013;

AND THAT the required adjustments to the Voice Radio capital funding be reflected in the draft capital plan for the 2014 budget process.

SUMMARY:

Nil

REPORT:

Background:

The Waterloo Regional Voice Radio System (WRVRS) provides two-way voice radio communications for Waterloo Regional Police Service, all municipal Fire Departments, all Regional Departments (principally Transit and Roads Operations) and various area municipality operations departments within the Region. In addition a number of other agencies such as the Red Cross and the Grand River Conservation Authority utilize the system, though to a lesser degree. Under the current arrangement, the Region pays all costs related to the voice radio infrastructure, upgrades and maintenance, with the other municipal partners responsible for purchase of the user equipment. The original analog system was installed in 1994 and has undergone several minor upgrades and one major upgrade in 2009/2010 (\$7.6 million) to ensure optimum performance and coverage. The 2009/10 upgrade addressed typical end of life cycle concerns including difficulty in obtaining replacement parts and effective support services as well as improving system coverage in the Cambridge area by adding one new tower to the system. The 2009/2010 upgrade is expected to provide reliable communications at the current levels to the end of 2018 and potentially to 2020, subject to parts and support availability.

The evaluation completed by the project team at the time of the last major upgrade concluded that the next evolution of the voice radio system, required sometime between 2018 and 2020, would involve a complete replacement of the current analog system with a digital system rather than another upgrade of infrastructure.

Steering Committee Evaluation & Recommendations:

A Steering Committee has been established to begin planning for the voice radio system replacement and to allow participation of the impacted municipalities, and to identify any potential

additional users where operational efficiencies or cost savings would result. The Steering Committee includes senior management representatives of all Voice Radio users including Waterloo Regional Police Service, all municipal Fire Departments, GRT, EMS and Region and selected area municipal operations staff.

After evaluation of preliminary functional requirements and current industry standards for voice radio communications the Steering Committee has concluded that we need to begin the process of converting from an analog system that will not be supported beyond 2018 and for which obtaining replacement parts will become increasingly difficult in the years ahead. The current analog system is essentially limited to transmission of voice communications and the Steering Committee recommends conversion to a digital platform called P25 which offers more functionality. Digital systems allow the correction of signal noise leading to constant voice quality, a greater volume of calls through the same frequencies, easier and stronger encryption capabilities, longer battery life and user identification and user status buttons. Security of communications (encryption) has become much more critical since the last upgrade and would prevent unauthorized users from listening in on police or other user group activities. Although the current system provides encryption for some critical functions, it is not capable of providing the full encryption which is needed today. The P25 platform uses a standardized digital radio signal format which results in radio equipment which is compatible between vendors leading to increased competition. P25 compatible radio handsets furthermore allow transmission of both digital and analog voice signals and the use of radios while in other jurisdictions operating a P25 system. In order to take advantage of the improvements associated with a digital system and avoid issues with obtaining replacement parts and a time where the analog system may not be supported, the Steering Committee is recommending proceeding with the a digital system replacement as soon as possible rather than waiting for the full life cycle of the existing system.

Since this will be a complete system replacement, the Steering Committee has also considered a number of options related to system configuration. These include in house and hosted alternatives as well as phasing options in terms of migration of users to the new system.

The in house option would follow the current model of a Region owned and operated system. All equipment, towers and sites would be owned, operated and maintained by the Region. Externally hosted systems are owned, operated and maintained by an external vendor. Externally hosted options for Police and Fire users have been available for some time and have matured to a point where they may represent viable alternatives to the traditional municipality owned and operated system. No matter what specific option is selected, there may be a business case to maintain the current system, in parallel with the new system, for as long as possible. While this may present some cost and system interoperability concerns it would allow a longer transition for non-emergency services user groups and delay the need to replace equipment for those users.

Unfortunately, due to the reluctance of various vendors to provide reliable cost estimates and system details without a full system specification, the committee was not able to narrow these options down and is recommending that the Request for Proposal be written to include consideration of:

- best use of existing infrastructure
- evaluation of the cost and feasibility of operating parallel systems
- evaluation of own/ operate (in house) and contracted (hosted) service models
- evaluation of timing options for transition of user groups to the new system
- bulk purchasing opportunities for user groups to replace handset and base station gear

Project Schedule:

Based on the projected lifespan of the current system, the system replacement was originally planned for completion in 2018. To address the need to accelerate the project implementation for the reasons listed above, it is recommended that a Request for Proposal be issued early in 2014 with a planned contract award by mid-year. Following evaluation of the submittals, the Steering Committee will make a recommendation to Council for award. Once awarded, a detailed transition/implementation plan will be developed in consultation with area municipal partners. It is expected that implementation can be completed by early 2017, which will provide the required system enhancements and insure continued reliability into the future. A decision as to the recommended option will be made based on the results of the RFP and a full business case evaluation. Should a decision be made to temporarily run two parallel systems, users whose enhancement needs are not as pressing would have the option of delaying migration to the new system.

The Steering Committee members have been asked to review existing budgets with their respective staff and Councils regarding the timing of user gear replacement and alignment with the voice radio system replacement. The Steering Team is also liaising with representatives of the consolidated dispatch project team to insure any required alignment with decisions and timing relative to that project, and to identify possible economies.

CORPORATE STRATEGIC PLAN:

The infrastructure replacement of the voice radio system will support Focus Area 2 of the Corporate Strategic Plan: Develop, optimize and maintain infrastructure to meet current and projected needs.

The project also supports Focus Area 5 to Strengthen and enhance partnerships with area municipalities, academia, community stakeholders and other orders of government.

FINANCIAL IMPLICATIONS:

TO BE COMPLETED

OTHER DEPARTMENT CONSULTATIONS/CONCURRENCE:

The content of this report has been discussed with Police and area municipal representatives. Staff from the Finance Department have been consulted regarding the financial implications and budget impacts.

ATTACHMENTS

NIL

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Jerry Biersteker *Senior Project Manager, Facilities Engineering*

APPROVED BY: Gary Sosnoski, *Commissioner of Corporate Resources*