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FIRE SERVICES 2014 VOICE RADIO COMMUNICATION SYSTEM REPLACEMENT

The Finance and Administration Committee recommends deferral of consideration of the following report dated July 25, 2012, from the Executive Director, Corporate and Strategic Planning until the Committee's meeting of October 4, 2012 to permit further discussion between the municipal Chief Administrative Officers.

1. RECOMMENDATIONS

It is recommended that:

1. Council request that each of the local municipalities provide the Region by November 30, 2012, with the amount of capital funding they have available to contribute to their proportionate share of the \$7M replacement cost of the Voice Radio System in order to inform the amount of funding that would be requested from York Region.
2. The eight municipal fire services assume and fund their proportionate share of the annual operating cost of the new Voice Radio System, while continuing to pay for any additional equipment purchases and associated maintenance costs that may be required in the future.
3. The Regional Clerk forward this report to the clerks of the local municipalities.

2. PURPOSE

This report outlines the impact of replacing the Voice Radio System (VRS) to the eight municipal fire services and their request for funding support from The Regional Municipality of York for the user equipment (includes mobiles, portable radios, and dispatch consoles). It highlights the funding of ongoing operating costs required to continue operating on the same radio system as Police and EMS beyond 2014. There is also the need to determine to what extent local municipalities have made provisions for capital funds required to replace the user equipment to inform funding contributions from York Region.

3. BACKGROUND

York Regional Police have initiated the replacement of their VRS. The current VRS that is utilized by York Regional Police, the eight municipal fire services, York Region

Emergency Medical Services (Supervisors only) and York Region Emergency Management, is reaching its end of life cycle and will no longer be supported by the existing vendor beyond 2014.

York Regional Police have operated a Voice Radio System since 2001

The Public Safety Radio system currently used by York Regional Police (YRP) and the three Fire Dispatch Centres within York Region utilizes Motorola's technology and operates via the 800 MHz band which is older technology. York Regional Police owns the entire system and has operated and maintained it since 2001.

The Voice Radio System was enhanced in 2001 increasing coverage and capacity to allow municipal Fire Departments in York Region to utilize the system

There are eight municipal fire departments within York Region that provide fire services from 40 fire stations strategically located within each municipality. The eight municipal fire departments are dispatched by three fire communications centres that are linked to the 9-1-1 Communications Centre. The three Centres are operated by Markham Fire, Richmond Hill Fire (which dispatches itself, Central York, Whitchurch-Stouffville, East Gwillimbury, Georgina and Georgina Island) and Vaughan Fire (which dispatches itself and King Township).

In 2001, the VRS was upgraded to enhance capacity, provide greater coverage and to accommodate the needs of the eight municipal fire services within the Region to utilize the radio system and provide an interoperable platform (meaning that Police, Fire Services and EMS could now speak to each other). This was accomplished by adding the three new sites and three additional channels supplied by Motorola. Since 2001 the eight municipal fire services, including the three dispatch centres have been utilizing a Motorola radio system.

Today, the system is comprised of 2,081 pieces of user equipment (portable radios, mobiles and consoles) operated by York Regional Police, the eight municipal fire services, York Region EMS (Supervisors only) and the York Region Emergency Operations Centre (EOC) as outlined in *Table 1*. The system has provided reliable interoperable service since being installed.

Table 1
User Equipment on the Current Radio System

Stakeholder	Mobiles (In car Radios)	Portables (Hip Radios)	Dispatch Consoles	Mobile Repeaters	Total	%
York Regional Police	674	665	6		1345	65%
York EMS	12	20			32	1.25%
Regional Emergency Operations Centre		5			5	0.25%
Richmond Hill FD	48	60	3		111	5%
Vaughan FS	64	83	2	2	151	7%
Markham FS	65	70	2		137	7%
Central York FS	24	53			77	4%
King FS	25	36			61	3%
East Gwillimbury FS	11	41			52	2.5%
Georgina FS	26	39			65	3%
Whitchurch- Stouffville	17	28			45	2%
	966	1100	13	2	2081	100%

Current Motorola Voice Radio System is approaching the end of its useful life and a replacement strategy has been initiated by York Regional Police

A public safety radio system, much like other critical infrastructure has a finite service life and the current system technology has effectively reached the end of its life cycle. Motorola has indicated that this system is no longer manufactured and as a result support and availability of core components are reduced. Motorola will no longer support the radio system after 2014.

Although it has been identified that the current technology in use will be reaching its end of life, the system remains stable to date. Future risks have been identified however, and a system replacement strategy has been initiated and is being led by York Regional Police Communications. York Regional Police have been proactive and working with stakeholders that operate on the radio system. The eight fire departments including the three Fire Communications Centres operated by Markham, Richmond Hill and Vaughan Fire Services are part of the same radio system and will be impacted by this replacement. Approximately 95% of the user equipment on the current VRS will need to be replaced so that it is compliant to the new system. A request for proposal is expected to be released by York Regional Police including the fire services portion in September, 2012 with the award of the contract anticipated in February, 2013.

The funding approach for the VRS in 2001 involved York Region funding a portion of the capital costs and on-going operational expenditures on behalf of the eight municipal fire services

- The addition of the eight municipal fire services in 2001 to the VRS was at cost of \$6.3 M (\$1.8M from YRP capital and \$4.5M funded by York Region)
- The annual operating cost of the current VRS is approximately \$751K of which York Region funds a portion on behalf of the fire services. The remainder is funded by York Regional Police. The breakdown of the current total annual operating costs are identified in *Table 2*

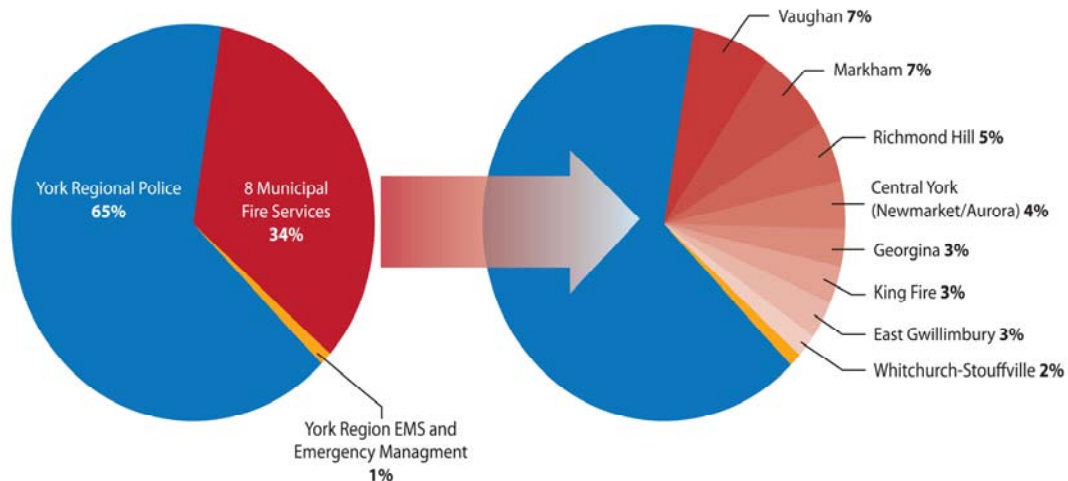
Table 2
Current Annual Operational Funding Formula for Fire and Police Radios

Item	York Regional Police Costs	York Region Costs (on behalf of Fire Services)
High Speed Data Lines	\$42,000	\$36,000
Industry Canada Licensing	\$65,000	\$18,000
Motorola Maintenance contract	\$276,049	\$90,000
Tower Maintenance	\$83,765	\$0
Employee Cost repair and maintenance	\$140,000	\$0
Total	\$606,814	\$144,000
Total		\$750,814

The operating costs that are currently funded by York Region on behalf of fire services are not reflective of the true operating costs based on user equipment that fire services have on the system. Since 2001, fire services have added user equipment at their own cost which now comprises approximately 34% of the total equipment on the VRS. The operational funding has not been adjusted to reflect the additional user equipment. This has resulted in an operational funding shortfall of approximately \$111K, which is currently being covered by York Regional Police. Operational costs will need to be adjusted following implementation of the new radio system in 2014. The breakdown of user equipment on the current VRS is outlined in *Chart 1*.

CHART 1

User Equipment on the Current Voice Radio System based on Proportionate Share Percentages



York Region has received a request for funding support for the VRS equipment replacement from the Regional Fire Coordinator on behalf of the eight municipal fire services

On April 14, 2012, a letter was received (*Attachment 1*) from the Regional Fire Coordinator on behalf of the eight municipal fire services advising that they are committed to the VRS system replacement project. The letter also requested funding support for the full capital cost required to replace existing user equipment in order for the eight municipal fire services to remain on the new Voice Radio System beyond 2014.

Before the Region commits to funding a portion or all of the capital costs requested, further information is required from local municipalities to establish if funds have been set aside or collected through development charges in anticipation of the pending VRS replacement.

4. ANALYSIS AND OPTIONS

An independent review of the Voice Radio System was conducted

In March of 2011, KVA Communications, a consulting firm, was engaged by York Regional Police to conduct a voice radio system review on behalf of the Police and Fire Services of York Region. They conducted a user survey and provided a systems alternative report with recommendations and options.

The Report noted that although the system radio infrastructure has been managed effectively to maximize the system life and remains fairly stable, it is now at the end of its life span and needs to be replaced.

New Voice Radio System will meet industry wide standards

Over the past two decades, public safety agencies have struggled with a variety of radio communications standards and technologies. System security issues, proprietary technologies, and the inability to talk with other agencies have been some of the concerns.

In 1989 recognizing the need for common standards for first responders, representatives from the Association of Public Safety Communications Officials International (APCO) established Project 25. Project 25 (P25) is a suite of standards for digital radio communications for use by federal, provincial and local public safety agencies in North America to communicate with other agencies. The goal of P25 is to enable first responders to communicate with each other in order to achieve enhanced coordination and timely responses through efficient and effective use of communications equipment.

By implementing a P25 based system York Regional Police will not only mitigate its aging infrastructure but will address the KVA consultant's report recommendation that the system requires replacement. This will be achieved by providing a system that is secure, expandable and reliable, while providing interoperability amongst first response agencies that meet industry wide standards.

New Voice Radio System is fundamental to maintaining the coordinated response by emergency first responders that currently exists

Interoperability is an important aspect of public safety due to the fact that Police, Fire Services, Emergency Medical Services and Safety Departments, need to be able to communicate seamlessly during wide-scale emergencies for an effective and coordinated response. Traditionally, agencies could not exchange information because they operated on different radio hardware that was incompatible. Since 2001, York Regional Police, the eight municipal fire services and EMS (Supervisors only) have been on the same voice radio system that has interoperability capability. This will continue to be realized on the new radio system as well as increased capacity, enhanced coverage, secure and encrypted voice communication and compliance to an industry wide standard.

Operational costs will increase with the replacement of the Voice Radio System

To date, York Regional Police have funded all the infrastructure costs of the voice radio system with the exception of the upgrade initiated in 2001, as a result of the additional requirements of moving the fire services onto the system. Virtually all infrastructure

maintenance costs are covered by the York Regional Police budget. In the future, the cost of owning and operating the Voice Radio System will increase as a result of greater reliance on software inherent in new system designs. Although York Region currently funds the system for both the Police and Fire Services, the York Regional Police budget has always incurred almost all of the costs for the system's maintenance, repair and augmentation while the remaining cost is allocated to the York Region Emergency Management Program budget. The Emergency Management Program currently funds the cost of the T-1 (High Speed Data) lines that connect the radio system to the three Fire Dispatch Centres, the Motorola maintenance contract as well as the Industry Canada license for radio frequencies used by the eight municipal fire services of York Region.

Funding Considerations for new Voice Radio System for Fire Services in 2014 include approximately \$7M for capital equipment replacement and approximately \$420K for annual operating

It is estimated, that the total project cost for the new Voice Radio System including Police and eight municipal fire services is \$27M (\$20M for YRP and approximately \$7M for fire services). The \$20M to be funded from the York Regional Police Budget has been approved.

In addition to capital cost, overall fire services operating costs will increase to an estimated \$420K, which will bring the total annual operating costs of the new VRS to approximately \$1.25M.(Police and Fire Services combined) The increase to \$420K reflects 34% of the total system operating cost of \$1.25M which accurately reflects the user equipment being operated by the eight fire services on the Voice Radio System.

A breakdown of the estimated capital and annual operating cost, as provided by Police to Fire Services based on equipment distribution is identified in *Table 3*.

Table 3
Breakdown of the estimated capital and operating costs for the fire services
portion of replacement user equipment \$7M

Fire Service	Mobiles	Portables	Consoles	Repeater	Total User Equip.	Annual Operating Cost	Capital Cost by Fire Service
Richmond Hill	48	60	3		111	\$66,738.82	\$1,111,588
Vaughan Fire	64	83	2	2	151	\$90,788.84	\$1,512,160
Markham	65	70	2		137	\$82,371.33	\$1,371,960
Central York	24	53			77	\$46,296.30	\$771,102
King Fire	25	36			61	\$36,676.29	\$610,873
East Gwillimbury	11	41			52	\$31,265.03	\$520,744
Georgina	26	39			65	\$39,081.29	\$650,930
Whitchurch-Stouffville	17	28			45	\$27,056.28	\$450,644
	280	410	7	2	699	\$420,274.18	\$7,000,000

Regional Fire Coordinator has undertaken discussion with local municipal fire services in regard to assuming proportionate share of annual operating costs.

The Regional Fire Coordinator has initiated discussions with the local municipal fire services in regard to assuming their proportionate share of the annual operating cost following the implementation of the new VRS. As noted previously, the Region currently funds annual operating costs on behalf of the eight municipal fire services but has no oversight for the actual equipment or its usage. Further information is required from local municipalities to establish if funds have been set aside or collected through development charges in anticipation of the pending VRS replacement costs and ongoing operational costs.

Link to Key Council-approved Plans

The replacement of the Voice Radio System initiative that provides, increased capacity, enhanced coverage, secure and encrypted voice communication, industry wide standards and interoperability for a more coordinated response by first responders supports the Strategic Priority Area of strengthening organizational capacity and applying continuous improvement activities to core business systems and processes in the *2011-2015 Strategic Plan*. In addition, the project supports *Vision 2051-A Place Where Everyone Can Thrive*, through promoting safe and secure communities and developing sustainable community safety and crime prevention strategies through community mobilization, engagement and education.

5. FINANCIAL IMPLICATIONS

To support the fire services request to fund the capital costs of \$7 M to replace the existing radio user equipment on behalf of the eight municipal fire services, York Region would require information from each local municipality on funding that they have set aside either through budgets or development charge reserves to contribute to the cost. This would inform the amount of funding that the Region would need to consider. Funds have not been previously budgeted by the Region and would need to be included in the 2014 budget.

6. LOCAL MUNICIPAL IMPACT

Each of the eight municipal fire services would be responsible for their proportionate share of the annual operating costs that include maintenance, Industry Canada Licences and T-1 lines as well as any future equipment purchases. Local municipalities will also need to determine capital funding availability for their proportionate share of replacement costs of the Voice Radio System. All local municipalities will benefit by the public safety coordination provided through an interoperable voice radio system.

7. CONCLUSION

Since 2001 York Regional Police, the eight municipal fire services and EMS (Supervisors only) have operated on the same Voice Radio System which is now reaching its end of life and will no longer be supported by the vendor after 2014. A replacement strategy has been initiated by York Regional Police to replace the VRS with a system that will continue to provide interoperability amongst first responders as well as increased capacity, enhanced coverage, secure and encrypted voice communication, and compliance to an industry wide standard. In 2001, capital funding for replacement of user equipment was paid for by the Region on behalf of the eight fire services and since that time, ongoing annual operating costs have been supported by York Regional Police and York Region Emergency Management.

A Request for capital funding support was received from the Regional Fire Coordinator on behalf of the eight municipal fire services for the replacement cost of user equipment in the amount of approximately \$7M. Further information is required from local municipalities to establish the extent of funds set aside or collected through development charges in anticipation of the pending VRS replacement.

If the Region supports a portion or all of the capital costs, they will need to be accounted for in the budget for 2014. Fire services operating costs will increase to an estimated \$420K which more accurately represents the 34% of fire services user equipment utilizing the radio system. It is recommended that local Fire Services fund these ongoing costs given that they have the ongoing oversight for the equipment and its maintenance.

For more information on this report, please contact Morris Faccin, Manager, York Region Emergency Management at Ext. 1212.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)



Township of King Fire & Emergency Services

Office of the Fire Chief

2045 King Road

King City, Ontario L7B 1A1

Tel: 905-833-2800

Fax: 905-833-6960

April 14, 2012

Inspector Paulo DaSilva
York Regional Police
17250 Yonge Street
Newmarket Ontario
L3Y 4W5
(Sent Electronically)

RE: York Region Trunked Voice and Data Radio System Upgrade

Inspector DaSilva,

As per your request this letter will serve as confirmation that all 8 Municipal Fire Services in the Regional Municipality of York commit and will continue to be part of the Radio Communications system designed, maintained and operated by York Regional Police Services. The fire services in York Region have been part of this vital component of public safety since 2001 and will continue to do so as we move closer to the projected 2014 upgrade and beyond.

Since 2001 there have been numerous incidents within York Region that our Police, Fire and EMS have had the opportunity to communicate with each other in the field at emergency scenes. This benefit of agency communications (interoperability) has allowed for the proper coordination and mitigation of those emergencies and has greatly improved responder safety thus ultimately reducing the risk of York Region residents, businesses and visitors from further peril.

The current users of the system include York Regional Police, York Region Emergency Medical Services, York Region Emergency Management Branch and the 8 fire services and we strongly support the concept design of a future voice radio system to be built with the robustness of possible additions of York Region internal department users. The concept of expanding the next radio system to include other possible partners is just another example of the proactive fiscal leadership of York Regional Police and will be demonstrated in future cost avoidances of all internal Regional departments.

It is also our intent as this project moves forward and pending the outcome of the April 25th Police Services Board Report to begin discussions with the Region to support through funding, as was the case in 2000/2001, the implementation of this project to avoid delay and possible catastrophic system failure.



Township of King Fire & Emergency Services

Office of the Fire Chief

2045 King Road

King City, Ontario L7B 1A1

Tel: 905-833-2800

Fax: 905-833-6960

We (8 Municipal Fire Services) are available for consultation to determine system needs and look forward to the continued partnership with York Regional Police in seeing this project through to completion. If I or any of the Senior Command Teams from our Region's fire services can be of further assistance please advise.

This correspondence is sent on behalf of the 8 Fire Services of York Region through the position of Fire Coordinator and has been copied to all 8 fire chiefs, York Region Manager of Emergency Management Morris Faccin.

Best regards,

COPY

Bryan Burbidge

Township of King Fire Chief / CEMC

Fire Coordinator Regional Municipality of York