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CENTRALIZED TRAFFIC CONTROL SYSTEM (CTCS) COMMUNICATION

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, April 21, 2004, from the Commissioner of Transportation and Works:

1. RECOMMENDATIONS

It is recommended that:

1. The Commissioner of Transportation and Works be authorized to engage Delcan Corporation to develop and integrate personal communication service (PCS) 1xRTT communication technology for the Centralized Traffic Control System (CTCS) as outlined in this report at an upset fee of \$112,283.13.
2. The requirements of the Purchasing By-law be waived for this assignment.

2. PURPOSE

The purpose of this report is to authorize the Commissioner of Transportation and Works to engage a consultant to develop and integrate personal communication service (PCS) 1xRTT communication technology for the Centralized Traffic Control System (CTCS). By integrating 1xRTT technology, i.e. cell phone technology the Region reduces its current communication costs substantially.

3. BACKGROUND

The Region's traffic control signals are individually connected to the CTCS room at Woodbine Avenue by means of leased lines (Bell) and spread spectrum radio. Bell lines are used where line-of-sight for radio communication is not available.

During the spring of 2003, the Region tested the use of PCS 1xRTT digital wireless technology to determine its suitability for replacing leased line technology.

This project was funded by Transport Canada through the Intelligent Traffic Systems (ITS) research and development funding agency, Enterprise and in-kind contributions from stakeholders in industry and government agencies. The Region was a key stakeholder, contributing material support and ITS expertise to this project.

4. ANALYSIS AND OPTIONS

The CTCS communication network is comprised of leased line technology and spread spectrum radio (SSR) technology.

Traditionally, traffic signal control equipment requires leased line technology for communicating from the CTCS to signalized locations where SSR technology is obstructed by buildings or terrain. As technology has evolved, the use of PCS 1xRTT has proven effective and efficient for the purposes of communication to traffic control signals.

4.1 Personal Communication Service 1xRTT Communication Technology

The PCS 1xRTT network transmits data in packets. By doing so, billing is based on the volume of data sent and received. By comparison, leased line technology is billed for the time spent connected. There are significant reduced operating costs associated with the use of PCS 1xRTT network communications

The testing of PCS 1xRTT successfully demonstrated full operations. All CTCS functions including the most demanding operation were successfully demonstrated.

Table 1 highlights estimated capital and operating costs in comparison with leased line technology based upon the current 127 intersections utilizing leased line technology.

Table 1
Traffic Control Signal Communication Cost Comparison

Activity	Communication Mode	
	Leased Line	1xRTT
Annual Operating	\$243,840	\$68,580
Maintenance	2% of Operating	2% of Operating
Sub-Total – Operating/Maintenance	\$269,196	\$69,951
Hardware	N/A	\$220,980
Development and Integration	N/A	\$91,250
Sub-Total - Capital	N/A	\$312,230
Annual Operating/Maintenance Saving	\$269,196 - \$69,951 = \$199,245	
Estimated Pay-Back (including capital) Period	1.6 years	

Currently, the Region is using leased line technology where radio won't work. The leased line technology is regulated by the Canadian Radio-Television and Telecommunications Commission (CRTC). By comparison, the Region may tender for the operating services of PCS 1xRTT to cellular providers, ensuring the lowest operating costs.

4.2 Purchasing By-Law

The Region and Delcan Corporation own the proprietary software used within CTCS, therefore, have integral knowledge of the software. As a result of the proprietary vendor

specific software, it is not appropriate to obtain submissions from other consultants to integrate PCS 1xRTT communication technology.

Therefore, requirements of the Purchasing By-law should be waived, and this project be assigned to Delcan Corporation.

5. FINANCIAL IMPLICATIONS

The approved Roads Capital Budget contains funds for this project assignment. Within the Roads Capital Budget the Region has allocated costs associated with the upgrading of the CTCS. Because, this assignment is considered an upgrade to the communication service, funds from the CTCS upgrade project are to be used.

6. LOCAL MUNICIPAL IMPACT

There are no local municipal implications associated with this report.

7. CONCLUSION

It is recommended the Commissioner of Transportation and Works be authorized to engage Delcan Corporation to develop and integrate PCS 1xRTT communication technology. Once completed, the 1xRTT communication project will cost \$69,951 annually to operate. This is a \$199,245 annual savings (today's figures) in operating/maintenance cost.

As the CTCS contains proprietary vendor specific software, it is not appropriate to obtain three quotations from other consultants for the development of the software and integration.

The Senior Management Group has reviewed this report.