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YORK REGION TRANSIT

INTELLIGENT TRANSPORTATION SYSTEMS (ITS) DEPLOYMENT AND INTEGRATION IN SUPPORT OF TRANSPORT CANADA ITS FUNDING

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, February 23, 2005, from the Commissioner of Transportation and Works:

1. RECOMMENDATIONS

It is recommended that:

1. The Region enter into a contract with Transport Canada for 50% of the funding of a \$500,000 Intelligent Transportation Systems (ITS) project, as outlined in this report.
2. The Region enter into a contract with LEA Consulting Ltd. in respect of consulting services for this project in the amount of \$200,000 pursuant to the sole source provisions of the Purchasing By-law.
3. The Regional Chair and Regional Clerk be authorized to execute contracts subsequent to Recommendations 1 and 2, subject to the prior review of Legal Services.
4. The Region's Information Technology Services branch participate in the project to ensure compatibility with existing Regional systems.

2. PURPOSE

This report seeks authorization to enter into an agreement with Transport Canada for project funding of 50%, up to \$250,000, under Canada's Intelligent Transportation Systems (ITS) Deployment and Integration Plan. In addition, this report seeks authorization to engage LEA Consulting Ltd. to provide engineering and consulting services for this project.

3. BACKGROUND

Transport Canada invited submissions from the municipal and private sectors from across Canada for funding to implement Intelligent Transportation Systems (ITS) throughout the country. The financial support offered to Canadian agencies is 50% of total eligible expenditures up to a maximum of \$250,000, for ITS projects meeting certain objectives and criteria.

Transport Canada encouraged partnerships between the public and private sector to submit proposals. In response to this competitive call for proposals, York Region Transit (YRT) and LEA Consulting Ltd. formed a partnership. LEA devised the work program and prepared the complete proposal submission, on behalf of YRT, to Transport Canada, detailing a project consisting of the deployment and integration of ITS for YRT's conventional and rapid transit fleets.

LEA has been working with Marshall Macklin Monaghan (MMM) under contract to the Region in the role of Owner's Engineers, conducting technical reviews and design input for the ITS deployments that will be part of the York Rapid Transit Plan (YRTP) project. LEA has specifically provided ITS related expertise in the context of the overall YRTP project goals as part of a required due diligence effort, and are continuing to provide input and expertise in this area. LEA is also providing interim support to YRT's newly formed Transit Management Systems (TMS) division, which oversees transit technology for the Region.

In addition to this relevant background, LEA has partnered in other ITS projects with the Region and the firm was very familiar with the concepts of Intelligent Transportation Systems, especially in the context of the YRTP project. Given this background and expertise, it was deemed that the Region and LEA would make a solid partnership for the Transport Canada ITS application. Under this partnership, LEA Consulting Ltd. has agreed to contribute \$15,000 of in-kind consulting services to the overall project budget.

The corresponding application was submitted to Transport Canada in July 2004. After a competitive evaluation and review process of various ITS related proposals, Transport Canada announced on January 12, 2005 that the Region's application for funding was successful and they will provide a maximum contribution of \$250,000 towards the proposed project.

4. ANALYSIS AND OPTIONS

A joint submission was prepared and submitted to Transport Canada. The submission included details of the project and its relevance to Transport Canada's ITS strategic plan for Canada. The purpose of the project is to initiate the process required to design and deploy an integrated ITS system that is in compliance with the Canadian ITS architecture. This project would provide for the design and limited deployment of a unified ITS system for transit services in the Region. Through this work, the ITS system for YRT would be interoperable with the YRTP Quick Start ITS system.

The project submission outlined the following major activities:

1. Project Initiation
2. Preliminary Design
3. Detailed Design

4. Design Evaluation
5. Procurement
6. Deployment
7. Final Reporting

The scope of work would include various investigations and recommendations related to the design of the ITS system architecture, the operational integration of transit control centre functions and processes, the communications system, the operation of transit signal priority (TSP), the development of a multi-year deployment plan, the identification of multi-year budgetary requirements, etc. for the entire YRT fleet.

Proposed ITS deployments for YRT conventional and Mobility Plus fleets include Computer Aided Dispatch and Automatic Vehicle Location (CAD/AVL) systems, and TSP deployments on selected YRT routes. Although the deployed system for YRT may not provide the full assortment of functions provided by the YRTP Quick Start ITS system, it will provide the necessary foundation to upgrade the functionalities of the system. The goal of integration between the ITS deployments would allow more intelligent operations, management, and customer service.

Part of the project involves reviewing and assessing the latest ITS options for implementing the desired functionality as well as reviewing YRT operations, YRTP influences, and key system elements with respect to conventional and Mobility Plus fleets. For TSP deployments, modeling and simulation will be performed using simulation tools to analyze implications related to traffic control systems.

Ultimately, a migration path for YRT / YRTP integration will be developed and an initial on-street deployment, scaled to the budget scope, will be implemented taking into account all issues and perspectives gained from the YRTP Quick Start initiative.

In addition to the program activities, the Region is required to enter into an agreement with Transport Canada to establish the equal funding arrangement. It is proposed that LEA Consulting Ltd. be authorized to undertake the consulting portion of this assignment, and the Commissioner of Transportation and Works be authorized to sign all applicable agreements with Transport Canada for the funding of this project.

4.1 Relationship to Vision 2026

The deployment and integration of ITS for YRT is supportive of the Region's goal relating to "Infrastructure for a Growing Region", and the action areas of "Developing an Integrated Transportation Network ... Exploring and implementing innovations and technologies to reduce congestion" and "Making Transit Accessible ... continuing to improve service and infrastructure for successfully integrated transit service".

4.2 Purchasing By-law

Sole sourcing of this consulting assignment with LEA Consulting Ltd. is recommended. LEA has been acting as YRT's TMS Manager pending the hiring of this position. They

are also advising the Region on all ITS related matters in connection with the Viva rapid transit project.

5. FINANCIAL IMPLICATIONS

The total cost of the project will be \$500,000, which is funded equally by Transport Canada and the York Region / LEA Consulting Ltd. partnership. This will include consulting fees, the cost of purchasing the equipment, and installation. Contributing funds from the Region will be distributed between the 2005 and 2006 budgets. Operating costs are anticipated to be incorporated into existing and proposed staff levels. The estimated budget breakdown is shown in Table 1.

Table 1
Cost Breakdown

Project Phase	Estimated Cost
Project Initiation	\$5,000
Preliminary Design	\$40,000
Detailed Design	\$50,000
Design Evaluation	\$20,000
Procurement	\$5,000
Deployment	\$370,000
Final Reporting	\$10,000
Total	\$500,000
Funding Sources	Estimated Funding
Transport Canada	\$250,000
York Region	\$235,000
LEA Consulting (in-kind)	\$15,000
Total	\$500,000

The total estimated cost for the project is comprised of consulting fees for a number of areas including Project Initiation, Preliminary Design, Detailed Design, Design Evaluation, Procurement and Final Reporting. The Deployment Phase also includes consulting services for technical support and contract management, the fees for which are included in the \$200,000 consulting budget. The balance of \$300,000 in the project budget is dedicated to the initial, limited deployment of ITS transit management systems technology applied to the YRT conventional and Mobility Plus fleets. Such systems consist of hardware and software for selected initial routes, vehicles and facilities, among which include:

- Computer Aided Dispatch and Automatic Vehicle Location (CAD/AVL) equipment for tracking and schedule adherence.

- Transit Signal Priority (TSP) equipment to reduce delays for transit vehicles.
- Real Time Passenger Information technology to provide schedules and updates via various channels include the Variable Message Signs (VMS), Internet and Phone.

6. LOCAL MUNICIPAL IMPACT

Effective management and integration of York Region's Intelligent Transportation Systems for YRTP and YRT fleets through vehicle tracking, service scheduling, dissemination of information, and safety improvements will enhance and improve transit services for all of York Region.

7. CONCLUSION

To accelerate the deployment, integration, and interoperability of ITS throughout Canada, the Federal government initiated a program, through Transport Canada, which encourages and provides funding to public/private sector partnerships that advance the objectives of ITS.

York Region Transit partnered with LEA Consulting Ltd. to submit an application outlining a project to plan, deploy, and integrate ITS for YRT Conventional and Rapid Transit fleets. LEA devised and prepared the successful proposal submission on behalf of YRT, including the complete work plan for the initiative. Through a competitive evaluation and review process, Transport Canada announced that the Region's partnership application for funding was successful and they will provide a maximum contribution of \$250,000 towards the proposed project.

It is proposed that the Commissioner of Transportation and Works be authorized to enter into a contract with Transport Canada for the funding of this project, and an agreement with LEA Consulting Ltd. to provide the consulting services for this project.

The Senior Management Group has reviewed this report.