

Clause No. 14 in Report No. 7 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on April 17, 2014.

14
DIRECT PURCHASE CONTRACT FOR
TRAFFIC SIGNAL CONTROL EQUIPMENT

Committee of the Whole recommends adoption of the following recommendations contained in the report dated March 20, 2014 from the Commissioner of Transportation and Community Planning:

1. RECOMMENDATIONS

It is recommended that:

1. Council authorize an agreement between the Region and Econolite Canada Ltd. for the supply and delivery of traffic signal controllers in the total amount of \$2,700,000, excluding HST, for a term of four years commencing May 1, 2014, pursuant to the direct purchase provisions of the Purchasing Bylaw.
2. The Commissioner of Transportation and Community Planning be authorized to exercise the option to negotiate an increase of the Direct Purchase for Traffic Control Equipment up to an additional \$2,700,000 in order to accelerate the conversion program, subject to future Capital Budget approval.
3. The Commissioner of Transportation and Community Planning be authorized to exercise an option to negotiate an extension of the Direct Purchase for Traffic Control Equipment up to a further four years, expiring 2022, provided that the vendor has performed the services to the satisfaction of the Commissioner and it is within the Capital Spending Authority for this project.
4. The Commissioner of Transportation and Community Planning be authorized to execute the agreement on behalf of the Region.

2. PURPOSE

This report seeks Council approval to execute a contract with Econolite Canada Ltd. for supply and delivery of traffic signal controller equipment. The direct purchase will support the new Econolite Centracs Centralized Traffic Control System in accordance with the Region's Purchasing Bylaw. The bylaw permits direct purchase where compatibility with existing equipment is a paramount consideration or where there is only one entity reasonably capable of providing the equipment. The Econolite controller is the only traffic signal control equipment assembly available that is fully compatible with the Centracs CTCS system.

3. BACKGROUND

The Econolite Centracs Centralized Traffic Control System was introduced through the vivaNext Rapidway project and the Econolite Traffic Signal controllers are required for full system compatibility

York Region Rapid Transit Corporation, as part of the vivaNext Rapidway construction on Highway 7, established a new Centralized Traffic Control System (CTCS) to meet the performance criteria for the transit rapidway and state-of-the-art centralized traffic control. Through a series of interviews and demonstrations of both traffic signal control equipment and central systems, an evaluation was completed comparing various functionalities. Econolite Canada Ltd. was the successful vendor, providing the Centracs CTCS to the Region under the vivaNext Project. The Econolite controller is the only traffic signal control equipment assembly available that is fully compatible with the Centracs CTCS system.

With the introduction of the new Centracs Centralized Traffic Control System, there is a need for the Region to maintain two traffic control systems, and an opportunity to move forward with a system conversion program

In the March 27, 2008 Council report entitled "Centralized Traffic Control System Software Maintenance Contract Award", staff identified that a new traffic system would be expected within the next five years. The new system, Centracs, is being implemented with the new vivaNext installations. Under the vivaNext project there will be approximately 50 traffic signal controllers replaced along the rapidway sections funded by Metrolinx.

Migration from the existing Centralized Traffic Control System to the new Centracs system will happen over the long term, requiring new traffic signal controllers that are compatible with the Centracs system to take advantage of its full functionality. The proposed direct purchase contract is for the procurement of 200 traffic signal controllers over a four-year period to support the migration to Centracs outside of the rapidways, and to accommodate future Transit Signal Priority (TSP) expansion.

The Econolite traffic signal controller unit costs are consistent and comparable with other jurisdictions

Like every technology, traffic signal control equipment continues to evolve, making older equipment obsolete. Previously, the cost of traffic signal control equipment to be used on the existing CTCS system was approximately \$10,000 per unit. This traffic signal controller is now obsolete and no longer available. The most recent quote for a replacement traffic signal controller on the existing CTCS system was in the amount of \$13,514.

The direct purchase cost of the Econolite Traffic Signal Control Equipment unit is \$13,449, and provides full functionality and compatibility with the new Centracs Centralized Traffic Control System. This price is comparable with other jurisdictions, and less than the Econolite traffic signal controller cost if procured through the vivaNext Project.

4. ANALYSIS AND OPTIONS

The Centralized Traffic Signal Control System upgrade will result in enhanced traffic monitoring and control capabilities on the Regional Road Network

The proposed conversion program as outlined in *Attachment 1* will result in enhanced traffic monitoring and control capabilities throughout the Regional Road network. The first six intersections have already been converted to the new system on Highway 7 between Highway 404 and Bayview Avenue as part of the vivaNext rapidway expansion program. Our experience with this limited deployment to date has been positive. The new system has given staff greater flexibility to adjust traffic signal timing settings attempting to find the correct balance between transit service delays and delay to other traffic and pedestrians using the intersections. Transit travel time delay savings in the corridor have been as high as 40 per cent.

Outside of the rapidways, the Centrac's traffic signal control system can provide transit signal priority operations that will reduce transit delays on other corridors where they operate in mixed traffic. In other jurisdictions these travel time savings have been measured as high as 20 per cent. In the City of Calgary for example, the implementation of transit signal priority on Centre Street resulted in a decrease in transit travel time of approximately 15 per cent.

The system is also expected to assist staff in their efforts to manage traffic congestion and delay for non-transit vehicles. The Institute of Transportation Engineers (ITE) estimates that poorly timed traffic control signals can result in increases in travel time and delay in the range of 8 per cent to 25 per cent. In York Region, the expected travel time and delay benefits are expected to be closer to the bottom of this range on most corridors.

In terms of monitoring, the Centrac's system has significant capabilities to monitor the status and operation of each traffic signal in real time within the network from a central location. During the December 2013 ice storm, the Region's existing traffic signal control system provided staff with a very limited ability to understand how the power outages were impacting each intersection in the network. Centrac's will allow staff to understand the status of each intersection including:

- Confirmation of operational status/power
- Status of pedestrian push buttons and vehicle sensors
- Status of emergency vehicle and transit priority equipment
- Operation of left turn priority signal phases and other signal timing parameters

These status checks can be confirmed network-wide from a central (or remote) location without having to travel to individual intersections across the Region. Enhanced central monitoring provides considerable travel time and cost savings for Regional staff and our contractors giving us the ability to respond quicker.

The Centrac's CTCS system is used in numerous cities across Canada, including but not limited to:

- District of North Vancouver
- City of Edmonton
- City of Regina
- City of Grande Prairie
- Region of Niagara
- City of Moncton

Regional staff will monitor progress in 2014 and 2015 to assess opportunities to accelerate the controller conversion program

Further conversions to the new Centrac system will be assessed and determined under subsequent phases, subject to future budget approval. Under the proposed controller conversion program, the full system conversion is anticipated to take approximately 12 years.

Regional staff will monitor progress in 2014 and 2015 to assess opportunities to accelerate the rate of installation to include additional high priority locations beyond the initial corridors identified in *Attachment 1*. The benefits of an accelerated program provide staff with the tools to manage traffic congestion and delay for non-transit vehicles along other key corridors of the Regional road network, and to implement these capabilities within a shorter time frame.

Link to key Council-approved plans

York Region's Centralized Traffic Control System directly supports York Region's Transportation Master Plan and Official Plan by optimizing roads to accommodate all modes of travel through traffic signal monitoring and signal timing adjustments. As well, it is part of the Intelligent Transportation Systems (ITS) Strategic Plan approved by Council on December 13, 2007, to provide a modern traffic control system that is more responsive, and able to adjust to changing traffic patterns, improving the efficiency of the roadway.

5. FINANCIAL IMPLICATIONS

The annual capital cost over the next four years for the procurement of traffic signal control equipment will be approximately \$675,000 per year, for a total of \$2,700,000.

The summary of traffic signal control equipment cost is provided in Table 1.

Table 1
Traffic Signal Controller Costs and Quantities

Description	2014	2015	2016	2017	Total
Cost	\$675,000	\$675,000	\$675,000	\$675,000	\$2,700,000
Quantity	50	50	50	50	200

The traffic signal control equipment will be funded through the Viva Network Expansion TE&ITS capital program, which has a Capital Spending Authority of \$2,975,000 which is sufficient for the proposed controller conversion program. Should the controller conversion program acceleration be viable, funding for additional locations will be

adjusted as part of future updates to the Transportation and Community Planning Capital Program through the annual budget process. All expenditures for this project will be funded 90 per cent from development charges and 10 per cent from tax levy.

An additional 50 traffic controllers will be funded by Metrolinx through the vivaNext projects under the Rapidway construction.

6. LOCAL MUNICIPAL IMPACT

The implementation of a more sophisticated state-of-the-art Centralized Traffic Control System provides the tools to centrally monitor and adjust traffic signal timings to improve traffic flow along the length of an arterial roadway. This will assist in the management of traffic congestion, reducing travel time and delay through Regional traffic control signals.

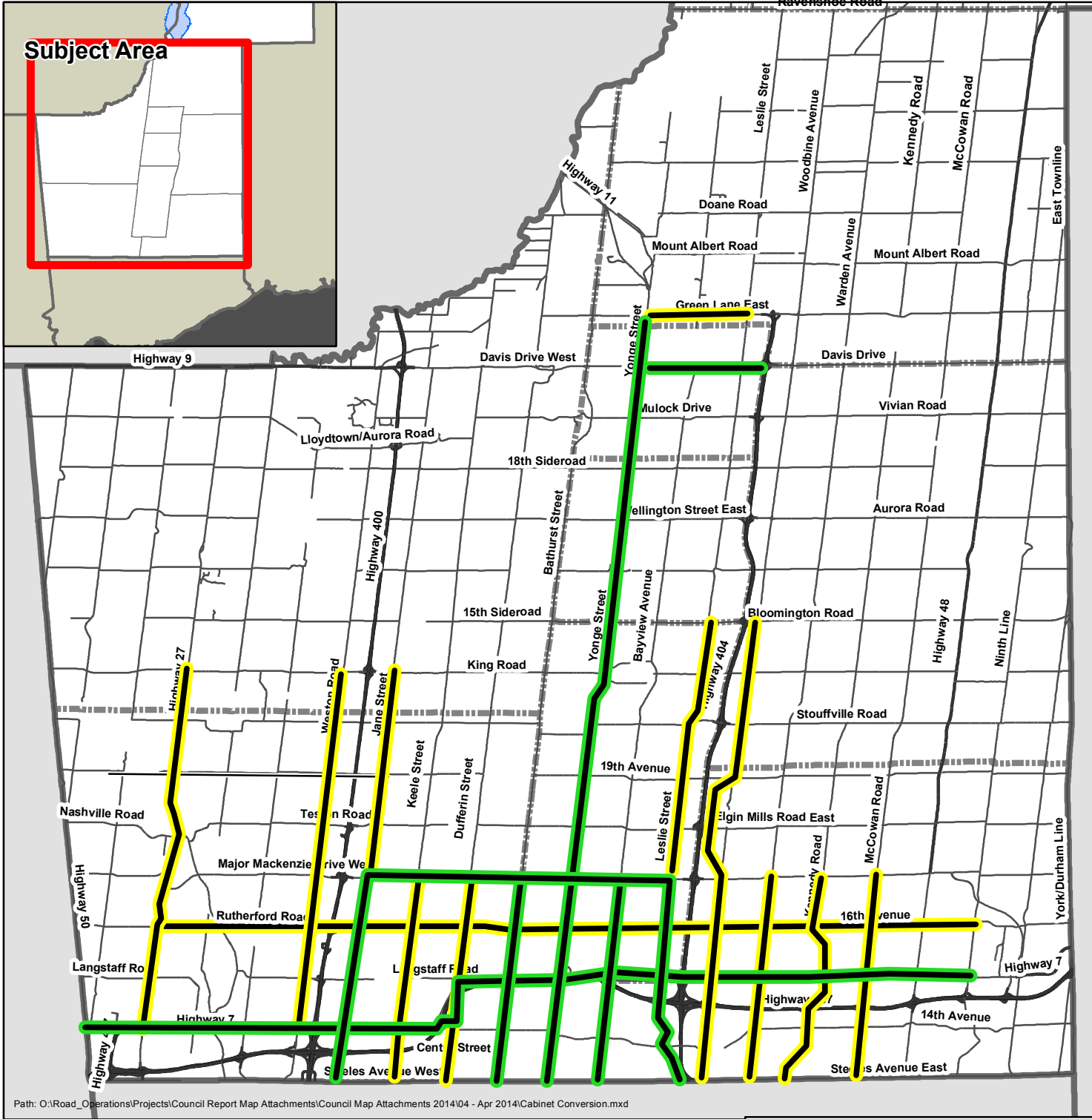
7. CONCLUSION

The award of the direct purchase traffic signal controller equipment contract will support the migration to the new Centralized Traffic Control System to allow for improved management of congestion within the Region through state-of-the-art traffic signal control and monitoring.

For more information on this report, please contact Steven Kemp, Director, Traffic Management & ITS at ext. 75226.

The Senior Management Group has reviewed this report.

Attachment (1)



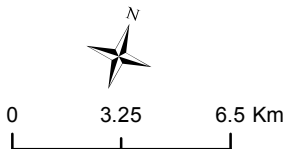
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Corridors for Traffic Signal Controller Conversions




Direct Purchase for Traffic Signal Control Equipment
 Committee of the Whole, Transportation Services, April 2014



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Legend

-  Corridors for Proposed Traffic Signal Controller Conversion (2014 to 2017)
-  Accelerated Traffic Signal Controller Conversion (2014-2017)
-  Road