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CORPORATE REPORT

NO: R138 COUNCIL DATE: June 25, 2018

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**June 20, 2018**
FROM:	**General Manager, Engineering**	FILE:	**8630-40 (ITS)**
SUBJECT:	**Travel Time Information System: Award of Contract No. 1220-040-2018-039: Supply and Delivery of Three Dynamic Messaging Signs**		

RECOMMENDATION

The Engineering Department recommends that Council:

1. Award Contract No. 1220-040-2018-039 to Roadway Traffic Products for three (3) dynamic messaging signs and components in the amount of $470,400.00 (including taxes);

2. Set the expenditure authorization limit for Contract No. 1220-040-2018-039 at $518,000.00 (including applicable taxes and contingency); and

3. Authorize the General Manager, Engineering, or his designate, to execute Contract No. 1220-040-2018-039 and any additional change orders.

INTENT

The purpose of this report is to seek Council approval for the supply and delivery of three (3) Dynamic Messaging Signs ("DMS").

BACKGROUND

The City of Surrey in 2015 successfully applied for Transport Canada funding from the Asia-Pacific Gateway Corridor Infrastructure Fund for the installation of the Inter-Regional Commercial Corridor Travel Time System ("IRCCTTS"). Transport Canada will provide up to 50% ($921,000.00) funding of the $1.84 Million project in its entirety. The Transport Canada funding is contingent on the system being commissioned by the end of October 2018.

The goal of the IRCCTTS is to support the efficient and optimized operation of a number of important transportation corridors within the City. The project focuses on King George Boulevard north of Highway 10 and 104 Avenue between Guildford and City Centre. It will reduce congestion and travel times for vehicles and goods movement by providing real time roadside information to drivers allowing them to make smarter route choices. The system will also help mitigate the construction impacts of the Surrey-Newton-Guildford Light Rail Transit ("SNG LRT") system and fully leverage capital improvements recently completed or planned on parallel corridors such as 100 Avenue and 128 Street.

The project is partitioned into two phases. Phase 1 is the implementation of data collection and analysis using Bluetooth detectors and centralized software. Phase 1 is complete. Phase 2 involves displaying key messages on the DMS for motorists.

The system will be operated from the City's Traffic Management Centre ("TMC") and will be fully integrated with the current CCTV intersection monitoring and real time signal and corridor optimization operations already undertaken. Staff consider the system to be an important element of future Intelligent Transportation System ("ITS") innovations and supports the City's Smart Surrey Strategy to use leading-edge technology and innovation to create a high quality of life and superior service for residents. The system is also a major ITS component in Surrey's Congestion Relief Plan currently being developed by staff and anticipated to be presented to Council for consideration in the summer of 2018.

DISCUSSION

The implementation of the DMS is the second phase of the project with Phase 1 already having been completed. Travel time information is already being collected through the use of 50 Bluetooth detectors deployed on major arterial roads. These detectors capture Media Access Control ("MAC") addresses from devices such as smartphones, tablets, and vehicle "hands-free" systems at intersections. The system collects and compares the time stamp from subsequent detections, which are sent to a computer server at the Surrey TMC to calculate the travel time and speed between pairs of detectors. The MAC addresses are "hashed" such that individual devices cannot be identified.

The system will disseminate the travel time information of various corridors through the use of three (3) full colour LED Dynamic Messaging Signs measuring 1.4m high and 6.4m wide.

The three DMS will be installed at the following locations:

1) Northbound King George Boulevard prior to Highway 10;
2) Westbound 104 Avenue between 156 Street and 154 Street; and
3) Southbound 152 Street off ramp from Highway 1 prior to 108 Avenue.

The system is scheduled to be operational by the end of October 2018.

Staff have selected to use DMS with full colour matrix displays capable of variable text and graphics. The use of colour will enhance the standard travel time message found on other systems such as those seen on the regional highways. The signs can display the travel time in text and will have the ability to provide a visual cue if the travel time is trending longer or shorter using colour.

A map showing the location of the detectors and signs is attached as Appendix "I". The locations selected are also near the future SNG LRT line.

The signs will have the ability to advise drivers of travel time along LRT routes and the alternatives during construction and LRT operations. The Ministry of Transportation and Infrastructure ("MoTI") has indicated their support to have sign #3 located within their jurisdiction and, in addition, staff are in discussions with the MoTI for broader data sharing given MOTI have the same Bluetooth monitoring infrastructure on their network.

During regular operation, the DMS will display travel time for up to three routes for travel to predefined locations such as City Centre or Pattullo Bridge. Advising drivers regarding the traffic conditions ahead will allow them to make better informed choices about their route selection based on their individual preferences. Staff are also planning to use the signs to display custom alerts and advice for incidents and special events plus road safety messaging. The DMS brightness is adaptive to the ambient light conditions and has the ability to be dimmed through the use of sensors. During the night, the signs will be configured to display at a lower intensity to reduce potential light pollution to nearby residents.

The DMS will also be equipped with an uninterruptible power supply ("UPS") to maintain operation during a power outage, which is consistent with the 200 traffic signals in Surrey already equipped with this system.

REQUEST FOR QUOTATION

A Request for Quotation ("RFQ") was posted on the City of Surrey and BC Bid websites, closing on June 7, 2018. A submission was received from Roadway Traffic Products for the Daktronics Vanguard VF-2420-48x304-20-RGB for $470,400.00 including taxes. The quotation includes the supply of three DMS, all required mounting hardware, controller cabinets, three UPS units, software, training, and testing. The purchasing process ensured that both the preferred and mandatory specifications were fair and reasonable to allow bids from multiple suppliers.

This quotation does not include the installation of the signs and sign structure, which will be part of a separate tender. The proponent will provide support for the DMS during the installation, commissioning, and operation of the signs.

EVALUATION

The submission was reviewed to ensure specifications were met. The City's electrical engineering consultant for the project, PBX Engineering Ltd. had prepared an estimate of $1.84 million for the IRCCTTS project in its entirety. The consultant had estimated the signage component to be $449,120.00 including taxes which is within 5% of the quotation received.

The proponent, Roadway Traffic Products of Surrey, BC, have requested no departures or alternatives to the specifications of goods requested by the City.

Daktronics is a long established manufacturer of this type of sign with a large presence in North American market and globally has deployed more than 5,500 DMS and over 10,000 transit and aviation displays. Cobra Electric, the City's electrical maintenance contractor has a Daktronics Factory Authorized Service Technician on staff to support future maintenance requirements.

SUSTAINABILITY CONSIDERATIONS

This project and the associated economic and environmental benefits, supports the objectives of the City's Sustainability Charter 2.0. In particular, this project relates to the Sustainability Charter 2.0 themes of Built Environment and Neighbourhoods and Infrastructure. The project particularly supports the following Desired Outcomes ("DO"):

Built Environment and Neighbourhoods

DO8: The built environment enhances quality of life, happiness, and well-being

Infrastructure

DO14: Goods movement throughout the city is efficient, and minimizes environmental and community impacts

FUNDING

Funding for the purchase of three (3) Dynamic Message Signs and components is available in the 2018 Roads & Transportation Budget. 50% will be reimbursed by Transport Canada as part of the Asia-Pacific Gateway Corridor Infrastructure Fund.

CONCLUSION

Based on the above discussion, it is recommended that Council:

- Award Contract No. 1220-040-2018-039 to Roadway Traffic Products for three (3) dynamic messaging signs and components in the amount of $470,400.00 (including taxes);

- Set the expenditure authorization limit for Contract No. 1220-040-2018-039 at $518,000.00 (including applicable taxes and contingency); and

- Authorize the General Manager, Engineering, or his designate, to execute Contract No. 1220-040-2018-039 and any additional change orders.

Fraser Smith, P.Eng., MBA
General Manager, Engineering

PB/GDC/jma/ggg

Appendix "I": Dynamic Messaging Signs and Bluetooth Detectors for the Inter-Regional Commercial Corridor Travel Time System
Appendix "II": Rendering of Travel Time DMS on 104 Avenue

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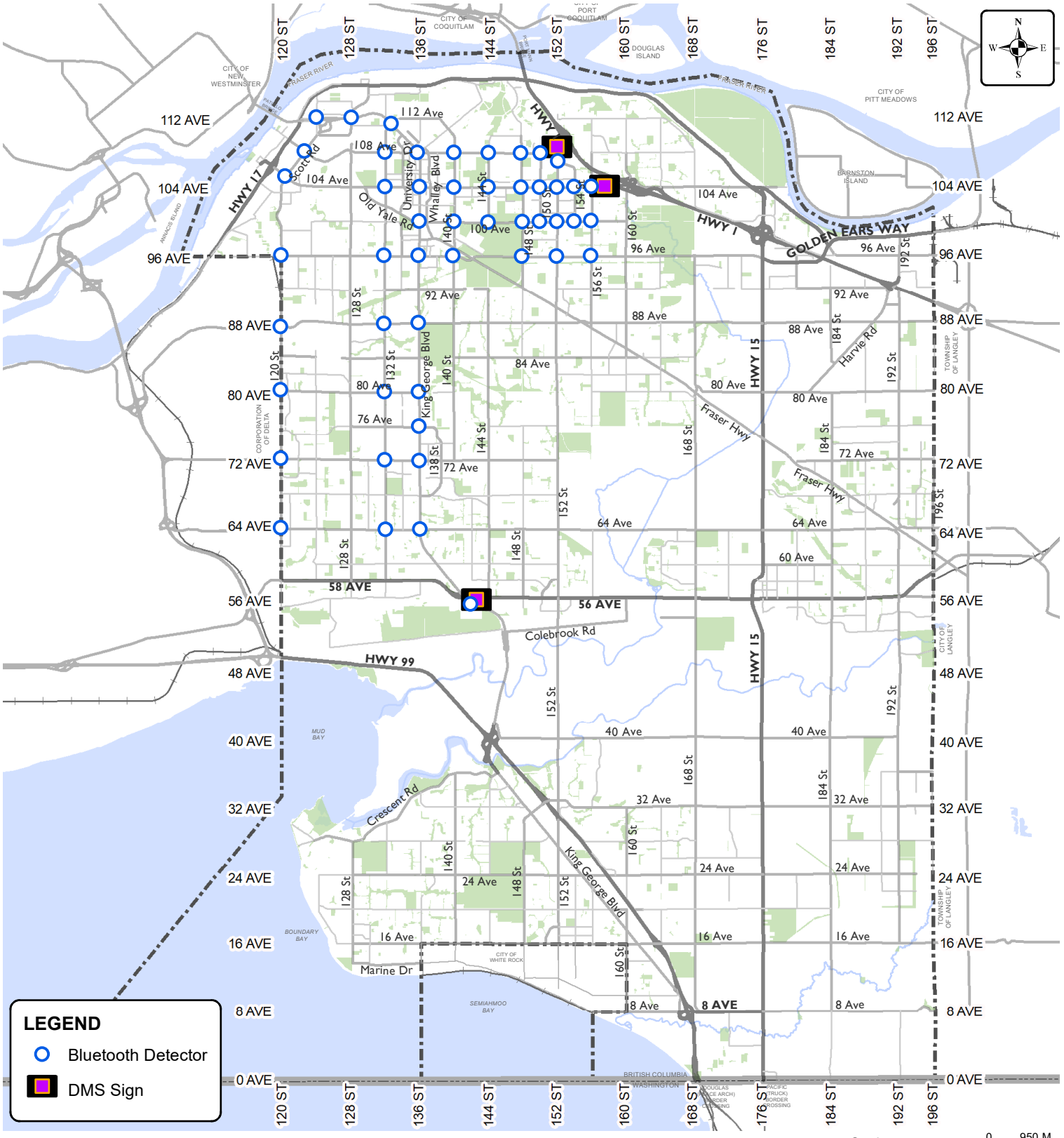
APPENDIX "I"



Produced by GIS Section: 12-Jun-2018, JJR

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Dynamic Messaging Signs and Bluetooth Detectors for the Inter-Regional Commercial Corridor Travel Time System

ENGINEERING DEPARTMENT

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Rendering of Travel Time DMS on 104 Avenue

ENGINEERING DEPARTMENT

Source:
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