

NO: **R226**

COUNCIL DATE: **December 2, 2019**

REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **November 27, 2019**

FROM: **General Manager, Engineering**

FILE: **1715-817/11**

SUBJECT: **Surrey's Advanced Traveller Information System**

RECOMMENDATION

The Engineering Department recommends that Council receive this report for information.

INTENT

The purpose of this report is to apprise Council on the scheduled commissioning of the City's new Advanced Traveller Information System ("ATIS") along major City corridors. ATIS is an intelligent transportation system innovation that will help improve mobility, safety and the user experience on the City's roads.

BACKGROUND

Using leading-edge, innovative technology, the City is implementing smarter approaches to improve mobility throughout Surrey. The City's Traffic Management Centre ("TMC"), which has real-time control of almost 450 traffic cameras, is the most advanced municipal centre of its kind in BC. The TMC is the City's hub for safer, smarter mobility.

The City secured partial funding (50%) from an application to Transport Canada's Asia-Pacific Gateway Corridor Infrastructure Fund for the implementation of an innovative and leading-edge ATIS in order to improve the flow of goods and people throughout Surrey.

ATIS provides real-time travel time and traffic-related information alerting travellers to expected congestion, incidents and possible alternate routes. ATIS will improve the efficiency of the transportation network as a whole, and data collected will also provide a valuable input for staff to use in future planning and infrastructure projects.

DISCUSSION

ATIS consists of three major technical elements: data collection, data analytics, and information dissemination. Data is collected via Bluetooth sensors installed throughout the City's transportation network and analyzed computationally using software at the TMC, which generates travel time information. This information is then shared through various communication channels which include new on-road Dynamic Message Signs ("DMS's"), as well as the City's social media and web platforms.

Implementation and Operation

In 2018, 50 Bluetooth sensor units were installed at traffic signals along major north-south and east-west corridors in the north western quadrant of the City, as illustrated in the map attached as Appendix “I”, which has the highest traffic volumes. These units capture traffic data and calculate route travel time information in real-time. As a traveller moves through the City, Bluetooth devices within vehicles are detected and a software application at the TMC uses this sensor data to establish travel time information along several routes. The data is processed by an algorithm to display the messaging on three DMS’s visible to motorists, allowing them to select the optimal route based on current traffic conditions. Due to the expected residential and job growth of City Centre and its emergence as the region’s second downtown core, the route destination for all DMS’s was selected to be City Centre.

Each overhead, full-colour DMS is located to provide alternate route choices on three adjacent corridors for drivers approaching City Centre from Highway 1 in the north and King George Boulevard in the south.

The locations of the DMS’s, as illustrated in Appendix “II”, and the alternate routes to City Centre include:

1. 104 Avenue at 154A Street (westbound): displaying 100 Avenue, 104 Avenue and 108 Avenue;
2. 5500 Block of King George Boulevard (northbound): displaying 132 Street, King George Boulevard and 140 Street; and
3. 152 Street off ramp from Highway 1 (southbound): displaying 108 Avenue, 104 Avenue and 100 Avenue.

The information displayed will allow travellers to make informed decisions about their route choice, balance out delays on parallel corridors and enable efficient use of available capacity on the City’s arterial roads. TMC staff will also use the DMS’s to display complimentary messaging like planned or unplanned lane obstructions, severe weather alerts, and notification of emergency services activity on the road. Road safety messaging and missing child notifications (Amber Alerts) could also be displayed.

Surrey’s ATIS is the only Canadian ATIS application situated in an urban context on arterial roads. The ATIS message layout displays travel time information on three adjacent corridors with the use of visual colour cues (green, orange and red) corresponding to increasingly longer travel times.

Project Commissioning Timelines

The DMS’s have been commissioned and have been in the testing phase for the past two months. Launch of the DMS’s is scheduled for December 3, 2019, accompanied by a media release to inform motorists.

Funding

The total cost for the ATIS project is \$1.5 million. Transport Canada has funded 50% of the project costs. The City’s portion of the costs were funded from the 2018 and 2019 Transportation Budget. Costs for maintenance and operation of the system has been included in the 2020 Financial Plan.

SUSTAINABILITY CONSIDERATIONS

Leveraging leading edge technology to improve road safety and mobility 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, Public Safety, Economic Prosperity and Livelihoods, and Infrastructure. Specifically, the project supports the following Desired Outcomes ("DO"):

- Neighbourhoods and Urban Design DO8: The built environment enhances quality of life, happiness and well-being;
- Transportation Safety DO9: Transportation network supports and provides safe mobility for all ages and abilities;
- Economy DO6: Efficient land use and well-managed transportation infrastructure are in place to attract businesses and support a thriving economy; and
- Transportation DO14: Goods movement throughout the City is efficient, and minimizes environmental and community impacts.

CONCLUSION

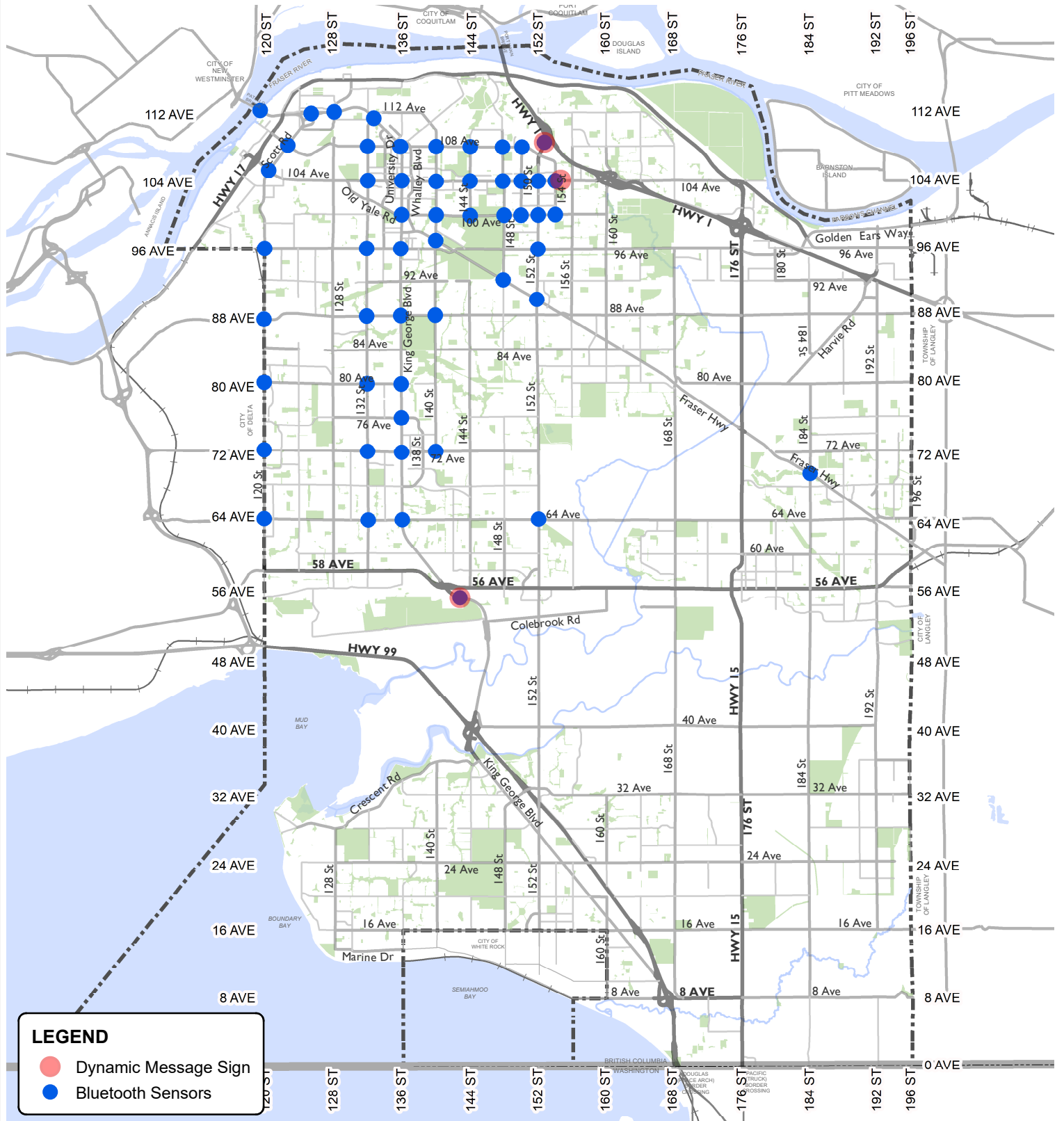
On December 3, 2019, staff will be activating the ATIS and DMS's, demonstrating the use of intelligent transportation systems to improve safety and traffic operations for Surrey residents.

Scott Neuman, P.Eng.
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JB/RS/GDC/cc

Appendix "I" – Advanced Traveller Information System Dynamic Message Signs and Bluetooth Sensors

Appendix "II" – Surrey's Advanced Traveller Information System



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Advanced Traveller Information System Dynamic Message Signs and Bluetooth Sensors

ENGINEERING
DEPARTMENT

APPENDIX "II"

DMS on 104 Avenue, Westbound at 154A Street



DMS on the 152 Street off ramp from Highway 1, Southbound



DMS on King George Boulevard, Northbound Approaching Highway 10

