TORONTO

STAFF REPORT
ACTION REQUIRED

Congestion Management Plan – Quarterly Update

Date:	June 2, 2015
To:	City Council
From:	General Manager, Transportation Services
Wards:	All
Reference Number:	P:\2015\Cluster B\TRA\TMC\PW15004tmc.docx

SUMMARY

The purpose of this report is to provide a status update for projects being undertaken as part of the Congestion Management Plan (the 'CMP') and grant authority for the General Manager, Transportation Services to expand the existing camera monitoring program as required in order to deliver the CMP.

The CMP was adopted by City Council at its meeting of December 16-18, 2013, to better manage traffic congestion on Toronto's streets and expressways without major infrastructure expansion or introducing additional physical capacity.

The CMP focuses on eight key strategies for tackling traffic, including the use of intelligent transportation systems (ITS), undertaking congestion and engineering studies, providing enhanced incident and event response, improving construction coordination, implementing better curb side management, supporting all modes of transportation, making available increased and real-time traveller information, and updating the City's Transportation Operations Centre.

The first and second quarters of 2015 saw an upswing in contract awards and contract development activity for the planning, design and deployment of a variety of CMP projects, as described herein.

RECOMMENDATIONS

The General Manager of Transportation Services recommends that:

1. City Council authorize the General Manager, Transportation Services to undertake the expansion of the traffic monitoring camera program, including as required for the purposes of implementing the City's Congestion Management Plan and monitoring of work zones, at such locations determined by the General Manager, subject to budget approval as required.

Financial Impact

There is no financial impact resulting from the adoption of this report.

The Deputy City Manager and Chief Financial Officer have reviewed this report and agree with the financial impact information.

DECISION HISTORY

City Council, at its meeting of December 16-18, 2013, endorsed the five-year Congestion Management Plan to better manage traffic congestion on Toronto's streets and expressways. The CMP also included a Smart Work Zone project requiring future construction contracts to provide for the deployment of portable traffic monitoring cameras (on trailers or poles) that give the City's Transportation Operations Centre (TOC) operators the ability to monitor traffic conditions through the work zone and implement traffic management strategies as the need arises.

http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PW27.12

At its meeting of January 6, 2015, Public Works and Infrastructure Committee received the CMP Update and:

(i) Directed the General Manager, Transportation Services, to provide quarterly updates to the Public Works and Infrastructure Committee on initiatives related to the Congestion Management Plan beginning in the second quarter of 2015;
(ii) Directed the General Manager, Transportation Services, to report to the Public Works and Infrastructure Committee in the second quarter of 2015 on opportunities to share information between the Transportation Operations Centre and similar communications and/or operations centres within the Toronto Transit Commission, Toronto Police Service, Fire Services, and Emergency Medical Services;
(iii) Directed the General Manager, Transportation Services, to report to the Public Works and Infrastructure Committee in the second quarter of 2015 on how to best measure the overall impact of the Congestion Management Plan,

including the use of "Big Data" as a tool to understand, evaluate, and reduce congestion.

http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PW1.4

ISSUE BACKGROUND

The City of Toronto has seen significant growth, increased development adjacent to rights-of-way and an unprecedented investment in our infrastructure - all of which have placed increased demands on our road network - resulting in excessive congestion.

In order to address the increase in congestion, Transportation Services developed a five-year CMP to better manage vehicular traffic congestion, improve traffic operations, and provide the public with information to assist them with their travel routing and choices. The plan emphasizes taking a more proactive approach to traffic management along arterial roadways, applying evolving technologies and managing activities and use of the road allowance. Implementation of the plan began in 2014.

The CMP includes a series of initiatives that were grouped into eight strategies as listed below:

A. Intelligent Transportation Systems
B. Congestion and Engineering Studies
C. Incident and Event Response
D. Construction Coordination
E. Curb side Management
F. Support All Modes of Transportation
G. Traveller Information
H. Transportation Operations Centre

Part 1 below organizes the project status updates per these categories.

COMMENTS

Part 1 – Congestion Management Plan – Quarterly Update

The CMP is intended to be completed as a series of projects completed over a multi-year period (currently scheduled 2014-2018). The attached CMP Status Table provides a milestone status overview for only those projects currently underway (not the total number of projects planned under CMP). These projects have been prioritized according to Divisional needs and budget availability, and are scheduled to be completed per the timelines described in the attached summary table. The table columns are formatted as follows:

	Definition	***Example***
Program	Refers to one of the eight	"Intelligent Transportation Systems"

	categories as described above under 'Issue Background'.	is a type of 'Program'.
Initiative	Refers to the types of projects to be undertaken within a 'Program'.	"Enhanced Signal Control Modes" is an 'Initiative' area within the "Intelligent Transportation Systems" Program.
Project	Refers to the specific projects to be undertaken within an 'Initiative'.	"Adaptive Traffic Signal Control" is a specific project under the "Enhanced Signal Control Modes" Initiative.
Completion Date	Refers to either the actual completion date, or the planned completion date for each milestone (as applicable).	

While the CMP Status Table provides an overview of these projects, the following section highlights the status of some of these key projects during the Second Quarter (Q2) 2015.

A. Intelligent Transportation Systems

In this category, the following provides status / accomplishment highlights for Q2 2015:

- The RFP evaluation for the contract to upgrade the City of Toronto's Advanced Traffic Management System was completed in Q2, and contract award is to occur in late May or June. Expected completion date for Phase 1 deliverables is Q4 2015.

- An RFP will be released in Q2 for an arterial "Smart Signal" traffic adaptive control technology to be applied initially for a 20 intersection pilot. Expected installation date for this pilot is Q4 2015, and evaluation will continue through 2016.

- A contract to install 40 CCTV traffic monitoring cameras for the Pan Am Games was awarded, the related detailed designs were completed, materials were procured, and the installation work began in Q1, and is on-going in Q2. These cameras will be operational in May, and will support traffic management objectives for the Pan Am Games routes.

- A contract to design and conduct contract administration for an additional 80 CCTV cameras was awarded in Q1, and is on-going in Q2. These cameras are to be installed at congestion and enforcement hot-spots, along commuter routes, and within the corridors that experience spill-over traffic from the parallel expressway routes. These camera installations have been designed, and the preparation of an

RFQ to install the first 40 of these sites is in preparation (expected release in May 2015). The remaining 40 sites are to be installed in 2016.

B. Congestion & Engineering Studies

In this category, the following provides status / accomplishment highlights for Q2 2015:

- Two contracts to upgrade traffic signal timings and coordination at 350 intersections are to be awarded in Q2. These will include upgraded signal timings along Bathurst St, Danforth Ave, Dundas St W / Dundas St E, Kipling Ave, Lake Shore Blvd E, McCowan Rd, Steeles Ave W, Warden Ave, and Woodbine Ave. Expected completion is in Q4 2015.

- A contract to conduct a Feasibility Study for the Use of Traffic Assistive Personnel (TAP) was awarded in Q1. The study will determine the operational benefits and costs associated with deploying TAP personnel to clear grid-locked intersections, enforce turning, stopping, and other by-laws, and provide other congestion-reducing assistance in problematic locations, and during highly congested periods. The study will also recommend what organization (i.e. Toronto Police or other) will lead this operational effort. The project is expected to be complete in Q2 2015.

- An evaluation of the effectiveness of the new LED-based Time-of-Day Left-Turn Prohibited Signs Pilot Project (on King Street) was completed in Q1. It was determined that these signs improve compliance with time-of-day turn prohibition signs. Further review is on-going in Q2 to assess the devices' cost-effectiveness, their effectiveness for other applications, and the potential need for related regulatory changes.

C. Incident and Event Response

In this category, the following provides status / accomplishment highlights for Q2 2015:

- A contract to conduct an Expressway Service Patrol Feasibility Study was awarded in Q1. The study will determine the operational benefits and costs associated with type of motorist service (popular in similar jurisdictions in the United States) on Toronto's expressway and parallel corridors. The project is expected to be complete in Q2 2015.

D. Construction Coordination & Management

In this category, the following provides status / accomplishment highlights for Q2 2015:

- To improve congestion in and around construction work zones (both on and off street), on January 6, 2015, Council adopted without amendments the Executive Director, Engineering & Construction Services report on a series of proposed

measures with the sole purpose of reducing traffic disruption on City-led construction projects within the municipal right-of-way.

- A report will be forwarded to PWIC in Q2 that will seek (i) City Council approval to amendments to street occupation fees for Toronto, and (ii) to provide the General Manager of Transportation the authority to require the installation of a traffic monitoring CCTV cameras when approving applications for street occupation (at the applicant's expense). These measures aim to reduce the duration of lane occupancy permits and better manage traffic in the vicinity of these lane closures.

- City staff and key agencies have met regularly with the Mayor to facilitate the coordination of road closures associated with special events for 2015. Event organizers were tasked with providing the City with early submission dates for their proposed events. The review of these events is informed by other major disruptions such as semi-annual maintenance closures on expressways, planned TTC maintenance subway closures, and the limited Toronto Police Services road closure resources resulting from the Pan & ParaPan Am Games. City staff is finalizing a review of customer service improvements on the issuance of road closure permits for special events and will be reporting back to Council on this matter in Q2 of 2015.

E. Curbside Management

In this category, the following provides status / accomplishment highlights for Q2 2015:

- A contract to develop a Curbside Management Review is to be awarded in Q2 2015. Investigating the same downtown area used in the City's earlier Downtown Transportation Operations Study (DTOS), the project will determine means of introducing flexible use of curb space to better meet downtown road user needs, while supporting effective traffic management strategies and maximizing the use of the road allowance. The project is expected to be complete in Q1 2016.

F. Support for all Modes of Transportation

In this category, the following provides status / accomplishment highlights for Q2 2015:

- The RFP evaluation for a Transit Signal Priority Industry Best Practices Review is almost completed, and contract award is to occur in late Q2. Transportation Services is working with the Toronto Transit Commission to determine the functionality of our next generation of transit priority operations in Toronto. The expected completion date for this project is Q4 2015.

G. Traveller Information

In this category, the following provides status / accomplishment highlights for Q2 2015:

- A contract was awarded to plan, design and pilot the installation of permanent variable message signs on our major roadways to provide travel times and advise of major expressway closures. The project report is due in Q2, and the pilot is to be deployed in Q4 2015 or Q1 2016.

- As part of the above-noted efforts, a pilot installation using trailer-based variable message signs will be deployed on Eglinton Avenue near the DVP, and on Kipling Avenue near the Queensway, to provide travel time information for motorists. These have been designed and will be deployed in Q2 2015 using internal resources. The expected completion date for this project is by the end of May 2015 .

- The City of Toronto's Road Restriction Map on our public-facing website was updated in Q2 to improve the user interface and map (now a Google map), and to provide additional information concerning incidents (including a severity index). This new information is also now available via OpenData. Currently, this project is under review by Corporate IT to ensure it is accessible friendly.

- The City has hired an Outreach Coordinator who is working to improve Transportation Services public-facing communications, including a review of our traveller information channels to ensure they are user-friendly.

H. Transportation Operations Centre

In this category, the following provides status / accomplishment highlights for Q2 2015:

- A contract was awarded in Q1 to update the Congestion Management Plan to anticipate our needs out to 2020. The update will identify new initiatives and identify gaps that must be addressed in our policies, operational procedures, and technologies used to improve safety and mobility on our expressway and arterial road networks. Project will be completed in Q3 2015.

- An RFP to be released in Q2 to prepare a 'Concept of Operations' for the City's Transportation Operations Centre (TOC). This is an operational planning tool for the TOC that will define its operating vision out to 2030, define its intended operational processes, and identify the supporting system and personnel needs. Expected completion date for this project is Q1 2016.

Aside from the above key projects, a Request for Expression of Interest (REOI) to establish a Roster for the provision of professional engineering services for individual projects less than $500,000 was closed on March 27, 2015, The proposal evaluation is underway for the below six categories:

- Intelligent Transportation Systems
- Congestion and Engineering Studies
- Incident and Event Response Management
- Construction Coordination Management
- Traveler Information Systems
- Traffic Safety

The Roster Retainer is expected to be established by mid June, 2015.

Part 2 – An Overview of "State of Good Repair" Efforts in this Quarter

In addition to the many projects noted above that are aimed at mitigating the negative impacts of congestion, it is imperative (for safety and efficiency reasons) that we properly maintain the existing and new infrastructure to ensure a "state of good repair". The following provides an overview of the CMP-funded "State of Good Repair" efforts / accomplishment highlights for Q2 2015:

- A contract to upgrade the nine existing Allen Road Expressway Queue-End Warning system CCTV cameras (from analog to IP) was awarded at the end of 2014. The work repaired the camera pan-tilt-zoom control capabilities and resolved image distortion/inconsistencies that were present. The project was completed in Q1 2015.

- A contract to install Uninterruptible Power Supplies (UPS) for 30 traffic control signals in downtown Toronto in 2015 was awarded in Q2 2015. This first phase of the project is to be completed in Q4 2015, and a second phase will install a further 30 units in the suburban areas of Toronto in 2016.

- A retainer contract to complete capital replacement programs for field equipment, and to deploy a limited amount of equipment at new sites was awarded in Q1 2015. This contract will upgrade existing CCTV cameras, upgrade traffic sensors, install UPS units for existing expressway field equipment (e.g. variable message signs), deploy new traffic flow sensors, and upgrade wireless communications equipment. This work will be scheduled throughout 2015.

- The conversion of traffic signals from the legacy traffic control system (MTSS) to the new traffic control system (TransSuite) continued in Q1 and Q2, with a total of 35 sites completed this year so far. The objective is to convert all remaining MTSS signals (less than 30 sites) to TransSuite by Q4 2015.

Part 3 – Information Sharing Between City of Toronto Operational Areas

The City's Transportation Operations Centre (TOC) currently communicates with a number of 'operating partners' to conduct corridor incident management and collect / disseminate road closure information. These partners include the Toronto Transit

Commission (TTC), Toronto Police Services (TPS) and to Fire Services/Emergency Medical Services (the latter are normally contacted via TPS). These communications are mainly conducted via phone lines. The City currently shares its traffic monitoring cameras with the TPS.

The City has convened a working group that includes TTC, TPS and other Divisions to better coordinate special events, road and subway closures as well as looking at ways to mitigate traffic impacts as a result of these events. The City is also beginning (in Q2) an operational review of the TOC to improve operational procedures, communication plans, and application of technology within the TOC. Associated with this work, the City is currently upgrading its Advanced Traffic Management System in the TOC and is looking at opportunities in improving communications and information sharing with other agencies (including the potential for automation).

Part 4 – Measuring Impacts of the Congestion Management Plan

The measurement of traffic congestion has traditionally taken the form of location-based measurement of vehicle speed, traffic volume per hour, and 'occupancy' (which is an indicator of 'density' of congestion). Historically, these measurements have been collected:

- Using field traffic sensors, such as the traffic flow detector stations (typically found on the expressways), Bluetooth detectors (as used for traffic studies and for collecting travel times), permanent count stations (on select arterial roads throughout the city), and through contracted counts using pneumatic tube or other point-based collection devices; and

- Using manual means, such as staff field observations and contracted traffic data collection field studies (such as turning movement counts).

These methods of measuring congestion are limited both geographically (i.e. to an intersection or a corridor) and/or from a time-series perspective (i.e. manual counts are often for a specific day or a short period rather than continuous).

The small-sample size collected in these studies may result in variable results that may or may not be representative of 'normal' conditions. For example, data collected on any particular day may be influenced by local day-of-week fluctuations in traffic volumes, local road restrictions (e.g. nearby construction or utility work), special events in the area that change that day's traffic patterns, weather and lighting conditions, etc.

Consequently, until recently, there has been no reliable means of measuring system-wide impacts of transportation initiatives, such as the projects identified within the Congestion Management Plan. However, in the past few years, new commercially-available data sets have come to market that allow us to look at longer time series of data, and to aggregate road network performance across larger geographic areas. This data is generated by

private sector firms who aggregate data from commercial and public sources such as commercial vehicle GPS devices, public mobile applications and other sources.

In Q2 2015, Transportation Services is hiring a Senior Transportation Solutions Integrator to investigate the means to leverage our existing data sources, these new commercial data sources, and other applicable data sets (collectively referred to as 'Big Data') to measure the City's road network performance. The objective here will be to use Big Data to establish road network performance criteria to better understand the causes of congestion, to measure the impacts (over time) and effectiveness of our Congestion Management Plan efforts, and to better inform the provision of transportation services and operations.

The status of these efforts will be included as part of future CMP quarterly status reports.

Part 5 - Considerations for Expansion of the Camera Monitoring Program

As part of the City's Congestion Management Plan (CMP), Transportation Services will be undertaking the expansion of the City's Traffic Camera Monitoring Program. Based on existing commitments, we anticipate that there will be a total 190 traffic monitoring cameras in place by September 2016. These figures do not include any traffic monitoring cameras that may be installed in work zones.

The City's existing Security Video Surveillance Policy does not apply to the City's traffic monitoring camera program as it is used for traffic management and emergency incident response by monitoring the movement of vehicles on the City's road network. The City's existing traffic monitoring camera program collects anonymous information on a transitory basis and does not store identifiable information or vehicle data. Transportation Services' current policies and operating procedures manage the personal information that may be collected by the City in accordance with the City's MFIPPA requirements.

The purpose of the City's traffic monitoring camera program remain unchanged, and it will continue to be restricted to traffic management and emergency incident response purposes only. Neither the City's current or expanded traffic monitoring camera program will be used for the monitoring and tracking of individuals and vehicles or for security, law enforcement or municipal licensing purposes.

In light of the potential indirect impacts of the technological improvements to the City's traffic monitoring camera program, arising from the imposition of the CMP, the City's General Manager, Transportation Services, in consultation with the City Clerk's Office and Information & Technology, is completing the appropriate Privacy Impact Assessment ("PIA") outlining the potential privacy impacts of these improvements. Upon the completion of the PIA, the General Manager, Transportation Services, in consultation with the City Clerk's Office and Information & Technology, will develop and implement any modifications to the City's existing policies and procedures for the Traffic Camera Monitoring System and the traffic monitoring camera program to address

any potential concerns to ensure that the CMP is implemented in compliance with the City's MFIPPA obligations.

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Attachment No. 1 – CMP Status Table