



STAFF REPORT ACTION REQUIRED

Congestion Management Plan 2014-2018 – Update

Date:	December 9, 2014
To:	Public Works and Infrastructure Committee
From:	General Manager, Transportation Services
Wards:	All
Reference Number:	P:\2015\Cluster B\TRA\TMC\pw15001tmc.docx

SUMMARY

The purpose of this report is to provide an update on projects completed or initiated in 2014 as well as identifying those initiatives planned for 2015 and 2016 from the Congestion Management Plan. The Plan 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 additional physical capacity.

The Congestion Management Plan includes 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 curbside management, supporting all modes of transportation, making available increased and real-time traveller information, and updating the City's Transportation Operations Centre.

Activities completed in 2014, such as the installation of traffic cameras and upgrades to the Transportation Operations Centre, have allowed for increased monitoring and response to incidents on expressways and arterial roadways. In addition, motorists travelling along several key arterial road corridors will have noticed a reduction in total delay ranging from 4% to 18% on each corridor as a result of completed signal coordination reviews. In the downtown core, amendments to parking and turn restrictions to reflect extended peak periods and the implementation of courier loading zones have also been implemented to improve the flow of traffic.

In 2015 and 2016 Transportation Service will build on the success of activities initiated in 2014 as well as focus on enhanced curbside, construction, and event management. In addition, the latest ITS technologies and methodologies used for Transit Signal Priority and Adaptive Traffic Signal Control (Smart Signals) will be studied.

RECOMMENDATIONS

The General Manager, Transportation Services recommends that:

1. Public Works and Infrastructure Committee receive this report for information.

Financial Impact

The continued implementation of the Congestion Management Plan in 2015 is anticipated to require \$7,700,000 in funding, with \$270,000 required in operating funding and \$7,430,000 required in capital funding.

The required funding is available in the 2015 Recommended Operating and Capital Budgets for Transportation Services for Council's consideration as part of the 2015 Budget process.

Funds will be apportioned to the various congestion management strategies as listed below:

- \$4,070,000 for Intelligent Transportation Systems
- \$1,470,000 for Congestion and Engineering Studies
- \$930,000 for Traveller Information
- \$1,300,000 for the Transportation Operations Centre

Additional costs will be required for the congestion management strategies planned for 2016. These costs will be further refined and brought forward for consideration as part of the 2016 Budget process.

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

DECISION HISTORY

At its meeting of December 16-18, 2013, City Council endorsed in principle the five-year Congestion Management Plan to manage traffic congestion in the City of Toronto.

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

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 increase demands on our road network which has resulted in excessive congestion.

In order to address the increase in congestion Transportation Services developed a five-year Congestion Management Plan to better manage vehicular traffic congestion,

improve traffic operations, and provide the public with information to assist them with their travel routing and choices. Implementation of the plan began in 2014.

The plan emphasises taking a more proactive approach to traffic management along arterial roadways, applying evolving technologies and managing activities and use of the road allowance. With this in mind, a series of initiatives were developed and can be grouped into the eight strategies listed below:

- Intelligent Transportation Systems
- Congestion and Engineering Studies
- Incident and Event Response
- Construction Coordination
- Curbside Management
- Support All Modes of Transportation
- Traveller Information
- Transportation Operations Centre

COMMENTS

Since the adoption of the Congestion Management Plan, Transportation Services has been actively developing and implementing initiatives in all eight strategies to better manage congestion and improve traffic operations.

Intelligent Transportation Systems

Technology associated with traffic management is becoming increasingly sophisticated and allows for real-time communications and control with field equipment. Intelligent Transportation Systems (ITS) apply these advances to the monitoring and management of transportation networks such as Toronto's expressways and major roadways. The City of Toronto has already made extensive progress building its ITS systems (primarily on expressways) by utilizing technologies such as traffic cameras, vehicle detection and traffic management software. Since the majority of these systems are 20 years old, the technology is obsolete and requires regular maintenance to maintain operations. Further, there is a need to expand these operations beyond the expressway network and do more to improve traffic flow on major roadways.

Completed in 2014

- Installed 16 traffic cameras on arterial roads that will assist in managing traffic and responding to incidents.
- Replaced 400 leased copper communications lines with wireless systems which resulted in cost savings of approximately \$230,000 and improved system reliability.
- Upgraded 60 controller units for traffic flow monitoring along expressways to address legacy or poorly supported hardware, and to bring systems up to current standards.
- Modernized by upgrading 250 intersection traffic controller units.
- Equipped four intersections along King Street, as a pilot project, with electronic light-emitting diode (LED) turn signs to better communicate when turning movements are prohibited by time of day.

Planned for 2015

- Install approximately 80 additional cameras on arterial roads resulting in a broader range on roadway monitoring across the city.
- Upgrade an additional 400 leased copper communications lines with wireless systems.
- Complete a pilot project at 20 intersections to allow for the evaluation of the latest technologies used to modify traffic signal timings based on real-time traffic information ("smart signals").

Congestion and Engineering Studies

The primary focus of these studies is to keep the City's signal timing plans current and its traffic management strategies up-to-date with the latest state-of-the-art tools available. This includes continuing to maintain signal timing plans to ensure they are up-to-date and responsive to the needs of the City's Transportation Operations Centre (TOC). It also involves investigation into alternative approaches to congestion management that can include the use of more advanced technologies and systems to manage the transportation network in a more integrated and multimodal fashion, as well as the application of traditional engineering solutions in innovative ways.

Completed 2014

- Updated a series of closure signal timing plans for the Don Valley Parkway and F.G. Gardiner Expressway. Timing plans were developed for Victoria Park Avenue and Bloor Street to accommodate the diversion of traffic during planned and unplanned expressway closures.
- Completed traffic signal coordination studies on six corridors with 250 signals.
 - Corridors retimed include Sheppard Avenue East, Markham Road, O'Connor Drive/Broadview Avenue, Leslie Street, Islington Avenue, and Yonge Street.
 - The benefit:cost ratio of the retiming, based only on travel time savings for the public, ranges from 25:1 to 85:1 for each corridor. Total delay has been reduced between 4% and 18%.
 - In addition to time savings, the retimed corridors resulted in reduced fuel consumption and emissions of 1-7% for each corridor.
- Installed traffic signal modifications including 24 left-turn green arrows, 44 accessible pedestrian signals and increased pedestrian timings at 154 intersections.

Planned 2015

- Conduct traffic signal coordination studies and retiming on twelve corridors including Dundas Street East, Dundas Street West, Woodbine Avenue, Danforth Avenue, Kipling Avenue, Steeles Ave West, McCowan Road, Bathurst Street, Warden Avenue, Wellington Street, Front Street/Eastern Avenue, Steeles Avenue (East of Kennedy Rd).
- Perform traffic signal coordination studies to simulate transit signal priority on Bathurst Street and Dundas Street West.

- Complete a study relating to the deployment of traffic assistant personnel at key downtown intersections to assist with the movement of pedestrians and vehicles.

Planned 2016

- Develop a "big data" strategy to determine how staff can leverage data sources for improved understanding, planning, evaluating and monitoring the transportation system.
- Deploy a traffic engineering field unit to lead project work aimed at reducing congestion and improving safety, including traffic studies for defined problem areas, evaluating peak hour clearances along specified corridors, studying lane widths, one-way couplet investigations, queue-jump locations, etc.
- In conjunction with City Planning and Energy & Environment Divisions, develop an enhanced travel demand management (TDM) strategy to support alternate modes of transportation and reduce reliance on single occupancy vehicle use.

Incident and Event Response

The City of Toronto's Transportation Operations Centre has been actively involved in incident management through its RESCU utilizing traffic management software systems. These systems assist in detecting collisions and other incidents that disrupt traffic flow on expressway corridors, coordinating emergency response, and notifying motorists and media via traveller information systems. The activities under this strategy focus on reducing the duration of incidents and minimizing congestion that can result and are designed to complement increased transportation network monitoring capabilities. Recommended projects and activities under this strategy will help manage traffic congestion by strengthening relationships amongst key stakeholders' agencies, improving coordination amongst these agencies, reducing response times and incident clearance times, improving safety for the public and field personnel as well as educating motorists to move their vehicle out of the flow of traffic after minor collisions.

Completed in 2014

- Installed "Steer It & Clear It" signage on F.G. Gardiner Expressway and Don Valley Parkway to encourage motorists involved in minor collisions on expressways to move their vehicles to a safe place. According to estimates out of the United States, 20 percent of expressway collisions are considered secondary collisions. Delays and the likelihood of a secondary collision are reduced by moving vehicles from the travel portion of the roadway.

Initiated in 2014

- Initiated a service patrol feasibility study to explore the costs and benefits of implementing roving service patrol vehicles along the Don Valley Parkway and F.G. Gardiner Expressway to assist motorists with minor mechanical breakdowns and to clear vehicles from travelled lanes. A final report is expected to be completed in the first quarter of 2015 which will identify the potential benefits and feasibility of implementing a service patrol program.

Planned in 2015

- Update the Road Disruption Activity Reporting System (RoDARS) to help coordinate a broader range of road disruptions, including all special events (e.g. parades, street festivals, filming) Combining the specifics of these events with currently tracked information (e.g. construction closures) will assist in better coordinating, managing, and communicating road disruptions.

Construction Coordination & Management

Construction and the lane occupancies associated with it, whether for road construction, maintenance or new development, can have significant traffic impacts on roadway capacity. In this technical element, a number of projects are identified to both better inform motorists of traffic conditions within the work zone, and improve the coordination and management of the lane occupancy permit system.

Initiated 2014

- Began a review of the costs of occupying space within the right-of-way for private construction. A report is planned for early 2015 with a new recommended fee structure.

Planned 2015

- Develop a standardised approach to work zone management to improve traffic flow and safety through the use of speed advisory systems, systems that measure travel times through work zones and electronic roadside signs to inform motorists of traffic conditions.
- Convene a working group of staff from Transportation Services (Road Operations, Special Events); Engineering & Construction Services; Toronto Film, Television and Digital Media Office; and the Toronto Police Service to better coordinate road disruption events.
- Install 14 cameras on Eglinton Avenue to better manage traffic during the construction of the Eglinton Crosstown Light Rail Transit.
- Expand on the ability to monitor work zones to mitigate the impacts of authorized and unauthorized occupancy within the road right-of-way.

Curbside Management

The use of the curbside for taxis, courier, contractor or private vehicles, especially in the downtown core, is high and faces competition. Due to limited availability of space in the right-of-way, management of curbside uses is essential to optimize efficiency and minimize impacts on through traffic.

Completed 2014

- Adjusted hours of peak period parking and turn restrictions were implemented on King St and Queen St. The hours when "No Stopping" is permitted on these roads were amended to reflect extended rush hours of 7:00 AM to 10:00 AM and 3:00 PM to 7:00 PM.
- Enhanced parking infraction management by increasing fines from \$60 to \$150 for illegally stopped vehicles on key rush hour routes.
- Initiated a courier zone pilot project in the downtown core to assist in the delivery of goods. The pilot includes the allotment of dedicated loading zones for couriers by time of day. Initial observations indicate that the couriers are utilizing the dedicated zones during the defined times.

Planned 2015

- Establish a multi-agency parking enforcement team involving Toronto Police Services, Toronto Parking Enforcement and Transportation Services to provide a coordinated approach to enforcement.

Support All Modes of Transportation

Encouraging people to use modes other than their private vehicles, such as walking, cycling or using public transit is an important transportation demand management strategy as it reduces the number of vehicle trips and demands on the road network. The City of Toronto is actively promoting all modes of transportation through its Official Plan and other initiatives such as the Bikeway Trails Implementation Plan.

Completed in 2014

- Implemented three new north-south right-turn restrictions on the Bay Street Urban Clearway to facilitate transit through movements and reduce delays for passengers. As a result, northbound and southbound left and right turns are generally prohibited throughout this area on weekdays from 7:00 AM to 7:00 PM.
- Installed new cycling facilities on Simcoe Street, Richmond Street, and Adelaide Street as a pilot project. The Harbord-Hoskin Street bicycle lanes were upgraded to buffered bike lanes. Bike lanes and sharrows were installed on several other streets, including Bay Street, Bloor St East, Brock Street, Fermanagh Avenue, Lindsey Avenue and Shaw Street.
- Provided additional crossing time for pedestrians at signalized intersections. Approximately 150 intersections were retimed to provide additional time for pedestrians to cross the street at signalized intersections.

Planned for 2015

A Request for Proposal will be issued in the first quarter of 2015 to review and report on the latest technologies and methodologies used to provide transit signal priority (TSP). At the present time, the current TSP technology used by the City and the TTC provides buses and streetcars with preferred signal timing at 400 signalized intersections. The current technology is over 20 years old and has become challenging to maintain.

Traveller Information

Providing convenient access to current and reliable traveller information allows travellers the opportunity to make informed decisions on the best timing, mode, and route of their trip. This strategy builds on advances made under the Intelligent Transportation Systems activities listed above.

Completed in 2014

- Installed seven variable message signs on the Don Valley Parkway, F.G. Gardiner Expressway, and Lake Shore Boulevard. The signs provide messages about lane and road closures, identify slow-downs, and current travel times.
- Installed Bluetooth detection along the Don Valley Parkway, F.G. Gardiner Expressway, and Lake Shore Boulevard to allow measurement of travel times within these corridors. These travel times are now posted on the variable message signs along these roadways.
- Began reporting traffic disruptions and conditions for expressways and major roads via Twitter.
- Published additional road restriction data as on Open Data.

Initiated in 2014

- Began a pilot study to assess the benefits of deploying of up to five variable message signs on major roads. These signs will advise on travel times to major commute destinations, and warn of incidents before motorists enter the expressways.

Planned for 2015

- Develop a city-wide traveller information strategy.
- Develop a strategy for how the City can support a mobile application for en-route delivery of important travel information (for a 2016 deployment).
- Determine the feasibility of accessing broadcast media aerial camera feeds at the Transportation Operations Centre for improved incident and congestion monitoring.

Transportation Operations Centre

The Transportation Operations Centre (TOC) is the City's nerve centre for traffic management. The TOC is constantly monitoring traffic conditions and managing traffic control field devices, 24 hours a day, seven days a week. As such, it plays a central role in congestion management.

Management of the road network involves a large number of different agencies and stakeholders, each with a specific role to fulfill. Close coordination and cooperation with the other City operational centres is required as well as with other stakeholders such as TTC, GO Transit, Emergency Services, and the Ministry of Transportation Ontario.

Completed 2014

- Upgraded the TOC's ability to monitor additional cameras and to improve the detection, confirmation and monitoring of incidents. The improved TOC will suit both the current and projected functional needs of the City for the next 15 years including increased monitoring of arterial roads.

Initiated 2014

- Began the replacement of advanced traffic management system (ATMS) software to provide enhance functionalities required in the TOC, specifically relating to variable message signs, travel time, detector stations, cameras, communications, social media and data integration.

Planned 2015

- Prepare a Concept of Operations that looks closely at the functions that the TOC must perform and the broader functions that the TOC supports. Also, update existing operational procedures to reflect new technology and processes e.g. video wall and arterial cameras.

CONTACT

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