Managing Traffic Disruption on City-Led Construction Through Traffic Management Plans, Street Occupancy Approvals and Portable Traffic Cameras

Date: June 1, 2015
To: Public Works & Infrastructure Committee
From: Executive Director, Engineering & Construction Services
Wards: All
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SUMMARY

The construction of sewers, watermains and roads is disruptive to traffic operations as it typically occupies road lanes. When this work is undertaken on major roads with high volumes of vehicular traffic, cyclists, pedestrians, and commercial operations, the disruption can be significant.

The purpose of this report is to describe how Traffic Management Plans, Street Occupancy Approvals, and Portable Traffic Cameras could be used by Engineering & Construction Services to improve traffic flow and reduce the effects of City-led construction projects on residents, businesses, service providers and road users.

RECOMMENDATIONS

The Executive Director, Engineering & Construction Services recommends that:

1. Public Works & Infrastructure Committee receive this report for information.
Financial Impact

Additional costs may be incurred to implement portable traffic cameras. These costs will be further refined and brought forward for consideration as part of the 2016 Budget process, i.e. through Toronto Water's and Transportation Services 2016 Capital Budget submissions.

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

DECISION HISTORY

At its meeting on December 16, 17 and 18, 2013, City Council adopted a report from the General Manager of Transportation Services titled Congestion Management Plan 2014-2018. In adopting the report City Council endorsed the implementation of Smart Work Zones that include the use of Closed Circuit Television (CCTV) cameras to monitor traffic conditions. The Council Decision can be found at: http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PW27.12

At its meeting on February 10 and 11, 2015, City Council adopted a report from the Executive Director of Engineering & Construction Services titled Managing Traffic Disruption on City-Led Construction Projects and directed the Executive Director, Engineering & Construction Services in consultation with the General Manager, Transportation Services, to report to the Public Works & Infrastructure Committee in the second quarter of 2015 on the use of:

a. Traffic Management Plans;

b. Street Occupancy Approvals; and,

c. Portable Traffic Cameras.


ISSUE BACKGROUND

The City is forecasting significant growth in capital construction in the next 10 years, raising the prospect of higher construction-related impacts on pedestrians, cyclists, transit and motorists. Traffic congestion is the main impact of construction within the road right-of-way, and a major concern to road users and public officials charged with managing the City’s transportation road network.

Traffic Management Plans, Street Occupancy Approvals, and Portable Traffic Cameras are tools that can be used to improve traffic flow and reduce the effects of City-led construction projects on residents, businesses, service providers and road users.
COMMENTS

The following provides an overview of tools available to help reduce the traffic impact from City-led construction projects.

Traffic Management Plans

For each project that Engineering & Construction Services (ECS) leads in the municipal right-of-way, staff consider how traffic will be affected and the potential disruption to road users, residents and businesses. Working with Transportation Services' Work Zone Coordinators, ECS Project Managers and contractors develop a Traffic Management Plan to help reduce the congestion or effects of construction work zones.

In some cases, where projects are not anticipated to cause significant traffic congestion, there may only be a requirement to develop a Traffic Control Plan for delineating construction work zones, as prescribed by Ministry of Transportation (MTO) regulations. The Traffic Control Plan identifies the proper procedures and appropriate signage for closing traffic lanes to ensure the safety of workers and of the public when travelling through the work zone.

For projects where the traffic impact of a construction project is considered to be significant and extending beyond the limits of the work zone, a more comprehensive site and area specific Traffic Management Plan can be developed prior to the start of construction. The ultimate objective of the Traffic Management Plan is to ensure that road safety is maintained for the public and construction workers.

Key measures that can be included in a Traffic Management Plan are limits on construction work hours, lane shifting, traffic signal timing, the phasing of construction activities within the work zone, signed detour routes, and local and through traffic restrictions. The following summarizes the considerations and implementation of these key measures.

a) Construction Work Hours

ECS is currently implementing extended and/or overnight work hours to reduce construction-related disruption and/or reduce the overall duration of select City-led construction projects in 2015. This is being done on a project-by-project basis, and after consultation with the local Councillor(s). Appropriate communication with local residents is also part of this work. Examples of the type of work hour initiatives that are being used include allowing contractors to work outside of rush hours so that traffic lanes are open during peak traffic periods, work overnight, work all days of the week, and work around the clock.

b) Lane Shifting

Lane shifting is the practice of directing moving traffic into a specific pattern or area and may result in directional modifications based on the time of day. This is done through signs, traffic personnel and traffic barrels to prevent traffic from using restricted areas. Where possible, ECS staff and Work Zone
Coordinators assess the opportunity to include and implement lane shifting as a mitigating measure toward reducing congestion where appropriate. For example, if there is construction on an east-west four-lane road which requires the use of one lane for construction, traffic patterns will be evaluated to determine if there is a significant volume of traffic in one direction versus the other during the morning or afternoon peak. If there is a significant difference between the eastbound and westbound traffic in the morning and the reverse in the afternoon, the remaining three lanes would be marked to show two lanes in the heavier traveled direction in the morning and the reverse in the afternoon.

c) Traffic Signal Timing
Traffic signal timing and phasing adjustments in the work zone and on other area streets can be used for construction projects on major arterials where significant impacts to traffic are anticipated. ECS staff coordinate with staff in Transportation Services to implement, where possible, changes to the traffic control signal timings on the affected street as well as nearby routes to help keep traffic flowing around the work zone.

d) Signed Detours
Signed detour routes and local and through traffic restrictions can be appropriate measures when construction is expected to impose significant traffic impacts, such as a need for full road closure or directional lane closures. These detours are typically used when intersections are closed for TTC streetcar track construction or when lanes of traffic are closed directionally. Depending on the nature and locations of the closure and detours, there may be additional through traffic restrictions if a residential neighbourhood is affected significantly. The City implements these closures and detours only when necessary, and where they can be accommodated (e.g. on two-lane roadways).

Other measures that can be incorporated into a Traffic Management Plan include:

a) Adjustments to traffic regulations (e.g., turn restrictions, parking restrictions, lane direction designations, speed limits);

b) Work zone limitations (e.g., permitted activities like material storage, work zone length);

c) Traffic calming on adjacent streets;

d) Traffic control personnel;

e) Traffic incident detection system (e.g., loop detectors, traffic cameras); and,

f) Public communication (e.g., installation of signage and delivery of notifications prior to the start of construction to encourage alternate travel arrangements or use of different travel routes).
Developing and implementing a comprehensive Traffic Management Plan before construction starts results in clearer direction to share with the public through the media and construction notices to keep road users informed of the construction work, its impact, and the options available for navigating work zones, while encouraging the use of alternate travel modes or routes if possible.

ECS and Transportation Services staff are working together to develop consistent tools for contractors and City staff to ensure Traffic Management Plans are appropriate and effective for the site-specific conditions. A list of efforts that are implemented for projects delivered during 2015 will be reported to the Public Works & Infrastructure Committee in the first quarter of 2016 in accordance with Council direction.

Further, and key to the success of this strategy, is on-going monitoring and enforcement of contractor compliance with the traffic management requirements in their contract. ECS project management and inspection staff and Transportation Services Work Zone Coordination and by-law enforcement staff will continue to provide oversight on this effort.

**Street Occupancy Approvals (Lane Closures and Material and Equipment Storage Areas)**

ECS staff are reviewing and implementing revised and more concise street occupancy requirements for construction projects delivered by the Division within the municipal right-of-way.

For the most part, City-led road, watermain and sewer construction requires work to be done within the municipal right-of-way. This results in the need to close traffic lanes to accommodate the work and to store materials and equipment. Engineering & Construction Services' Project Managers in consultation with Transportation Services' Work Zone Coordinators, are now critically reviewing the requirements for lanes closures and material and equipment storage areas and work with the contractors to minimize these requirements.

For lane closures, staff are reviewing the required and appropriate lane length (both the fenced-off work area and the length of traffic restriction) required to permit the construction work as well as the legislated safety requirements outlined in the Ontario Traffic Manual Book 7 (Temporary Conditions), which provides basic requirements for traffic control in work zones to provide safety for workers and motorists. Where possible, the lane length for construction will be shortened to reduce congestion during construction; and lane closures will be moved in conjunction with the progress of the construction. For example, if a project is 2 km in length, staff will phase the work for shorter distances (e.g. a block face in conjunction with the immediate area the contractor is using for work as opposed to using a lane closure that is 2 km long). The appropriate project length is being determined on a project-by-project basis, taking into account the specific requirements of each site and neighbourhood (i.e., the length of closure may vary between downtown and suburban sites).
As well, ECS staff are assessing the possibility of locating material and equipment storage on off-road locations, such as boulevards and/or side streets, depending on space availability. In the event that there is no available boulevard space and there is significant impact to traffic, staff will determine if there is appropriate and available space on other nearby side streets where the material storage would cause less traffic disruption, so long as the progress of construction is not adversely affected.

**Portable Traffic Cameras**

The use of portable traffic cameras at construction sites within the municipal right-of-way, which was endorsed by City Council on December 16, 17 and 18, 2013 as part of the Smart Work Zone initiative, can be used to monitor work zones for incidents or other unexpected delays. This strategy has a number of potential benefits. Specifically, and depending on the location and scope of the construction project, the use of portable traffic cameras can improve response times to unexpected traffic incidents (e.g., collisions). The presence of traffic cameras allows the Transportation Operations Centre (TOC) staff to provide timely response to identified incidents, such as the dispatch of enforcement or adjustments to traffic signal timings. The faster traffic incidents are resolved, the less time road users are impacted and the faster traffic disruption is alleviated.

In addition to the Smart Work Zone initiative, City Council also approved the expansion of the Camera Monitoring Program on expressways and arterial roads throughout the City as part of the Congestion Management Plan. This expansion is anticipated to result in a total of 190 traffic monitoring cameras in operation by September 2016. This figure does not include any traffic monitoring cameras that may be installed under the Smart Work Zone initiative.

ECS staff are working with Transportation Services to determine construction that meet the criteria for installation and would most benefit from the use of portable traffic cameras. Depending on the length and nature of the construction zone, the traffic camera may be located within or upstream or downstream of the construction zone. The determination of the location will be undertaken on a project-by-project basis.

In light of the potential indirect impacts of the technological improvements to the City's Traffic Monitoring Camera Program, arising from the expansion of the Camera Monitoring Program, 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) that outlines the potential privacy impacts of these improvements. When the PIA is complete, expected by the end of the second quarter of 2015, 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.
The General Manager of Transportation Services has been consulted on and concurs with the strategies outlined in this report.

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SIGNATURE

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