TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MARCH 19, 2018**
FROM:	**KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER**
SUBJECT:	**2018 RENEW LONDON INFRASTRUCTURE CONSTRUCTION PROGRAM AND 2017 RENEW LONDON POST CONSTRUCTION OVERVIEW REPORT**

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the following information report concerning the 2018 Renew London Infrastructure Construction Program and the 2017 Renew London Infrastructure Post Construction overview **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Civic Works Committee – January 10, 2017. II, 7. 2017 Renew London Infrastructure Construction Program

2015-19 STRATEGIC PLAN

The following report supports the Strategic Plan through the strategic focus areas of *Building a Sustainable City* and *Leading in Public Service* directly and indirectly as follows: Addressing the infrastructure gap, building robust infrastructure, enhancing safety for all road users in the city, and managing and improving our water, wastewater and stormwater infrastructure and services. Renew London is committed to delivering excellent customer service and providing great customer experiences to residents, business and visitors by communicating projects in advance and coordinating all work to help build and deliver efficient infrastructure and minimize delays and inconveniences to the public during construction

BACKGROUND

Purpose

The purpose of this report is to provide Committee and Council with an overview of the planned City major construction projects for 2018 and to provide an overview and evaluation of the 2017 Renew London program, outlining lessons learned and identifying potential risks for the upcoming construction season.

2018 RENEW LONDON

Context

The Environmental and Engineering Services (“EES”) Department undertakes approximately 200 capital works projects and programs on a yearly basis. Our goal is to provide safe, dependable, affordable and environmentally responsible services that help London’s communities thrive and the city prosper.

The delivery of a sustainable infrastructure program through the provision of road, sewer, water, sidewalk, traffic signal and streetlight assets is managed through the 2018 Renew London - Infrastructure Construction Program. The program addresses existing lifecycle needs, system improvements, and growth related priorities. The City of London is responsible to provide onsite inspection where required and maintain oversight of City construction projects to ensure the projects are built in accordance with plans, specifications and City standards, completed on time, within set budget limits and following proper safety procedures.

The City is responsible for a transportation system that promotes the movement of goods and services while providing for transportation mobility choices for residents. An efficient transportation system promotes business, creates employment, provides social opportunities and saves lives. A key consideration in the delivery of the Infrastructure Construction Program is the efficiency of infrastructure delivery and minimization of delays and inconveniences to the public during construction.

DISCUSSION

A number of large construction projects are currently scheduled for implementation in 2018. Table 1 provides a listing of projects which may have an impact on traffic flows around the City. Extensive review and coordination has been carried out at project and program levels to reduce potential impacts.

In addition to Table 1, there are a number of other medium scale reconstruction/ resurfacing projects to rehabilitate infrastructure throughout the City which will have local impacts and may require minor traffic detours. There will be 73 lane km of road reconstructed, 15 km of sanitary and storm sewers, and 9 km of watermain rebuilt. In addition, 9 km of watermain and 8 km of sewers will be lined trenchless. These trenchless programs allow for significant capital avoidance and minimized social impact by avoiding open cut construction.

The total of the 2018 capital infrastructure program is approximately $187 million. The program includes approximately $65 million of road improvements, $86 million of sewer improvements and $36 million of water improvements. A complete map of 2018 projects can be viewed on the City’s website; 2018 Renew London Map.

The City is making great strides in addressing its sewer, water and roads infrastructure renewal backlog, with a forecasted growth in capital construction in the next 10 years, raising the prospect of higher construction-related impacts on pedestrians, cyclists, transit and motorists.

Table 1 – Top 10 City Projects

	Street/Project	Scope	Schedule	Traffic Impact
1	**Western Road / Wharncliffe Road Widening**	Road Widening - post 2017/18 Rail diversion work	April 2018 – March 2019	Reduced lanes/ staged road closures
2	**Dundas Place**	Utilities, sewer, water, road, Transformation Project	April 2018 – Nov 2019	Road closure/ intersection impacts
3	**Main Street**	Sewer, water, road, signals	April – Nov 2018	Reduced lanes/ staged road closures
4	**York Street**	Sewer Separation, water, road	April – Nov 2018	Staged road closures/ intersection impacts
5	**Wonderland Road /Wharncliffe Road Bostwick Road Pump Station**	Sewer, water, road, signals, Sanitary Pump Station	April – Nov 2018	Staged road closures
6	**Egerton Street**	Sewer, water, road	April – Oct 2018	Reduced lanes/ staged road closures
7	**Wonderland Road / HWY 402**	2 Lane upgrade	April – Oct 2018	Reduced lanes
8	**Colonel Talbot Road Pump Station and Forcemain**	Sanitary Forcemain & Pump Station	April – Oct 2018	Full closure of Col. Talbot and North Street 2 months. Reduced lanes.
9	**Hamilton Road / Sackville Street**	Sewer, water, road	April – Oct 2018	Road closed/ reduced lanes
10	**Talbot Street**	Sewer, water, road	April – Oct 2018	Reduced lanes / staged road closures

Mitigation

Traffic congestion is a concern for the City, businesses and users of the roadway. Congestion and disruption caused by public and private construction is disruptive to all road users. City staff manage programs to mitigate the impacts as much as possible and all City projects are reviewed from a traffic and construction detour impact perspective. Some locations will require road closures to complete the planned construction for the safety of the contractor and the public. Each closure will include a detour to safely redirect traffic around the disturbed areas and permit the work to be completed in a timely manner. The planned detours are as short a route as possible while keeping traffic on a similar class of roadway and not directing traffic through local streets.

Notwithstanding the detour routes, residents should expect increased traffic volumes on some local roads near construction areas as drivers look for shortest routes around the closures. In some cases, temporary neighborhood traffic calming measures will be implemented to mitigate this behavior. Traffic signal adjustments are sometimes made in the network surrounding construction projects to facilitate deflected traffic and help reduce delays.

The City strives to minimize the disruption to the public during construction and maintain access to the maximum extent possible. Breaking down of the construction into stages is often considered and has the advantage of minimizing the inconvenience to the general public, local businesses and residents however it also creates challenges from a constructability and increased capital cost perspective. A balance needs to be established that satisfies both objectives.

Moving pedestrians safely and efficiently through and around construction sites remains a priority for all projects. Pedestrian accessibility is also required of private applicants through their Permit for Approved Works ("PAW"). Hard walking surfaces will be maintained as much as possible noting that sidewalks will sometimes be closed where no other option is feasible.

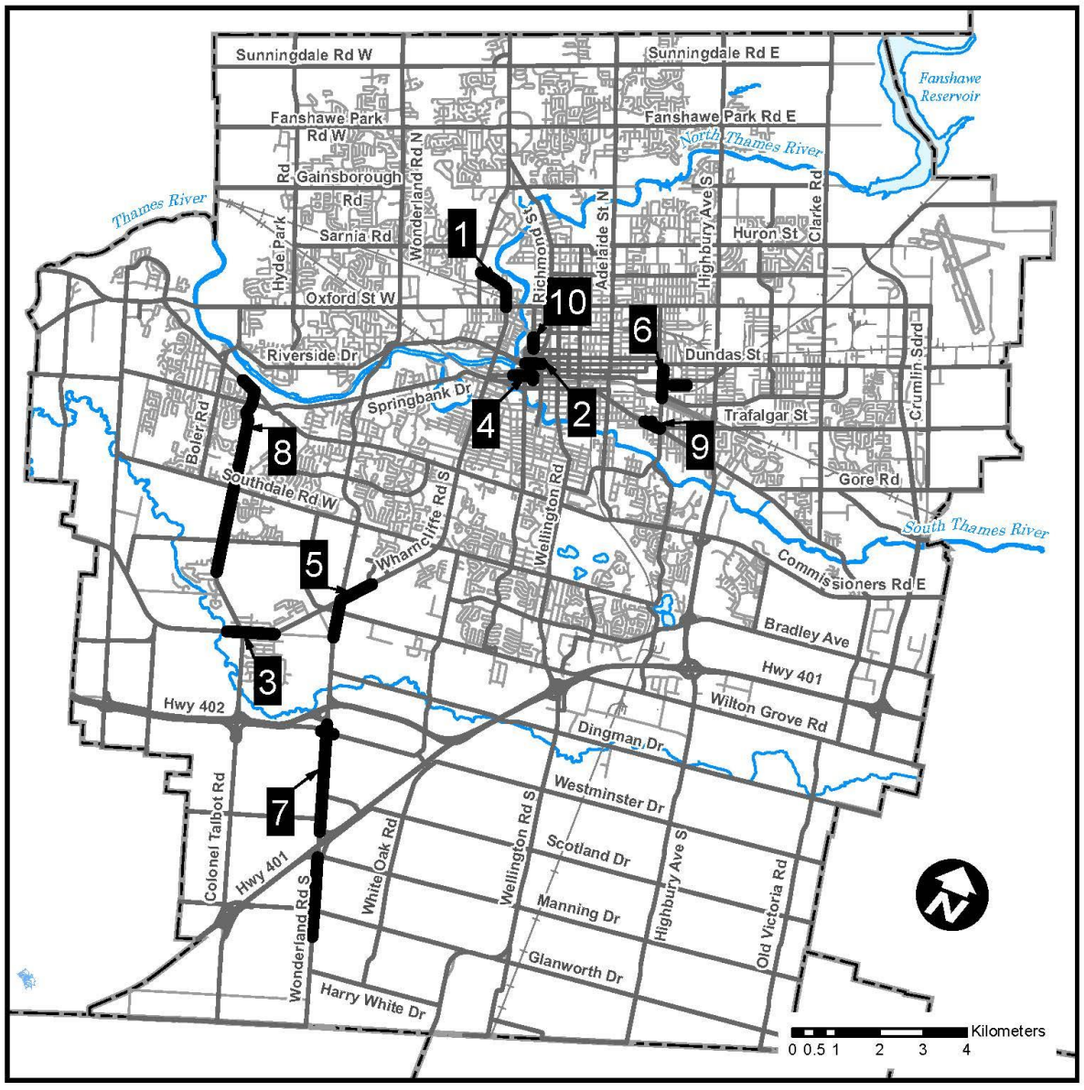

Figure 1- 2018 Major Infrastructure Projects

Routine maintenance undertaken by the City on roadways is scheduled in a manner to minimize impacts on traffic.
In addition to City led projects, coordination is undertaken with known development projects that may impact traffic flows along City streets. It should be noted that the exact timing of these projects is dependant on the development industry.

2018 COMMUNICATION PLAN

External Communication

Good construction communication is key to a successful project and this is an area of continuous improvement. Every effort is made to ensure Londoners are aware of construction zones and traffic detours resulting from road work using on- and off-site signage. Construction is an opportunity to bring us together and make connections. For City-led construction projects, property owner letters are sent out in advance of construction and daily updates are provided through the City's website, www.london.ca/roadwork with information about road closures, and ongoing/ upcoming projects on city streets.

Working with the City's communication team, large scale closures and impacts are communicated to Londoners by an integrated social media strategy using Facebook and Twitter. The social impact is being mitigated through coordination and communication. The specific communication strategies include:

- 2018 construction program media release;
- Operations meetings with Western University, LTC, Police, Fire, EMS, school boards and school bus providers and Canada Post;
- Public meetings for all major reconstruction projects;
- 3 letters to directly impacted residents for medium and large projects, 1 letter for short term work,
- Special meetings for business areas and community associations;
- Social media (Facebook and Twitter);
- Renew London website (project updates)
- Project websites for major reconstruction projects
- Renew London Road Report (generates daily email to media, emergency services and stakeholders if requested); and,
- Advanced warning signs.

Before construction begins, discussions take place with many groups early in the project(s) to identify issues, to share information and modify construction plans as possible to make any disruptions as painless as possible.

Residents are encouraged to minimize their travel time impact by:

- Using Renew London to plan their commutes, using alternative routes;
- Utilize transit (http://www.ltconline.ca), car pool, ride your bike or walk; for assistance in finding a carpool, please visit https://www.regionalrideshare.ca/en/my/ (Regional Rideshare (formerly London Carpools) is a free service that matches potential carpoolers. It is available to all Londoners and anyone who regularly commutes to and from London from surrounding communities.
- Adjusting their travel times to avoid peak periods.

Once construction begins, road construction teams are juggling many activities. Road closures are constantly changing on a daily and weekly basis and that makes it quite hard to predict exactly what the impacts will be. The construction team works with homeowners, businesses to maintain access to home, business and to indicate when sidewalks are closed. The City also post “Businesses are Open” signs within and around our projects. The construction team will be available and strive to give the public the best information possible for when work will be complete. However, unexpected events may change the duration of a project and teams will ensure the public is aware and communicated too. Project contacts are provided before projects start and residents, business owners, public are encouraged to connect with them for any questions or concerns during the project.

Updates to Road Impact Report Website – RENEW London

In March 2018, Renew London will introduce enhancements for the users and editors. Improvements include better access on website to RENEW London map, improved colour coding and filtering abilities on map, and website appeal and ease-of-use. Additionally, improvements to the internal data entry system will ensure more accurate and complete information in being uploaded to the public website.

Core Downtown Communications Plan - Dundas Place

The 2018 Dundas Place project aims to further grow the vibrancy in the downtown that Londoners have become accustomed to and the project team is developing a communications plan to manage the construction disruption. The Dundas Place project team is working with Downtown London to develop a multi-faceted plan to support the downtown during construction. The plan includes new ways of distributing timely and helpful information with stakeholders, rolling out programs to support businesses and their customers. The plan is focusing on improving the overall user experience to maximize time spent on Dundas Street and downtown. It will aim to create positive experiences that businesses, residents, workers and visitors can all be a part of during construction and beyond. Development of this plan is being informed by face-to-face meetings with many of the property and business owners in the corridor to understand opportunities and concerns with the project.

The project team is also developing core messaging and visuals that will convey the unique essence of the Dundas Place community this project will build upon. An ongoing effort will be made to highlight positive experiences and interactions that differentiate Dundas Place from other destinations. It will also be critical to communicate effectively when there are impacts that arise within the core resulting from weather, other construction, development and special events.

The construction monitoring includes a higher allowance for stakeholder/business coordination and full-time inspection. In an effort to maintain accessibility and enhance stakeholder relations with downtown businesses, City staff will be onsite daily with

senior support to listen to concerns, ensure communications are timely and clear, and be the link to the contractor and the municipality. Public communications will continue through a website portal, the media, and on social media via direct e-mail as construction progresses.

The 2018 Dundas Place, York Street and Talbot Street reconstruction projects are interconnected as it relates to stages of work and detour routes around downtown and will need to be constantly monitored and updated. In addition, of particular significance, the construction schedule and progress of work on Dundas Place will require concentrated oversight and need to be closely monitored in preparation for the hosting of the Junos in March 2019. As such, a member of the construction administration team will be included in the Junos committee and will be responsible to provide updates and coordinate the construction issues with the team.

Transit Stop Changes Downtown

As per the direction of Municipal Council, City staff and the London Transit Commission (LIC) have been working towards the permanent rerouting of buses from Dundas Street onto parallel streets within the downtown core. The changes to transit routing in the downtown is a component of the Dundas Place project that will eliminate the need to detour buses during street closures for events that are expected to become more frequent. Dundas Place construction is anticipated to begin in late March/early April. Re-routed buses will be primarily travelling in a counter-clockwise loop, travelling east on King Street, north on Wellington Street, west on Queens Avenue and south on Ridout Street.

In order to provide the necessary on-street space to accommodate the bus re-routing, changes to on-street parking and loading areas are being completed. Notices were recently provided to all Property owners and/or occupants about these changes at the affected locations on King street, Wellington street, Queens Avenue and Ridout Street.

2017 RENEW LONDON OVERVIEW REPORT

The City of London's 2017 road construction season came to an end in December, with all City's projects successfully complete or on track to finish in 2018.

The 2017 construction season was very busy overall and the City was able to deliver on our commitment of building better roads for London residents and visitors. The completion of these significant projects are a large part of the City's ongoing commitment to provide safe, dependable, affordable and environmentally responsible services that help London's

Figure 2 - Wharncliffe Road Rail Diversion

communities thrive and the City prosper. The roads belong to all Londoners, and the City makes it a priority to provide residents with infrastructure that will serve them for years to come.

Projects completed in 2017 included local infrastructure renewal in mature neighborhoods such as Old North, Old South and Old East, which had extensive work done underground and on roads, sidewalks, curbs, gutters and traffic lights. Major Infrastructure projects included Dundas Street East and Sarnia Road Improvements, phase two resurfacing on Veterans Memorial Parkway, Colborne Cycle tracks and Western / Wharncliffe Western Rail Diversion.

Work on most projects generally began back in May 2017, and even with a stretch of cold and snow in early November, the projects were all finished within their contractual completion dates, except seven, all of which has base asphalt completed by December. The end result are complete streets that have water main and sewer infrastructure that is built for the future, and improved pavements and sidewalks. With the completion of the construction season, traffic flow has improved and the transportation system is able to more efficiently handle the movement of goods and people. All roadways were fully opened to traffic by mid December 2017. This spring, crews will return to most projects for touch up work, landscaping, surface asphalt where necessary and final site cleanup.

The Civic Administration uses a continuous improvement process in its capital works programs to minimize negative effects on the public and community during construction. While the investment in the renewal of the City's infrastructure helps address the City's significant infrastructure gap, provides longer term benefits and enhances the quality of life for residents, the construction activities have impacts in the short term. A coordinated approach that uses targeted, flexible phasing and extended work hours allows the City to improve services and complete the work in an efficient manner. The goal is to minimize the impact to residents, businesses and essential services while the work is being completed.

Overview of 2017 Projects

A number of large construction projects were identified to the Municipal Council in January 2017 and scheduled for implementation in 2017. A previous report provided an overview of major projects that were projected to have an impact on traffic flows across the City, noting that extensive coordination was carried out at project and program levels to reduce these impacts. In addition to those projects, there were a number of other medium scale reconstruction / resurfacing projects to rehabilitate infrastructure throughout the City which had local impacts and required minor traffic detours.

Figure 3 - Blackfriars Bridge

In 2017, the City reconstructed 85 lane km of road, 25 km of sanitary and storm sewer, and 13 km of watermains. The City also relined approximately 10 km of watermain and 13 km of sewer using trenchless technologies. These trenchless programs have allowed for significant capital avoidance and minimized social impact by avoiding open cut construction, which avoids the cost and social impact of open excavations.

In 2017, three development projects (Southdale Southwest Community Center; Talbot High Rise; Fanshawe College Carling Street, formerly Kingsmills) had significant impacts to surrounding streets and were coordinated with nearby City projects to help mitigate traffic impacts to commuters and communities. The Byron Area experienced major traffic and commuter disruption as a result of five major development projects (Wickerson, Commissioners, Westdel Borne, Oxford) occurring simultaneously in the area compounded by an adjacent City project on Byron Baseline Road. Process improvements are being developed through a separate report related to the PAW process to better coordinate utility and development Projects (affecting right of way) and City road projects.

Customer Service

As part of the Municipal Council approved Service London Implementation Plan, 2017 was the second year of Customer Relationship Management (CRM) implementation as it relates to construction projects. The software captures all customer interactions and complaints and filters them back to Project Managers assigned to City construction projects. Construction Administration received over 530 CRM inquiries in 2017. Program features will be enhanced in upcoming years which will make the interaction with our customers even better over time.

Budget and Schedule

The City managed $146 million in infrastructure construction project work in 2017. To-date about 80% of the contract value has been paid on those projects with only one project, Byron Baseline, that has exceed budget due to unforeseen underground circumstances. All other projects are nearing completion and are all within the approved contract value.

Construction contracts for the City of London are usually tendered based on a specified number of “working days” allowed to reach substantial completion. Rain days, Saturdays, Sundays and holidays do not count towards the working day count. Additional work and unforeseen conditions may increase the number of working days allowed within a contract. Liquidated damages (cost for lateness charges) are assessed against the contractor once the number of allowed working days has been exceeded.

In 2017, the Dundas Street East and Byron Baseline projects encountered scheduling challenges associated with their underground work. These projects will be completed later than originally anticipated, however these changes to the schedule were due to unforeseen challenges that could not have been anticipated by the contractor, consultant, or the City. In both of these cases the City does not currently have a contractual basis to charge the contractor liquidated damages.

While most projects have work to be completed in 2018, all but seven projects are currently within their contractually allotted number of working days. The City is currently

working with their consultants and the contractors to reconcile the extents of these damages.

Lessons Learned From 2017 Construction Season

Public and Private Infrastructure Roadway Coordination

As always, our goal is to reduce traffic disruption on City-led construction projects on our roads by taking effective and responsible action to coordinate City projects in advance as much as possible. There are many other individual construction activities by third parties within the road that impacts traffic flow. These private initiatives include works such as utility cuts for service repairs or new installations, street events and parades, and lanes/road closures to support development projects.

Advance planning of infrastructure work in the municipal right-of-way for 21 different public and private organizations is the mandate of the Utility Coordinating Committee (UCC). Coordination is complicated by hundreds of emergency and routine operational repairs undertaken by City Transportation, Water, Sewer and Forestry Operation teams annually. Coordination of all these works is a challenge.

Advanced cumulative planning allows the City to better respond to proposed and unplanned work and helps visualize the effects of all projects relative to others and promotes better definition of specifications around scheduling of our contracts. The Corporate goal is to ensure that construction is planned and sequenced in a manner that will minimize impacts on traffic and disruption to the public.

Through routine coordination meetings with all applicable City departments we can continue to minimize the disruption to the public from all works on the City right of way.

Construction Impact to Trees

The protection of trees always plays a crucial role in any City construction project. Specialized construction methods, such as trenchless technologies, are employed wherever reasonable in order to minimize the disturbance to trees. The City requires that all contractors follow a rigorous tree protection plan to ensure damage to trees is minimized during construction. While City staff and their consultants diligently monitor the contractor's use of tree protection strategies, damage can still occur. Contractors who damage trees are financially penalized through the City contract. This past fall during a City presentation to the London District Heavy Construction Association, all attendees were reminded of the importance of tree protection and the fines associated with damaging trees. Ongoing education is essential and the City will take every opportunity to remind the construction industry of the importance of tree protection and best practices surrounding tree protection.

The City's Construction Administration group continues to work with the Trees and Forests Advisory Committee providing updates on the City's tree protection policies and procedures.

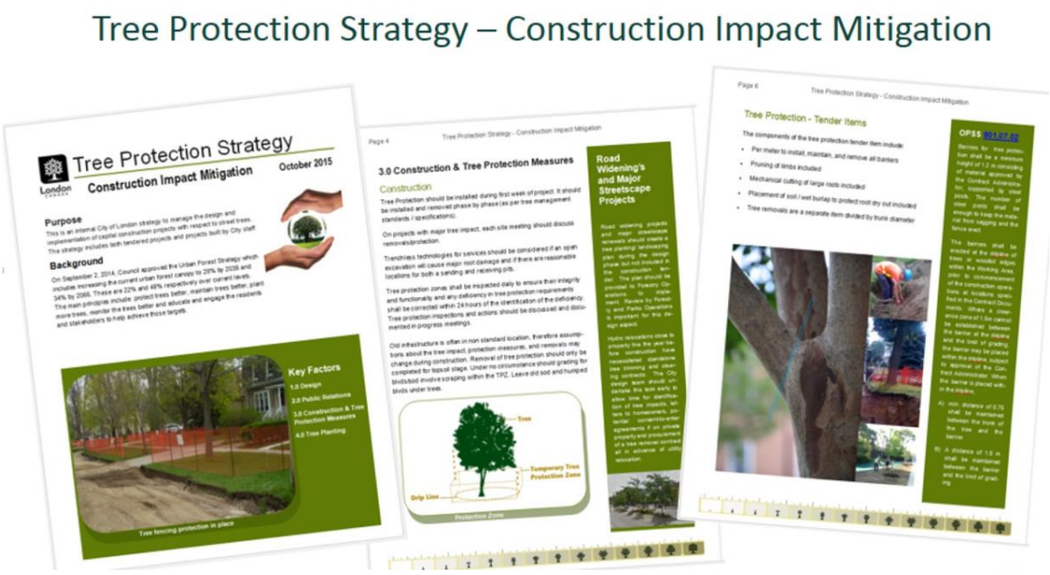

Figure 4 - City of London EESD Tree Protection Strategy

Road Closures And Pedestrian Access

The City strives to minimize the disruption to the public during construction and maintain access to the maximum extent possible. There are however times when road closures are necessary for the safety of the contractor and the public. Road closures allow the contractor to expedite their work, shortening the duration of their work. Road closures will continue to be evaluated moving forward in order to ensure the safety of the public and minimize the duration of social impacts due to construction.

Moving pedestrians safely and efficiently through and around construction sites remains a priority and the City is taking more steps to address this for future City projects and third party work on City Streets. In some cases, sidewalks need to be closed for safety and other construction related reasons. Safeguarding corridors near schools and heavy pedestrian sites to ensure access is important along with keeping these locations clean and free of dangerous material.

In some cases, the City will be requesting contractors to prepare construction site pedestrian control plans which will ensure the provision of a safe and accessible path of travel for all pedestrians through and/or around the construction site. The plan intent is to ensure that pedestrians with disabilities, as well as those with increased mobility needs (parents with strollers and/or young children, elderly pedestrians using canes, walkers, or wheelchairs, etc.), will be accommodated either through or around the construction site.

Public Perception

The City does receive complaints about absent work zones and lack of construction activity. While it may appear at times that little work is being completed, coordination is required by the contractor to ensure all work is completed in the correct sequence given the complexity of the work, number of subcontractors and other external utility providers. The required work must be completed in the proper sequence and must be finished prior to lane shifts, starting another phase or moving on to the next critical path operation.

Testing of soils, water, asphalt, concrete, compaction, etc. can also lead to durations of minimal activities on site giving a perception that no work is being done. In fact this testing is some of the most critical work on a project, ensuring public safety and value for money.

Customer Satisfaction Surveys

Each year, the City sends out a survey to a selection of construction projects to collect feedback from the residents and businesses about how they were impacted. The feedback in 2017 was generally positive with survey respondents expressing appreciation for the communication before the project starts and the professionalism and customer service of all the staff, consultants, and contractors involved in the projects.

The most typical comments on how the City can improve are to decrease the duration of the projects and improve communication during construction related to unexpected localized impacts. In 2017 the overall response rate for these surveys was 24.2%.

By comparison, the 2016 average rating of 4.09 decreased to 3.86 out of 5 in 2017. The City typically sends out survey's on the more challenging and contentious projects in order to receive more useful feedback for improvement. Overall the rating is good and the City will continue to strive for improvement. Figure 5 shows the trends in these survey results since 2004.

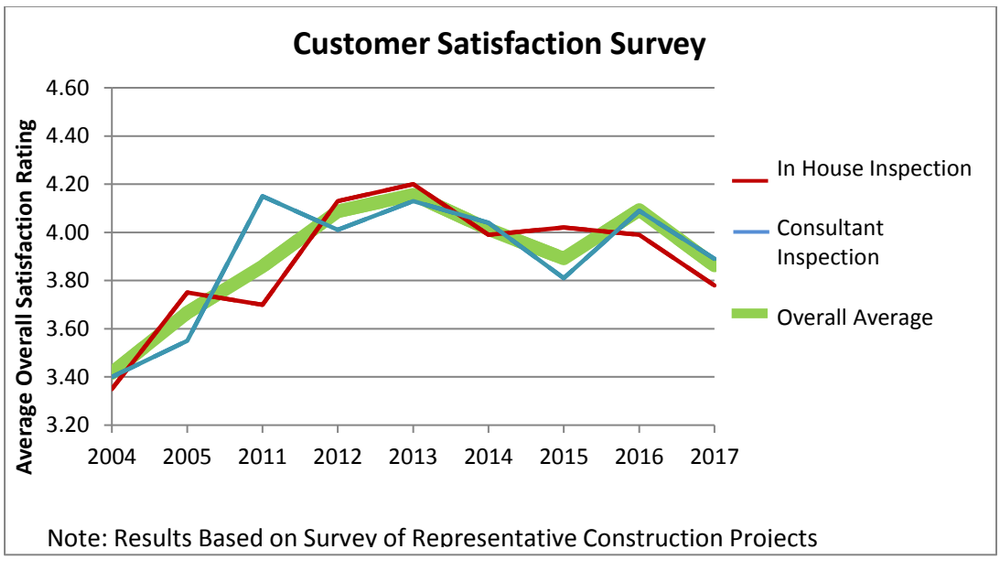

Figure 5 - Customer Satisfaction Survey

Risks For The 2018 Construction Season

There are several risks for the upcoming construction season that may impact project budgets and schedule. The noted risks are as follows;

Downtown 2018 Coordination: London is experiencing a renewed vitality in its downtown as the city grows. Many public infrastructure projects are proposed that will contribute to London's downtown regeneration. The coordination of the construction of these large-scale infrastructure projects is a continual process. The magnitude and timing pressures of the projects bring significant challenges and risks and will create significant disruptions which need to be proactively managed. For this reason, the temporary position of Downtown Projects & Business Relations Manager has been created to co-ordinate timely and effective responses to specifically address both anticipated and unanticipated disruptions from the downtown construction. This effort is particularly necessary in 2018, with the simultaneous closure of York Street and Dundas Street. Project coordination and mitigation measures will be implemented to the extent possible to reduce the impacts to London road users, residents and visitors to the downtown. Another risk is in underestimating how long it takes to deliver these major projects.

Figure 6 - Businesses Open During Construction

Regional workload: Due to a number of government funding initiatives across the province (Public Transit Infrastructure Fund (PTIF) and the Clean Water and Wastewater Fund (CWWF)), both London and the rest of Ontario is experiencing an increase in the amount of work for 2017 and 2018. Based on our experience from the 2017 construction season this additional work will put a strain on contractor resources in the London area and also cause an increase in the cost of work. It will become difficult to predict budget impacts, contractor availability and project schedules as the tender period and construction season unfolds. Contractor resources will become strained.

Sub-contractor availability: During the 2017 construction season there was significant issues with sub-contractor availability due to the volume of work. Typically a majority of sub-contractor work occurs in the fall months, causing a strain on their resources. During this time there is more work than there are resources to complete it, and this causes a challenge for the project team to provide accurate schedule updates. While it is the general contractors responsibility to coordinate these sub-trades, the timeliness of their work affects the overall success of the project.

Business impacts: During this increase in construction volume of work on London roads, it is especially important to reduce potential impacts of construction on businesses, pedestrians and commuters. The loss of parking spaces, diverted traffic, unexpected power outages and noise and dust typically accompany the large scale projects. The City will continue to protect businesses by communicating in advance and working with the business owners to mitigate construction impacts based on their operations. Signage that lets the public know businesses are still open in construction zones is a simple and effective way to lessen the disruption. Phasing construction, so it's not all happening at the same time, and identifying issues and developing plans to make any disruptions as painless as possible, can also minimize disruption to business.

Safety: Contractor and worker safety is a significant and serious concern for the City. The 2017 construction season saw a number of incidents around the city where drivers endangered workers on site. One of the main concerns is drivers not obeying temporary traffic signals and flagpersons, and speeding through construction zones. Public education and enforcement is critical is improving driver habits, and City staff are committed to working with our contractors to report dangerous drivers and educate the public wherever possible.

CONCLUSION

The City has $6.8 B of water/wastewater infrastructure and $2.1 B of transportation infrastructure, the timely replacement and upgrade of those assets is critical to ensuring long term sustainability of those services. The 2018 Infrastructure Construction Program has been planned to address asset needs for the lifecycle renewal while at the same time ensuring that the growth requirements of the community are met in a timely manner during the construction season.

While the 2018 projects have been scheduled in a manner to minimize social impacts on traffic, commuting around the city will be impacted and as such, residents are encouraged to plan ahead and exercise patience in construction zones.

Overall, 2017 was a successful construction season with the reconstruction of 85 km of road, 25 km of sanitary and storm sewer, and 13 km of watermains. The City managed portfolio of Council approved projects totalled about $146 M which is about 80% spent. The remaining 2017 contract work is expected to be completed in 2018 and within approved contract values.

Figure 7 - Dundas Street

Since the completion of the 2017 construction season, levels of service and safety have been improved for pedestrians, cyclists, transit users and automobile users. Traffic flow has moved more efficiently and roads are better able to handle the large volume of vehicles using the City's transportation network.

There are several risks associated with the 2018 construction season that may impact project budgets and schedule. Due to a number of continuing government funding initiatives, there may not be adequate contractor and sub-contractor resources to deliver the infrastructure program which will also cause an increase in the cost of work.

Lessons learned from 2017 projects and anticipated risks associated with the 2018 construction season have been communicated to Project Managers to support design and future project planning.

Figure 8 – Pedestrian Pathway Connection in Kiwanis Park

Lessons learned, strategies that may be adapted and procedures that can be improved have been identified and will be applied to 2018 construction projects where possible. Opportunities for the collection and utilization of lessons learned have been in all phases of a project life cycle. The early integration of construction knowledge into all phases of a project can be improved by effective use of lessons learned as well.

ACKNOWLEDGEMENTS:

This report was prepared by Ugo DeCandido, P.Eng. and Brian Nourse, P.Eng., of the Construction Administration Division, with input from Jim Yanchula, MCIP RPP, Manager, Downtown Projects & Business Relations, and Megan Hutchison (Communications Department) and reviewed by staff in Water Engineering, Wastewater and Drainage Engineering, Stormwater Management, Wastewater Treatment Operations, Roadway Lighting and Traffic Control, and Transportation Planning and Design service areas.

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March 7, 2018
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cc: Transportation Advisory Committee c/o Betty Mercier