

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MARCH 18, 2019
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER
SUBJECT:	2019 RENEW LONDON INFRASTRUCTURE CONSTRUCTION PROGRAM

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the following information report concerning the 2019 Renew London Infrastructure Construction Program **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Civic Works Committee – January 10, 2017 - [2017 Renew London Infrastructure Construction Program](#)

Civic Works Committee – March 19, 2018 - [2018 Renew London Infrastructure Construction Program and 2017 Renew London Post Construction Overview Report](#)

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. Our commitment to public service is delivered upon via the Renew London Infrastructure Construction Program which focuses on customer service excellence, efficiency, timely communication and coordination to minimize impacts on the public.

BACKGROUND

Purpose

The purpose of this report is to provide Committee and Council with an overview of the planned City major construction projects for 2019 and to provide an overview and evaluation of the 2018 Renew London Infrastructure Construction Program. This report will identify potential risks for the upcoming construction season, and outline lessons learned from 2018.

Context

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.

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

Sustainable infrastructure through the provision of road, sewer, water, sidewalk, traffic signal and streetlight assets is managed through the Renew London Infrastructure Construction Program. The program addresses existing lifecycle needs, system improvements, and growth-related priorities. It was created to drive efficiency in infrastructure delivery and minimize delays and inconveniences to the public during construction.

As the leaders of the program, City staff are responsible for overseeing City construction projects and providing onsite inspection where required. This oversight ensures projects are communicated, built in accordance with plans, specifications and City standards, completed on time, within set budget limits and following proper safety procedures.

2019 RENEW LONDON INFRASTRUCTURE CONSTRUCTION PROGRAM

Discussion

A number of construction projects are currently scheduled for implementation in 2019. Extensive review and coordination has been carried out at project and program levels to reduce potential impacts.

There will be 111 lane km of road reconstructed, 8 km of sanitary and storm sewers, and 8 km of watermain rebuilt. Approximately 2 km of combined/ redundant sewer will be removed, having a significant benefit to the environment.

In addition, 6 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.

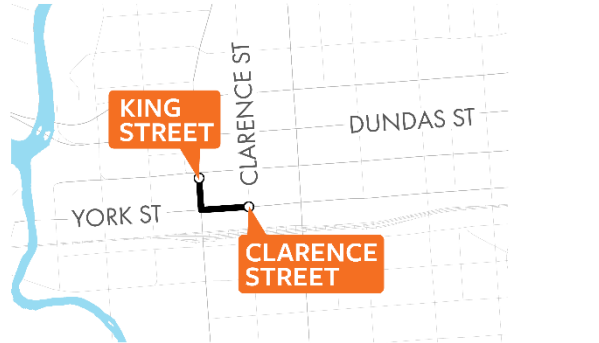
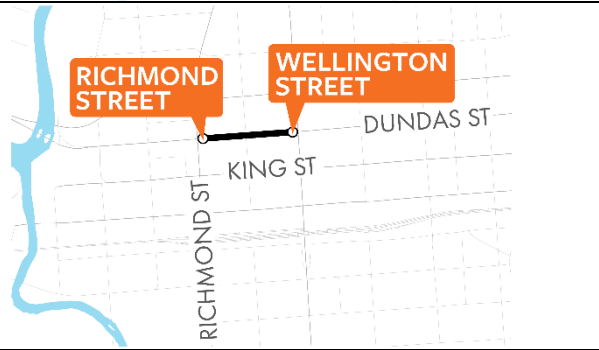
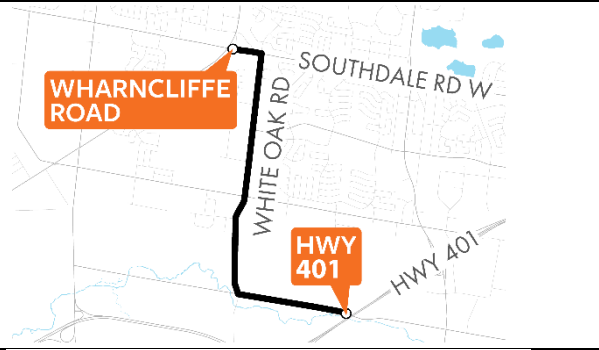
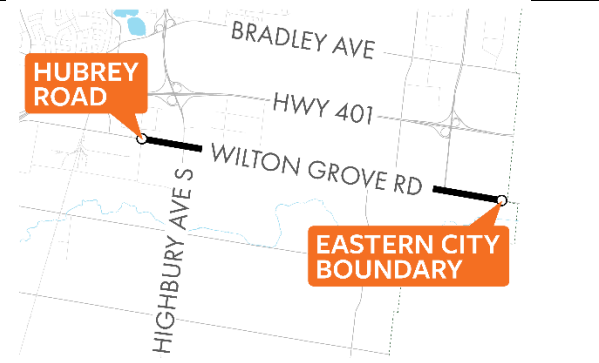
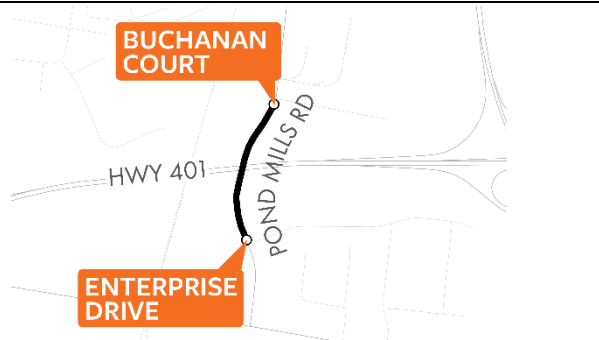
The City is investing approximately \$132 million in building road infrastructure projects in 2019. The 2019 program includes approximately \$60 million of road improvements, \$44 million of sewer improvements and \$28 million of water improvements. These investments will improve and extend the lifecycle of London’s critical road, water and sewer infrastructure.

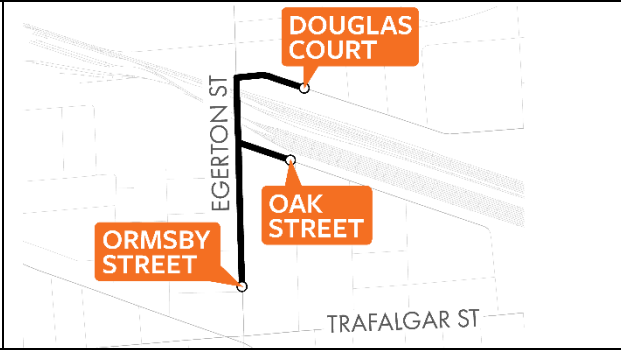




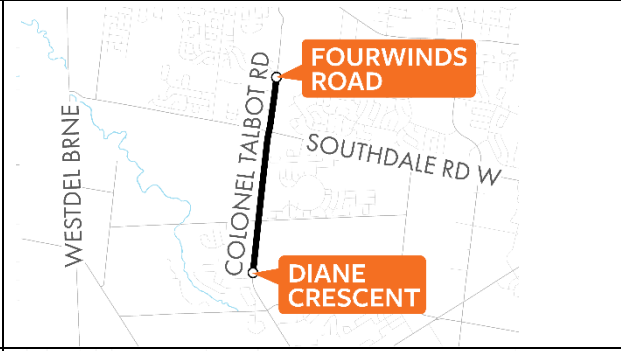




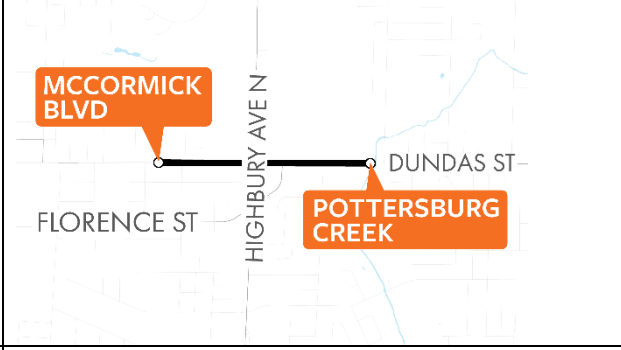




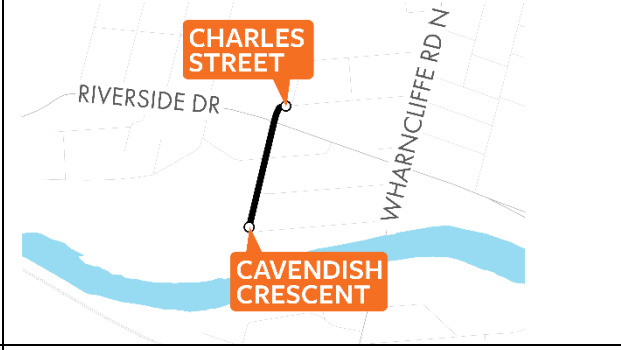




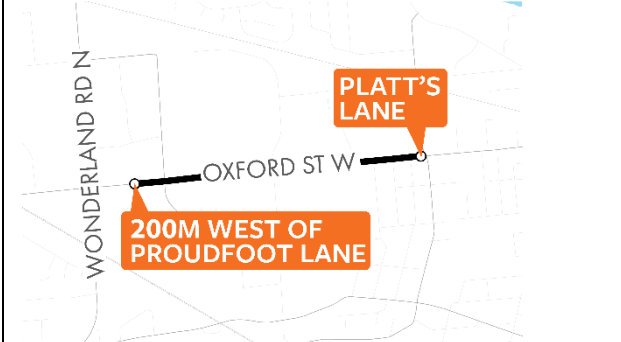




A complete [map of city-wide 2019 construction projects](#) can be viewed by residents on the City’s website.

Top 10 City Projects

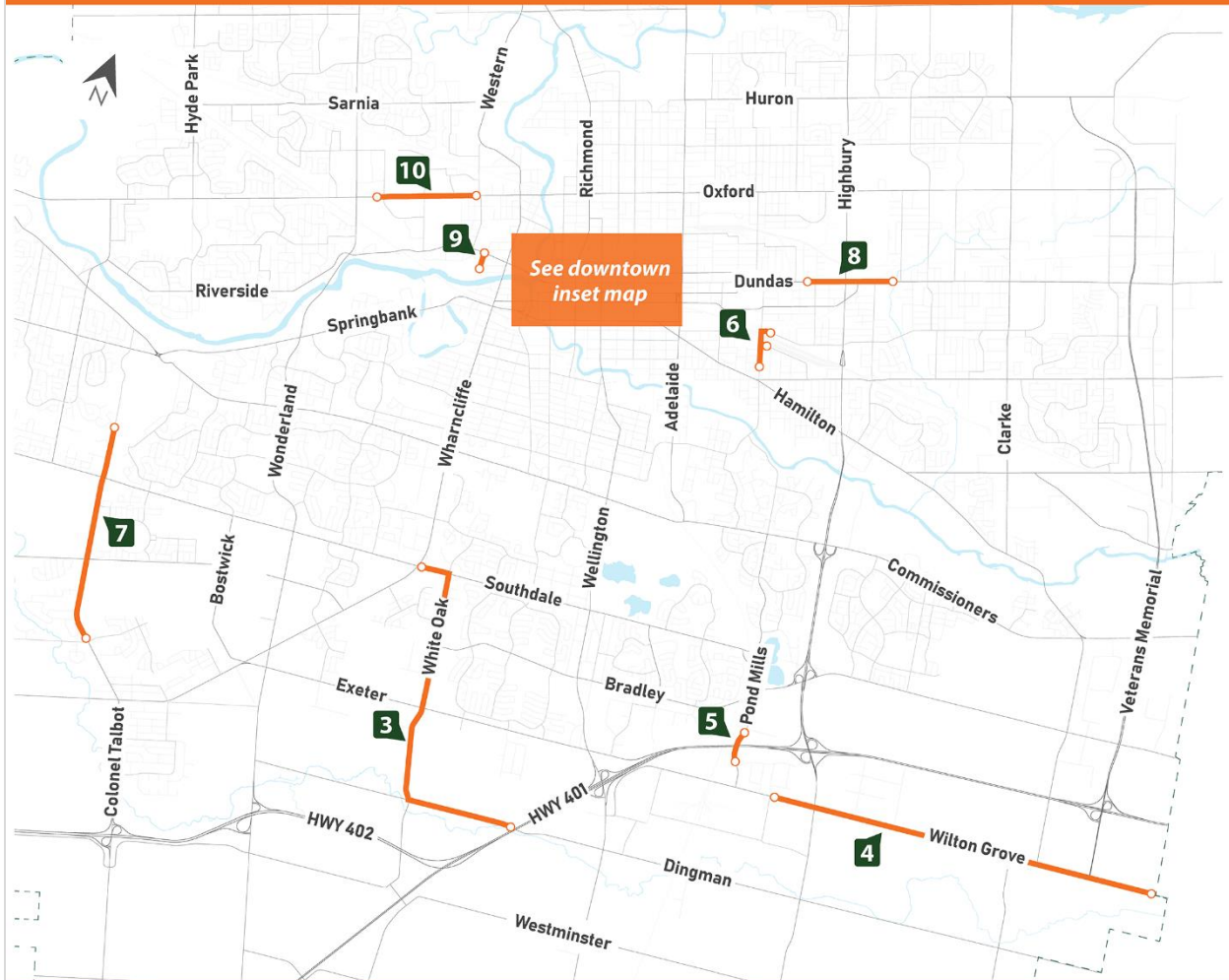
City staff have evaluated and identified the top 10 City projects that will take place during the 2019 construction season. These projects were selected based on the following criteria:

- Scope of work
- Construction duration
- Location
- Road classification
- Traffic impact
- Transit Impact
- Impact to neighbours
- Proximity to events, schools, community centres, parks, cycle routes

1		<p>York & Talbot Streets Downtown Sewer Separation</p> <ul style="list-style-type: none"> Temporary sidewalk closures LTC route impacts Phased road closures Phased road closures <p>Website: london.ca/YorkTalbot</p>
2		<p>Dundas Place (Phase 2) Core Infrastructure Renewal</p> <ul style="list-style-type: none"> Temporary sidewalk closures LTC stop impacts Road closure Road closure <p>Website: dundasplace.ca</p>
3		<p>Dingman Forcemain Wastewater Operations Improvement</p> <ul style="list-style-type: none"> Temporary sidewalk closures LTC stop impacts Bike lane restrictions Lane restrictions <p>Website: london.ca/DingmanForcemain</p>
4		<p>Wilton Grove Road Road and sewer improvement</p> <ul style="list-style-type: none"> Road closure LTC route impacts Road closures and detours Road closures and detours <p>Website: Coming soon</p>
5		<p>Pond Mills Road Watermain Improvement</p> <ul style="list-style-type: none"> Road closure LTC route impacts Road closure Road closure <p>Website: Coming soon</p>

6		<p>Egerton Phase 2 Infrastructure Renewal</p> <ul style="list-style-type: none">  Temporary sidewalk closure  No LTC impact  Phased road closures  Phased road closures <p>Website: london.ca/EgertonStreet</p>
7		<p>Colonel Talbot Forcemain Wastewater Operations Improvement</p> <ul style="list-style-type: none">  Temporary sidewalk closures  LTC route impacts  Lane restrictions  Lane restrictions <p>Website: london.ca/ColonelTalbot</p>
8		<p>Dundas Street East Road Improvement</p> <ul style="list-style-type: none">  Temporary sidewalk closure  LTC route impacts  Lane restrictions  Lane restrictions <p>Website: Coming soon</p>
9		<p>Cavendish Phase 2 Infrastructure Renewal</p> <ul style="list-style-type: none">  Temporary sidewalk closure  LTC route impacts  Road closure  Road closure <p>Website: london.ca/CavendishCres</p>
10		<p>Oxford Street West Road Improvement</p> <ul style="list-style-type: none">  Temporary sidewalk closure  LTC route impacts  Lane restrictions  Lane restrictions <p>Website: Coming soon</p>

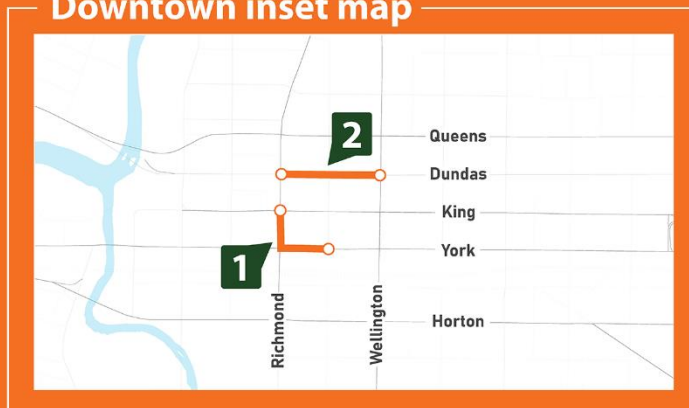
TOP 10 INFRASTRUCTURE PROJECTS 2019



See downtown
inset map

1. York & Talbot Streets
2. Dundas Place (Phase 2)
3. Dingman Forcemain
4. Wilton Grove Road
5. Pond Mills Road
6. Egerton Street (Phase 2)
7. Colonel Talbot Forcemain
8. Dundas Street East
9. Cavendish Crescent (Phase 2)
10. Oxford Street West

Downtown inset map



Risks

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

Downtown 2019 Construction

London is continuing to experience a renewed vitality in its downtown as the city grows. Not only are there a number of City lead projects occurring in the core in 2019, but continued private development, private utility projects, and public events and festivals will continue to occur as well.

Coordination of all these activities involves collaboration across a number of City divisions and constant communication internally and with the City's private partners, transit and emergency services. City staff remain focused on anticipating and minimizing impacts to the four dimensions of transportation (pedestrians, cyclists, transit users and motorists) through the Downtown Construction Coordination Committee. The committee was established to better coordinate transportation impacts in the core stemming from known projects and permits in or affecting right-of-way, to inform core construction communications. The group meets weekly to examine anticipated transportation impacts in the Core, roughly bounded by Horton Street, The Thames River, Oxford Street, and Colborne Street.

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 2018 construction season saw a number of incidents around the city where drivers endangered workers on site. One of the main concerns is drivers not respecting work zones, not obeying temporary traffic signals and flag persons, and speeding through construction zones.

Public education and enforcement is critical in improving driver habits, and City staff are committed to working with our contractors to report dangerous drivers and educate the public wherever possible. It's important to continue to obey signage that is in place even when there are no vehicles or workers present and not enter a work zone or drive past signage.

The City is also working in partnership with the Technical Standards and Safety Authority (“TSSA”) to ensure safe practices are being followed by all City hired contractors. Review of safety practices and procedures is an ongoing process, and City hired contractors are required to submit all Health and Safety documentation with every payment request. Additionally, any health and safety concerns are raised at every on-site coordination meeting, and as necessary. Safety is a continuing collaborative effort between the contractor, City, regulatory agencies, and the public.

Spring Workload (2018 Projects)

The 2018 construction season saw a significant amount of work and included complicated and challenging projects. As a result, there is work such as removal of temporary sidewalks, boulevard restoration, and final surface features, to be completed on a number of major 2018 projects this spring and summer.

Ultimately, the contractors will still be required to meet their contractual scheduling requirements for 2019 work, however progress will need to be monitored closely.

Wilton Grove Construction

With the announcement of the new Maple Leaf Foods processing plant at the south end of London major infrastructure work is underway. Improvements to the underground infrastructure and roadways are required in order to better service the large number of industrial facilities around the Wilton Grove/ Highbury area. The next two years will see improvements to the area over multiple projects which will cause temporary impacts to traffic and will require detours.

Continued coordination and communication with transit, businesses, and resident in this area is critical to minimize impacts to all operations.

Rail Crossing Approvals and Flagging

When any City of London construction project requires work on land owned by a railway, approval is required from the owner of the railway (typically either Canadian Pacific, “CP”, or Canadian National Railways, “CNR”). Flagging personnel is required for any work within the railways right-of-way, and flagpersons are assigned and provided by CNR and CP. These approvals can be challenging to obtain and railway flagpersons can be difficult to coordinate, which can lead to significant delays to a City lead construction project. Projects with rail crossings in 2019 include Frances Street and Egerton Street (Phases 1 and 2).

Coordination and Considerations

Vehicular Impacts

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 neighbourhood 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 may be implemented to mitigate this behavior. Traffic signal phase timing adjustments are made, where possible, 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. Separating a construction project 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. City staff believe this balance has been achieved with the 2019 Renew London Infrastructure Construction Program.

Pedestrian Impacts

Accessibility during construction projects is a key design consideration for all of the City's construction activities. City contracts typically require an accessible pathway through a construction site be maintained to the extent possible. When encountering certain project and site specific constraints or disruptions it is not always possible to provide a safe and accessible route through a construction site. When construction activities require the temporary closure of an existing sidewalk for safety, the public will be notified of the disruption as per O. Reg. 191/11, Part IV.2, s. 80.48 (Accessibility for Ontarians with Disabilities Act, 2005, "AODA"). Where applicable, signage will be erected on site at either end of the work indicating that the sidewalk is closed. This will alert pedestrians to find an alternate route. While this alternate route may not always be the quickest and most convenient way to a particular destination, it will ensure that the public is not entering into an unsafe situation.

Where possible, City projects will include requirements to construct temporary hard surface sidewalks to better facilitate accessible pedestrian movement.

Transit Impacts

City staff work closely with the London Transit Commission ("LTC") to identify construction impacts that affect bus routes. The LTC is very responsive at preparing and communicating detour routes when necessary. Several projects for 2019 will impact LTC routes, and these impacts will be listed on the Service Updates section of LTC's website (londontransit.ca). This website is also a useful tool to get real-time info to find out exactly where your bus is so you can better plan your trip and schedule your day.

Cyclist Impacts

Cyclists are an important consideration when designing and planning all of our infrastructure renewal projects. While many of our projects include new cycling lanes and improved infrastructure for London's cycling community, construction does create a hazard for cyclists. Cyclists should exercise caution around construction sites and follow all construction signs. When bikes lanes are closed due to construction motorists should yield to cyclists and share the road, however this may not always occur. For this reason cyclists should always remain diligent and alert around constructions sites.

Communications

The City continuously looks for ways to improve and enhance construction communications, with a goal of being inclusive of all forms of transportation: motorists, cyclists, transit users and all pedestrians. Various divisions are working towards providing clear, timely and actionable public notifications related to route interruptions, utility work and emergencies related to the right of way, city-wide. While frequency of correspondence may differ depending on the project's location, scope, duration and social impact. The following communication methods can be expected when living, working or owning property in proximity to a construction project:

Typical Construction Projects

- Introduction of project staff
- One or more construction notice letters
- On-site advanced warning signage
- Road impact updates available on Renew London website

Emergencies, Major Road Impacts or Reconstruction Projects

Any of the techniques above, plus:

- Project-specific web page on london.ca
- Public meeting
- Public Service Announcements posted on london.ca
- Social media updates posted on Facebook and Twitter

Core Construction Projects

Any of the techniques above, plus:

- Face-to-face meetings with Business Relations Manager
- Opportunity to sign up for project-specific email updates
- Impact-specific email updates to local properties affected
- Project meetings held in partnership with the BIA as needed

It is important to note that before work begins on a typical construction project, discussions take place with stakeholders to review methods of communicating during construction, impacts to property access, accessibility issues or special accommodation requests and to collect feedback and contact information. Information shared during these conversations is then used to develop the communications plan and tactics for the area impacted.

In addition to the methods of communication noted above, the City keeps project stakeholders such as local organizations and venues, business associations, school and school bus providers, LTC and emergency services informed through direct communication with Project Managers, the delivery of Public Service Announcements (PSAs) and the daily Renew London Road Report email.

Once a project begins, road construction teams and utility groups are managing many activities. The state of road closures, lane restrictions and sidewalk disruptions are constantly changing making it difficult to predict what the exact impacts will be at any given point in time. While we do our best to confirm the accuracy of the information with the contractor, City crew or third-party completing the work before issuing PSAs, unforeseen delays or changes to the construction schedule can occur.

To ensure up-to-date information is always accessible, project contacts are established and shared with those impacted before construction starts. Members of the public are invited to connect with the project manager to verify details, ask questions or share concerns during the project. This helps ensure issues are dealt with in a timely manner and that solutions can be developed. If, at any time, members of the public encounter a road disruption they'd like to know more about, they are encouraged to check Renew London.



The Renew London web application can be accessed visiting london.ca/roadwork or by clicking the icon (left) on london.ca's homepage.

Navigating Construction

Waze is the world's largest free, community-based traffic and navigation app. It contains information about local traffic disruptions and road closures in London. To leverage the benefits of real-time data-sharing among local drivers, the City will start to market the app more heavily as part of all existing construction and transportation communication programs. Increased use of the hands-free Waze app can help connect those driving in our City by keeping each other informed on the go. This year's construction program will also be complimented by more pedestrian, cyclist and transit mitigation actions identified in the Mitigation section of this report.



The [Waze](#) Navigation & Live Traffic app (left) can be downloaded on [GooglePlay](#) or the [App Store](#).

Core Construction Communication

Last year it was recognized that, in addition to the usual private-sector requests to do work in the City's right of way, multiple municipal infrastructural renewal projects would be simultaneously occurring in a relatively condensed area in the central part of the city. The core construction program was initiated to better connect stakeholders with information before, during and after construction through the delivery of sustained, communications related to work happening in the City's core, roughly bounded by Horton Street, The Thames River, Oxford Street, and Colborne Street. The newly created multi-organizational Downtown Construction Coordination Committee will continue to lead a core construction program in 2019. The communications portion of this program looks at core construction projects and how to best communicate any impacts resulting from weather, other construction, development and special events to business and property owners, residents and the travelling public.

It is the City's goal to make growth in our core area a positive experience for all road users and to increase the understanding of the reasons for the work (e.g. aging infrastructure) happening in our downtown. Because of this, tactics will continue to incorporate visuals and messages that speak to the greater vision for core improvements including: improved connectivity, preparing for growth and sustainability.

The current core construction campaign can be recognized by its vibrant orange colour and tagline: Connecting our future. Through these efforts, the City is implementing new approaches to share timely, accurate, and proactive information. Based on lessons learned in 2018, 2019 communications will focus on:

- Refining methods of targeting and delivering information to stakeholders
- Demonstrating value in infrastructure improvement investments in London's core
- Actively engaging the community in construction milestones
- Supporting access to businesses, parking and loading whenever possible
- Contributing to positive experiences during construction
- Raising awareness of traffic mitigation efforts

- Continuing to improve web presence and ease of access to project information through digital channels



Core construction banner at the York and Wellington overpass shown above.



Core construction project sign shown above.

Dundas Place Communication

While the second phase of the Dundas Place downtown revitalization project will officially begin after JUNO Week ends on March 18, 2019. Preparatory work for Phase 2 began in January of 2019. To continue to deliver on the unique communications plan developed for Dundas Place, the project team has maintained contact with Dundas Place email subscribers, business owners and those following the project on social media through the winter months. In partnership with the BIA and the new Dundas Place Manager, 2019 communications strategy will focus on:

- Maintenance of the [weekly construction update blog](#) and [dundasplace.ca](#) as the primary hub of information related to the project
- The development of programs that encourage movement and maximize time spent on all four blocks of Dundas Street
- Seeking additional opportunities for two-way dialogue between the City and business owners, property owners and residents between Richmond Street and Wellington Street
- Education about how to use the new flex street now that the first two blocks from Richmond to Ridout are complete
- Documenting and celebrating community building initiatives and activations
- Collecting input from the Dundas Place community and flexibly address issues



Dundas Place pedestrian navigation map



Dundas Place construction barrier signage featuring community members

2018 PROGRAM REVIEW

Overview of 2018 Projects

The chart below identifies the top 10 City projects in 2018, the status and tendered contract amount.

Project	Tendered Contract Amount	Status
Western/Wharncliffe Widening	\$8.0m	Sidewalks, sod, top coat asphalt to be complete.
Dundas Place from Ridout to Wellington	\$26.7m	Phase 1: surface features, Phase 2: Richmond to Wellington to be complete.
Main Street from Campbell to Dingman Creek	\$8.3m	Sidewalks, sod, top coat asphalt to be complete.
York Street from Thames River to Talbot	\$7.0m	Sidewalks, curbs, and top coat asphalt to be complete.
Wonderland / Wharncliffe Bostwick Pumping Station	\$7.3m	Minor sewer work, top coat asphalt to be complete.
Egerton from Dundas to CN rail tracks	\$5.8m	Final watermain crossing under CN tracks, top coat to be complete.
Wonderland / HWY 402 Highway 401 to Highway	\$6.6m	Top coat asphalt to be complete.
Colonel Talbot Pumping Station and Forcemain Project(s)	\$2.0m	Restoration to be complete.
Hamilton/Sackville from Chelsea to Egerton	\$4.1m	All Sackville Street work, sidewalks, boulevard restoration, top coat asphalt to be complete.
Talbot Street from Fullerton to Kent	\$1.7m	Sidewalk, boulevard finishes, signals, top coat asphalt to be complete.

2018 Accomplishments

In 2018, the demand for road impact information was evident, with 21,407 visits to the Renew London landing page, more than 550 Customer Relationship Management (CRM) inquiries and ongoing social media inquiries. To better equip the public with road impact information, the City of London expanded its Renew London construction program with additional channels including more frequent PSAs, social media updates related to construction, project-specific web pages, direct email and more local media outreach. In total, the City issued more than 90 PSAs and achieved 91% neutral or positive media coverage. These new ways of “pushing” out information helped media, local radio, the LTC, the BIA and local venues distribute information to their followers / listeners / riders / attendees in a timely manner.

Core Construction

Dundas Street, York Street and Talbot Street were selected as pilot projects for the 2018 Core Construction program. Having dedicated staff and external partners committed to the success of this program allowed us to conduct more in-person meetings, respond to the needs of business owners more promptly and better manage event schedules and the needs of those most impacted by construction downtown.



Core construction notice sign installation outside of downtown apartment building.

- The City produced a [video](#) and series of radio ads in partnership with local business owners.
- A core construction [landing page](#) was developed to improve ease of access to downtown construction information.
- Project-specific core construction email lists were generated for Dundas and Talbot as well as York which had a 67.6% open rate.
- The City partnered with LTC on a promotion to raise awareness for service disruptions due to construction.
- Worked with the contractor to alter construction staging to accommodate access to parking for the duration of the York Street project.

Dundas Place: London's first flex street

Dundas Place (Phase 1) construction, from Ridout to just east of Richmond, was highly successful because of the availability of on-site contacts, frequent pedestrian navigation updates and community engagement initiatives.



London Fringe Festival program centrefold featuring the Dundas Place Project Manager, Jonny Ngai.

- 90% of Dundas businesses and property owners engaged in pre-construction one-on-ones and community meetings.
- Gained more than 800 Dundas Place email list subscribers.
- Maintained 50% average email open rate.
- 48% participation in Dundas Place [community photo shoot](#) for construction hoarding and other tactics.
- Received 17,041 Dundas Place website visits.
- Maintained weekly Dundas Place blog from April to December 2018 earning 30,598 [blog](#) post views.
- Earned 106,700 impressions on the Dundas Place [Twitter](#) account.

Blackfriars Bridge Rehabilitation

Blackfriars Bridge construction milestones were celebrated in unique ways throughout the duration of the project through live streaming, unique media opportunities and community events.



Hundreds of people crossing the Blackfriars Bridge at its grand opening.

- The #BlackfriarsBridge hashtag was trending on Twitter nationally on Aug 15, 2018.
- More than 250 people in attendance and 10 community partners participating at the grand opening event.
- Monthly updates showcased on [blackfriarsbridge.ca](#).
- More than 30,000 views on Blackfriars Bridge Facebook videos
- Engaged community in selection of decorative bridge signage.
- Incorporated significant community members (e.g. Isaac Crouse descendants) in the promotion and execution of grand opening.
- Collaborated with local artist on a one-of-a-kind Blackfriars Bridge perpetual calendar.

Western Road and Wharnccliffe Road Widening

As an area highly populated with students, the Western / Wharnccliffe Road Widening required direct coordination with Western University, local residences and the LTC.



Students walking on sidewalk during Western / Wharncliffe construction.

- Developed project-specific landing page including construction safety tips for students.
- Coordinated delivery of information to students with the LTC and Western University.
- Conducted on-site meeting with university rep(s) to understand community concerns.
- Worked closely with community members to improve accessibility in the area.
- [Re-opened the corridor](#) to four lanes of traffic in 2018 improving traffic flow and improve travel times.

Customer Service

As part of the Municipal Council approved Service London Implementation Plan, 2018 was the third year of CRM integration into City of London construction projects. This platform captures and is a conduit for customer interactions and complaints which get directed to Project Managers assigned to City construction projects. Construction Administration received over 569 CRM inquiries in 2018. Program features will be enhanced in upcoming years which will improve interaction with our customers over time.

Budget and Schedule

The City managed \$187 million in infrastructure construction project work in 2018. All projects are nearing completion and are currently within the approved contract value to-date.

Construction contracts for the City of London are usually tendered based on a specified number of “working days” allowed to reach substantial completion (contract milestone). Rain days, Saturdays, Sundays and holidays do not count towards the working day count. However, contracts are sometimes configured to encourage work on weekends. Additional work and unforeseen conditions may increase the number of working days allowed within a contract when there is justification. Liquidated damages (cost for late delivery of a project) are assessed against the contractor once the number of allowed working days has been exceeded.

While a number of City projects had work continue into December, these projects had a number of working days added due to unforeseen challenges that could not have been anticipated by the contractor, consultant, or the City. Projects from 2018 that encountered extended project schedules include:

- Talbot Street
- Main Street
- Hamilton Road
- York Street
- Western Road/ Wharncliffe Road

While most projects have work to be completed in 2019, all but one project, Talbot Street, are currently within their contractually allotted number of working days. The City is currently working with their consultant and the contractor to reconcile the extents of these liquidated damages for the Talbot Street contract.

The Hamilton Road project has a significant amount of work to complete in 2019, including the underground work on Sackville Street. This portion of work was deferred to 2019 once it became clear that the work could not be completed in 2018 due to a number of unforeseen conditions. Additionally, sidewalks and boulevard restoration work on Hamilton Road will also need to be completed in the 2019 construction season. The top coat of asphalt was always scheduled to be completed in 2019, and will occur once the above noted work has been completed.

The Main Street project is forecasting a potential minor budget overage, with several additional costs having encumbered the contract contingency. Additional costs include: revision to the concrete sewer pipe specification, additional work around boulevard trees, temporary sidewalk work and coordination around utilities. The project team is currently working with the project consultant to remain within budget, however an increase in contract value may be necessary.

Lessons Learned From 2018 Construction Season

Pedestrian Pathways

Maintaining pedestrian pathways around construction sites can create very challenging situations that are specific and unique to each construction site. Throughout the 2018 construction season a number of issues were noticed that can be improved for 2019.

- a) Contractors parking on sidewalks and pedestrian pathways is unacceptable and all contractors will be reminded at the beginning of the 2019 season to ensure this does not occur. Continual monitoring will be necessary to eliminate this practice.
- b) Where temporary watermains cross pedestrian pathways, the pathways should be covered with temporary asphalt to create a hard surface and not a granular material as was noted on some projects in 2018.
- c) When construction activities require the closure of a sidewalk, signage should be provided to alert pedestrians of the closure at a location that allows them to take an alternate route without wasting time. The City is aware of some instances in 2018 where pedestrians continued down a sidewalk only to find out that the sidewalk is closed, requiring significant backtracking.

Public and Private Infrastructure Roadway Coordination

Coordination between all construction projects that occupy the City Right-of-Way created challenges during the 2018 construction season. 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 compounded and complicated by hundreds of emergency and

routine operational repairs undertaken by City Roads, 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

There are two types of impacts that construction can have on trees;

- a) Impacts that are require to facilitate construction, and;
- b) Unnecessary damage due to construction equipment and practices

Specific tree removal on some projects is unavoidable in order to facilitate the installation of new underground infrastructure, sidewalks, curbs, and road widenings. The City is typically replacing very old infrastructure where surrounding trees have been planted decades earlier (and therefore had significant growth). Specialized construction methods, such as trenchless technologies, are employed wherever reasonable in order to minimize the disturbance to trees. Additionally, excavation done near trees is typically done by a vacuum excavation truck to minimize the damage done to roots.

In order to prevent unnecessary damage due to construction equipment and practices, the City requires that all contractors follow a rigorous tree protection plan. 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.

Tree Protection Strategy – Construction Impact Mitigation



Intersection Improvement Projects

Over the last few years, the City has prioritized infrastructure improvements to various aged intersections in the City with projects whose scope may include traffic signal rebuilds, lighting improvements, new sidewalk, curb and tactile plates to current AODA

requirements, and improvements to the bike facilities, including enhancing transitions (green crossside pavement markings) from boulevards across intersections.

These projects are very complex from a coordination perspective and require a great deal of thought into scheduling, moving traffic around the site safely, and working in confined areas. Key equipment delays (signal poles and arms) and nature of constructing and coordinating subcontractors for this unique work led to chronic commuter and public complaints in 2018, notably the Adelaide and Windermere Intersection Improvement project. Lane closures are intermittent as required throughout staging of construction and this can compound public frustration for a project that is already experiencing delays.

About 15 more localized Intersections projects are planned for 2019 and steps have been taken internally to create stringent contracts. Reducing working day hours and limiting work zones can lead to increased costs but should be considered noting increasing penalties for late work and working with suppliers in advance of projects should help mitigate some of the issues experienced in 2018.

Public Perception

A common complaint that the City received in 2018 related to the perception of absent work sites. 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.

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 and managing the infrastructure gap. The Renew London 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 and improving water quality in the Thames River.

Overall, 2018 was a successful construction season with the reconstruction of 73 lane-km of road, 15 km of sanitary and storm sewer, and 9 km of watermains. The City managed a portfolio of Council approved projects totalling about \$187 million and all projects are nearing completion and are currently within the approved contract value to-date with only one contract at risk of a minor exceedence.

Since the completion of the 2018 construction season, levels of service and safety have been improved for pedestrians, cyclists, transit users and vehicular traffic. Traffic flow has moved more efficiently and roads are better able to handle the large volume of vehicles using the City's transportation network.

The top 10 2019 projects have been identified noting downtown will experience major interruptions with Dundas Phase II and York Street Phase II projects.

While the 2019 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.

Lessons learned from 2018 projects and anticipated risks associated with the 2019 construction season have been communicated to project managers to support design and future project planning. The City strives to deliver sustained, sincere and strategic communications as part of its core construction program and to continue to elevate city-wide road impact information through providing meaningful road information to all. Strategies that may be adapted and procedures that can be improved have been identified and will be implemented in 2019 construction projects where applicable.

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