

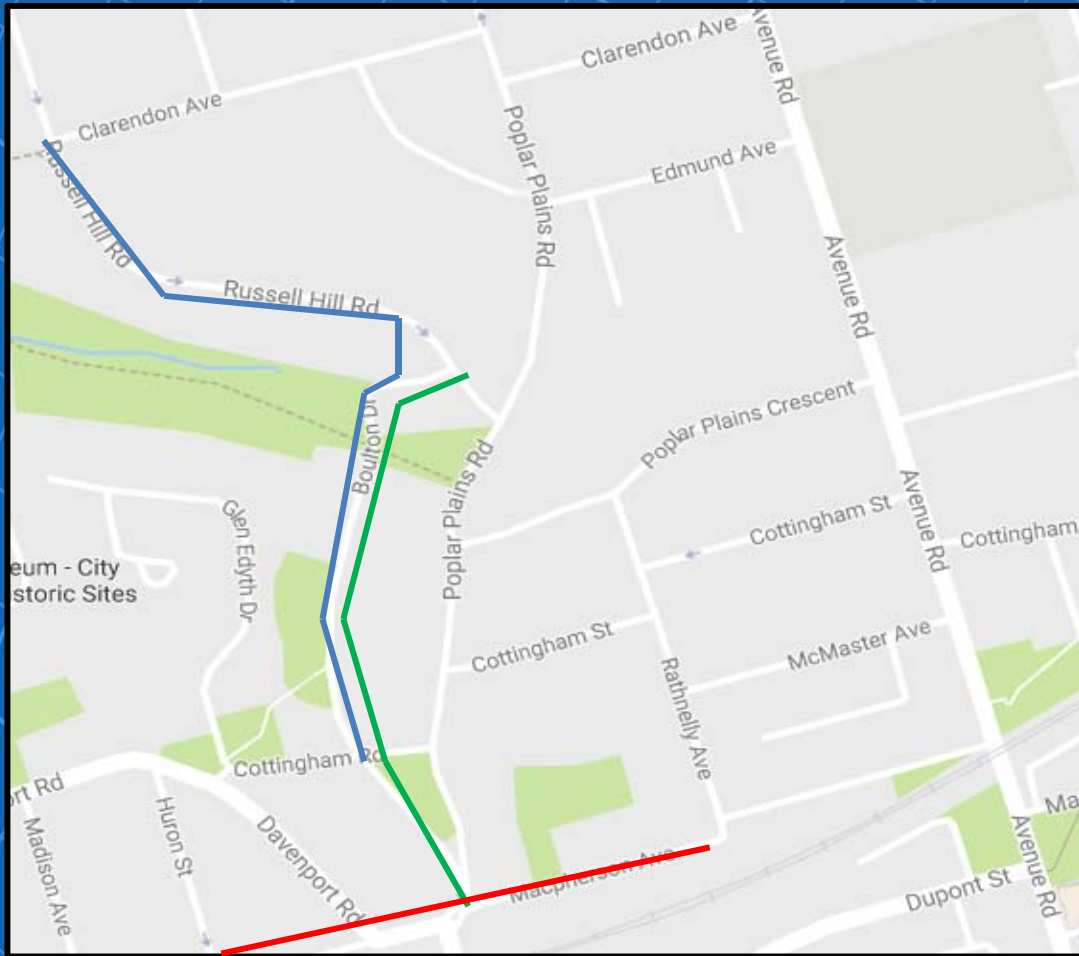
# Watermain Relining & Transmission Watermain Relining on Russell Hill Road, Boulton Drive & Macpherson Avenue





Engineering & Construction Services

July 27, 2017

# Map of Work Area



103-year-old transmission Watermain	
87-year-old transmission Watermain	
100+- year-old Local Watermain	

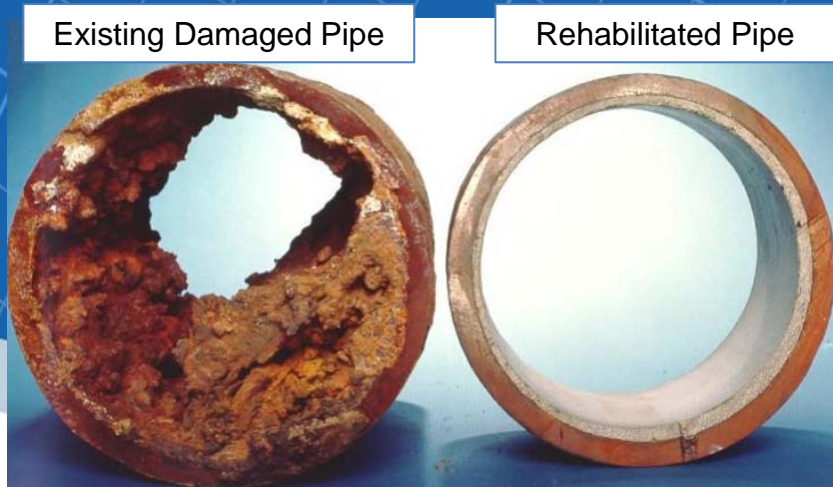


# Project Overview

- The contractor will re-line:
  - 500m of the 100+-year-old watermain and replace the City-owned portion of substandard water services on Boulton Drive between Russell Hill Road and Macpherson Avenue
  - the 103-year-old Transmission Main located on Macpherson Avenue between Huron Street and Rathnelly Avenue
  - the 87-year-old Transmission Watermain on Russell Hill Road / Boulton Drive between Clarendon Avenue and Cottingham Road

# Rehabilitation Method

- The watermain will be rehabilitated using the trenchless Cured-in-Place Pipe (CIPP) method.
- The existing pipe is cleaned, and a sock filled with potable water approved resin is inserted in to the existing water pipe from shafts/pits. The sock (liner) is cured with hot water or steam.
- Once cured, the liner forms a close fit with the host pipe and adds another 50 years of service life to the deteriorated watermain.



Installation of CIPP liner for a large diameter watermain.



# What work will take place?

The work on this project can be summarized in 9 steps:

1. Locate existing underground utilities and verify tie-ins and service valves.
2. Install by-pass water system (local watermain only).
3. Excavate access pits/cut existing pipe.
4. Clean Pipe
5. Line Watermain
6. Pressure Test and Chlorination
7. Replace the City-owned portion of substandard water services (local watermain only).
8. Reinstall the pipe within access pits and/or construct valve chambers within access pits and backfill
9. Site Cleanup and Restoration

# Working Hours and Bypass

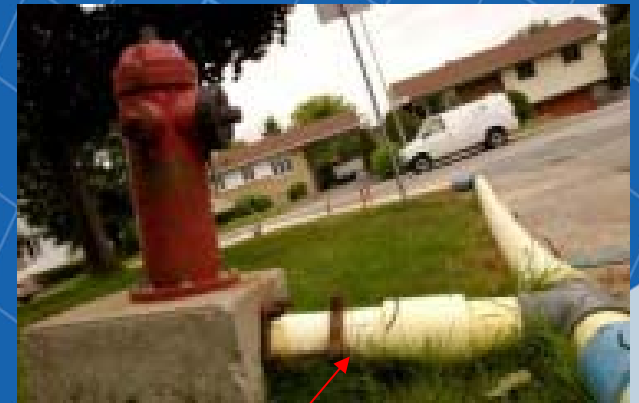
- Most of the work will take place from 7:00 a.m. to 7:00 p.m. (Monday to Friday)
- Only when the watermain liner curing has initiated, the work hours may extend beyond 7:00 p.m. this work can't be stopped when it starts, due to the chemical process
- Temporary, above-ground pipes and temporary water services (bypass) are required to supply residents with useable water while we rehabilitate the local watermain.



Temporary Watermain Bypass and temporary services laid on street to supply houses with potable water during rehabilitation work.

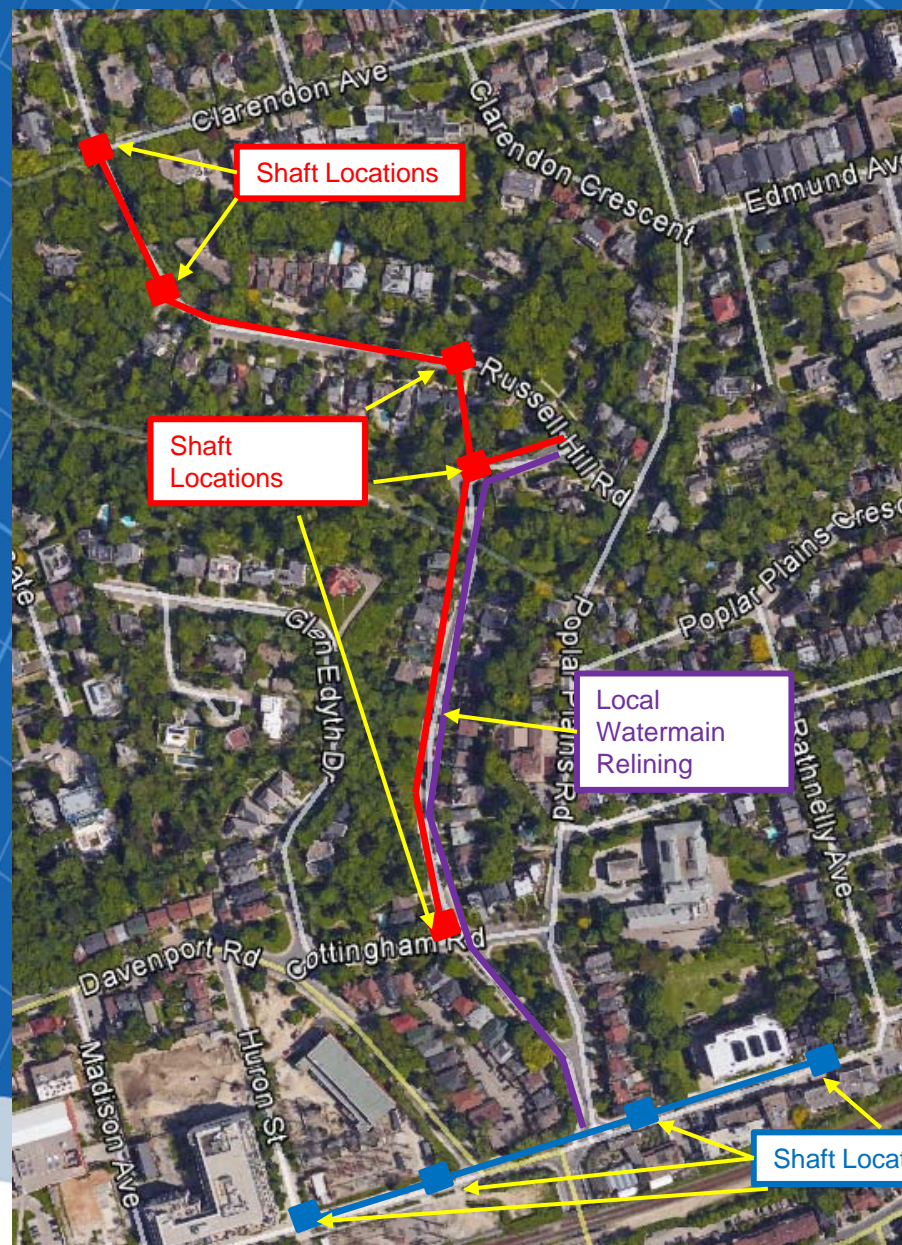


Temporary Watermain Bypass hook-up to existing fire hydrant for water source.





# Access Shaft Locations





# Traffic Management

- **Boulton Drive:**

- Existing one-way southbound lane and the bike lane will be maintained during construction.
- Minor bike lane and traffic interruptions are expected when water service upgrades are taking place.

- **MacPherson Avenue:**

- Macpherson Avenue, between Poplar Plains Road and Rathnelly Avenue will be closed to westbound traffic when the contractor is lining the watermain and constructing the valve chambers expected in December 2017.
- Lane closures are not expected on Macpherson Avenue between Huron St. and Poplar Plains Road.



# Traffic Impact & Management:

- **Russell Hill Road:**

- Clarendon Avenue east of Russell Hill Road will be restricted to local traffic only for watermain lining work and valve chamber construction at the intersection.
- Existing one-way southbound lane and the bike lane will be maintained during construction.
- Intersection work at Russell Hill Road/Clarendon Avenue will be completed over a weekend to minimize traffic disruption.

# Work Plan

- The project is expected to occur in two phases:
- **Phase 1:**  
**Local Watermain Lining and Services Upgrade on Boulton Drive is planned during Summer 2017:**
  - The local watermain lining will occur between June 12, 2017 and October 2017.
  - Several 2.5m x 2.5m access pits are required for this work on top of the watermain.
  - We estimate that 10 access pits are needed; the exact number cannot be verified until a CCTV investigation of the existing watermain is complete and is dependent on the Contractor's plan to deliver the project.
  - The temporary watermain pipe will be buried or protected where it crosses road or sidewalk. Where the temporary watermain is installed next to the curb, it will be supported by temporary asphalt.
  - In locations where temporary water services cross sidewalks or private walkways ramps shall be provided.
  - Access to driveways will be maintained during construction.

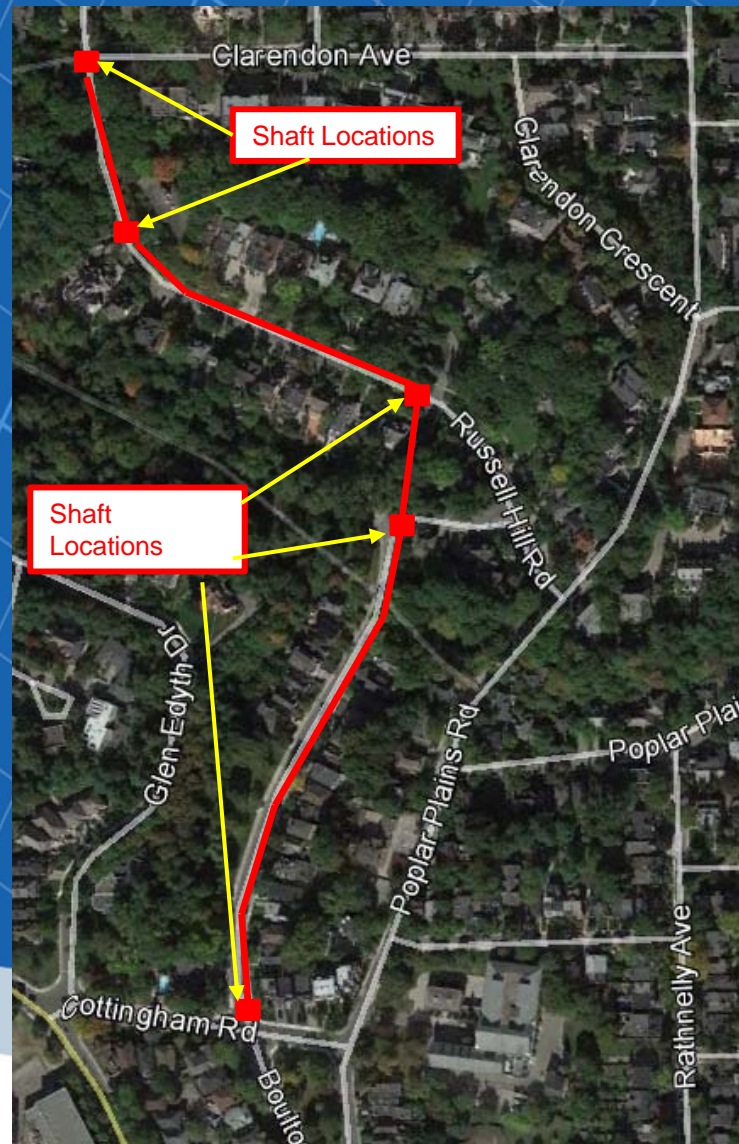


# Work Plan

- **Phase 2: Lining of the Trunk Watermains on Macpherson Avenue and Russell Hill Road/Boulton Drive is planned during Fall/Winter 2017 and Spring 2018.**
  - Transmission Watermain (Macpherson Avenue) will be relined between September 15, 2017 and May 30, 2018.
  - Transmission Watermain (Russell Hill Road/Boulton Drive) will be relined between October 15, 2017 and May 30, 2018.
  - Access shafts to rehabilitate the transmission mains are shown on the map and will be located where existing valve chambers are located.
- Restoration work for the entire project will occur in the Spring or early-Summer of 2018; progress updates will be provided.

## Russell Hill Road/Boulton Drive Watermain Shafts

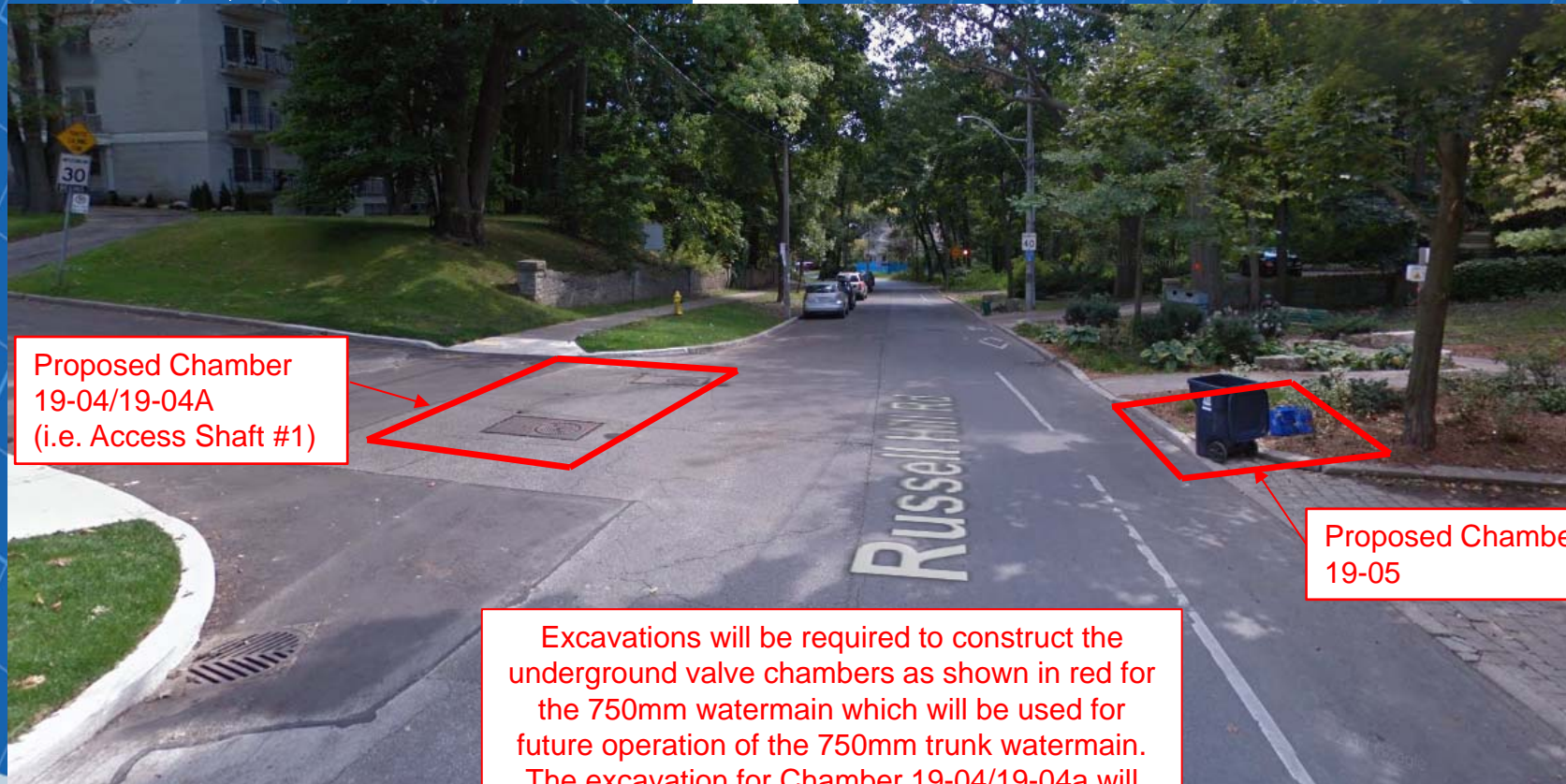
Shaft construction on Russell Hill Road/Boulton Drive between Clarendon Avenue and Cottingham Road will affect parking, however, the southbound traffic lane and bike lane will be maintained.





# Access Shafts/Valve Chamber Locations @ Russell Hill Road & Clarendon Avenue

- Chamber construction and rehabilitation work will require excavations to be open for a period of at least two months at this intersection. To maintain traffic flow, the 2 chambers will **NOT** be excavated at the same time.



Proposed Chamber  
19-04/19-04A  
(i.e. Access Shaft #1)

Proposed Chamber  
19-05

Excavations will be required to construct the underground valve chambers as shown in red for the 750mm watermain which will be used for future operation of the 750mm trunk watermain. The excavation for Chamber 19-04/19-04a will also be used to allow entry into the watermain to complete the watermain rehabilitation work.



# Access Shaft Locations

## Russell Hill Road & Boulton Drive

- An excavation is required in front 159 Russell Hill Road to gain entry into the watermain to complete the rehabilitation work. The access shaft will remain open for a period of approximately 1 month.

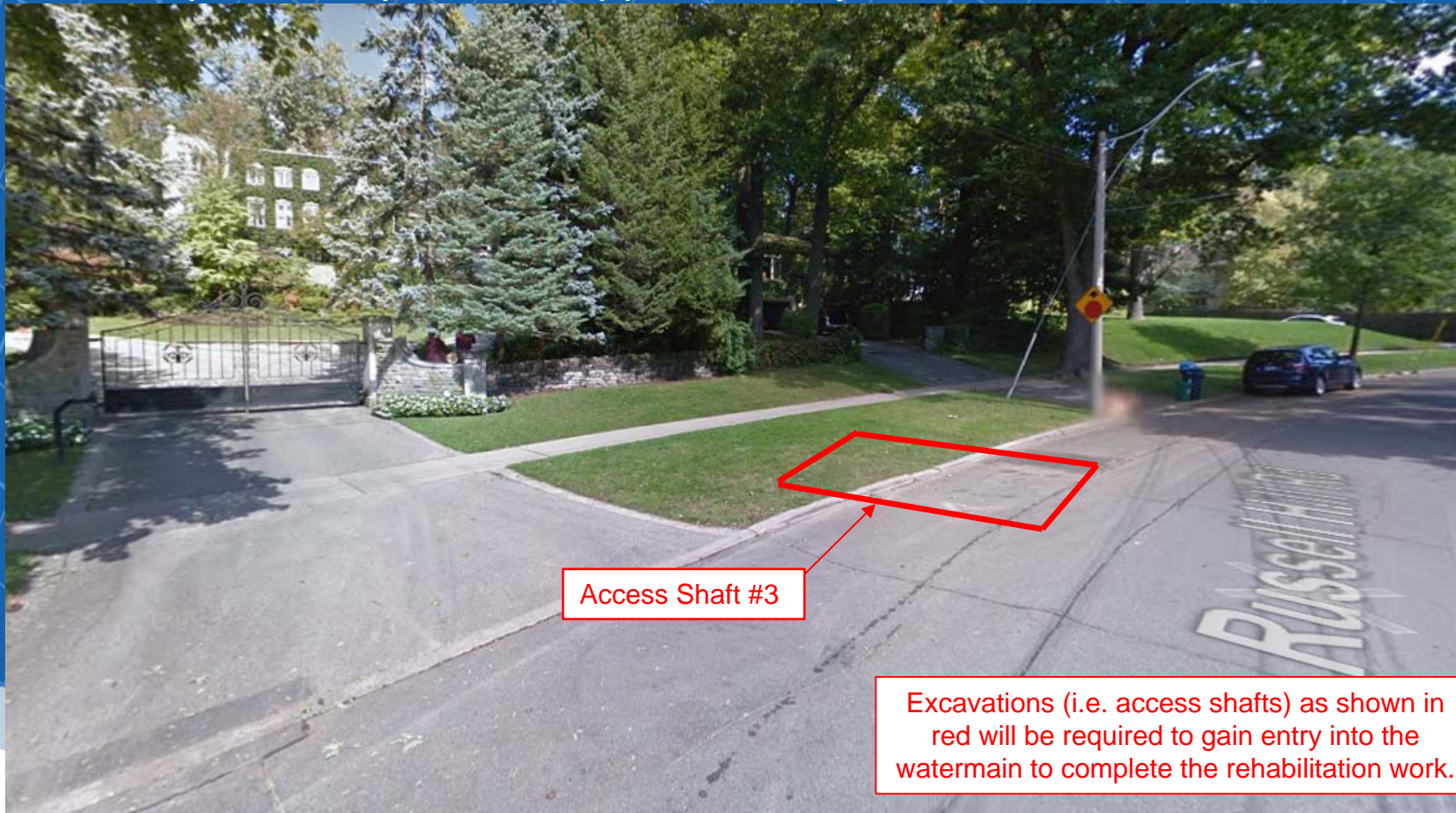




## Access Shaft Locations

### Russell Hill Road & Boulton Drive

- An excavation is required in front 43 Russell Hill Road to gain entry into the watermain to complete the rehabilitation work. The excavation will remain open for a period of approximately 1 month.

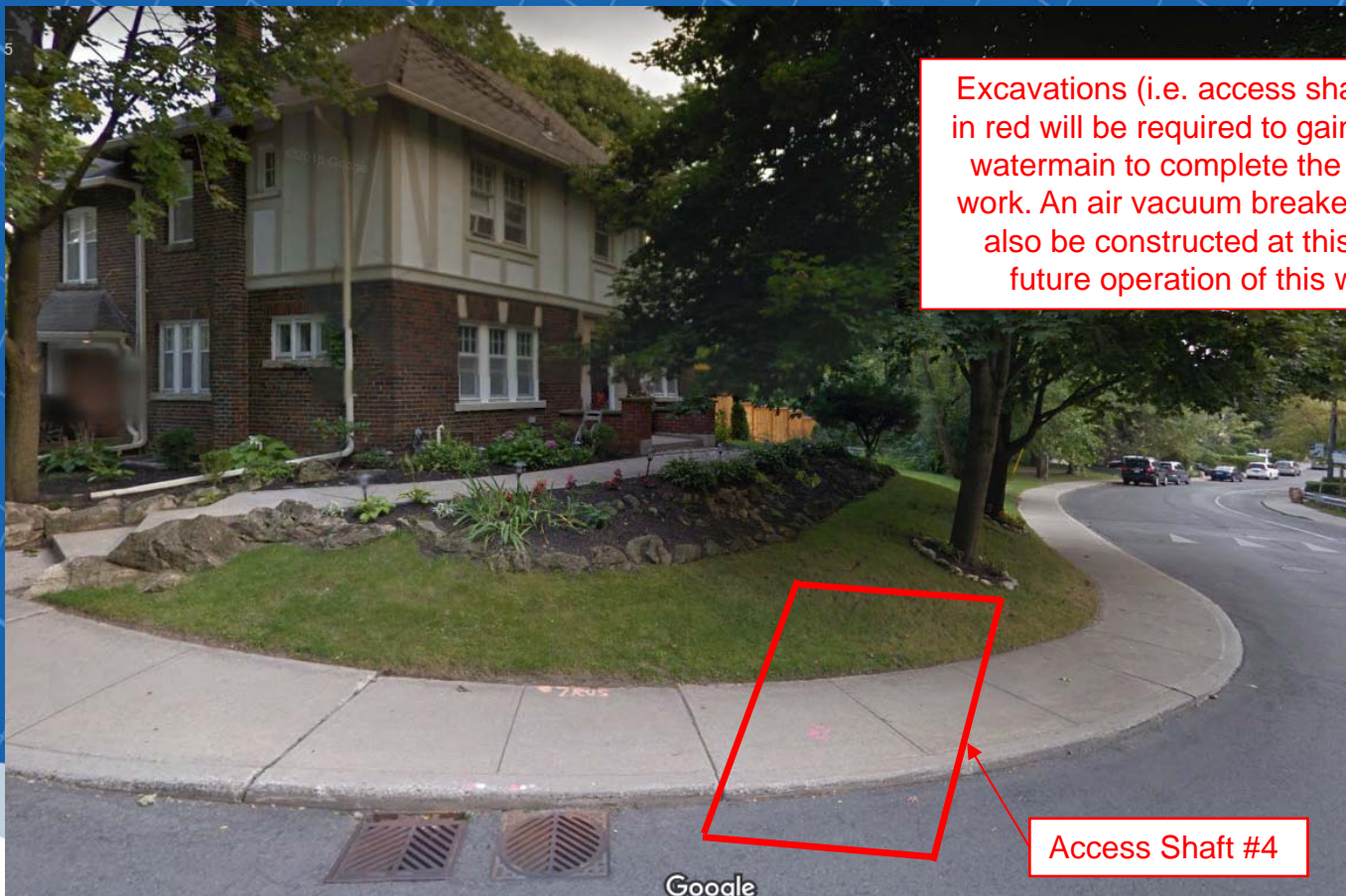




# Access Shaft construction

## Russell Hill Road & Boulton Drive

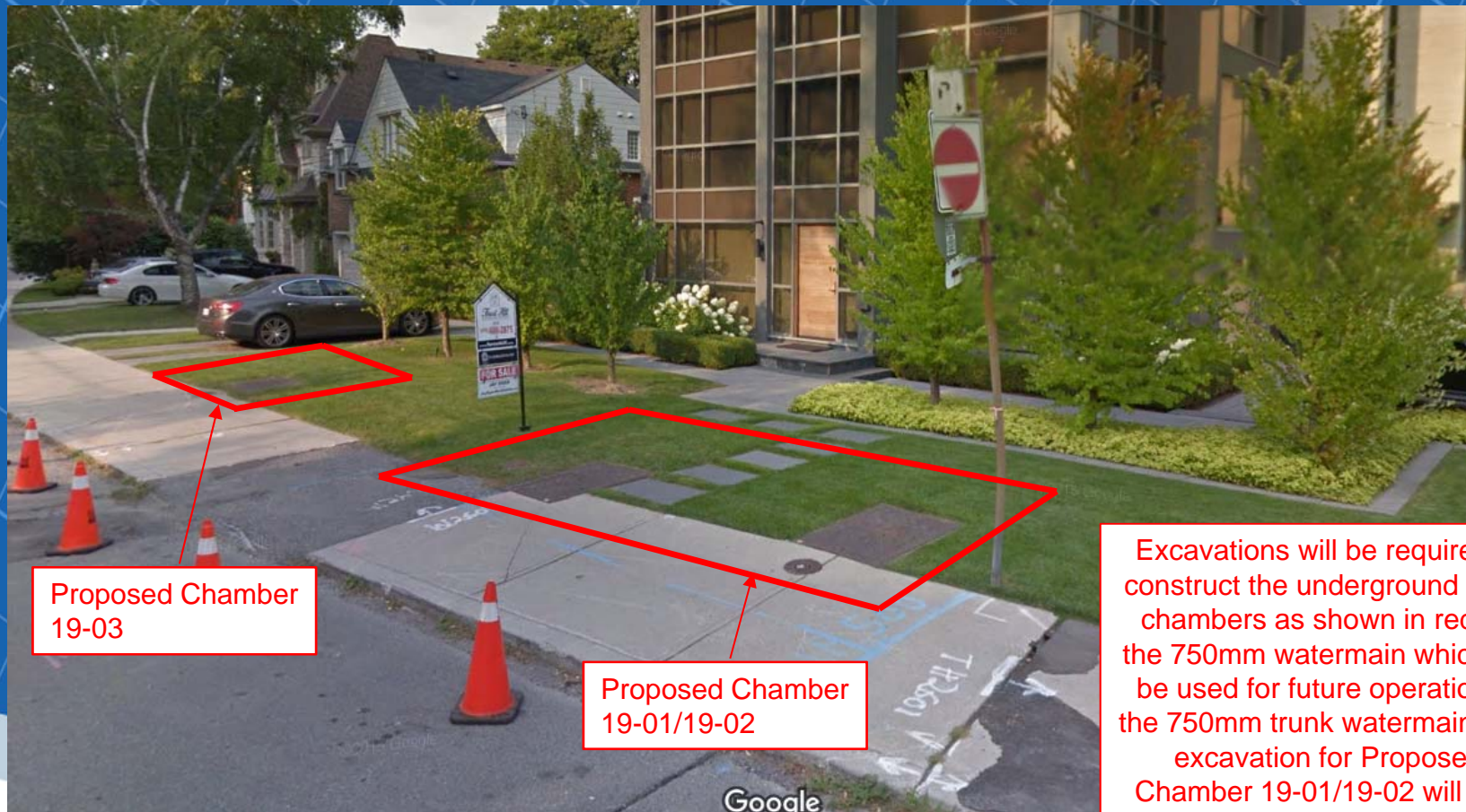
- An excavation is required in front 147 Boulton Drive to gain entry into the watermain to complete the rehabilitation work and to construct an air vacuum breaker chamber for future operation of the watermain. The excavation will remain open for a period of approximately 2 months.





# Access Shaft/Valve Chamber construction @ Boulton Drive & Cottingham Road

- 2 valve Chambers will be constructed in front 22 Cottingham Road.  
**NB:** The Resident has been consulted and informed of this work. These excavations will remain open for a period of approximately 2 months.



Excavations will be required to construct the underground valve chambers as shown in red for the 750mm watermain which will be used for future operation of the 750mm trunk watermain. The excavation for Proposed Chamber 19-01/19-02 will also allow entry to the watermain to complete the watermain rehabilitation work.



# MacPherson Watermain Shafts

Shaft construction on Macpherson Avenue between Poplar Plains Rd. to Rathnelly Avenue will require restrictions to traffic in the eastbound direction only.



Proposed Shaft  
Locations required  
for installation of  
CIPP liner.



# Access Shaft Locations

## Macpherson Avenue and Huron Street

- An excavation is required at the southeast corner of Macpherson Avenue and Huron Street to gain entry into the watermain to complete the rehabilitation work. This excavation will remain open for a period of approximately 1 month.



Access Shaft #6

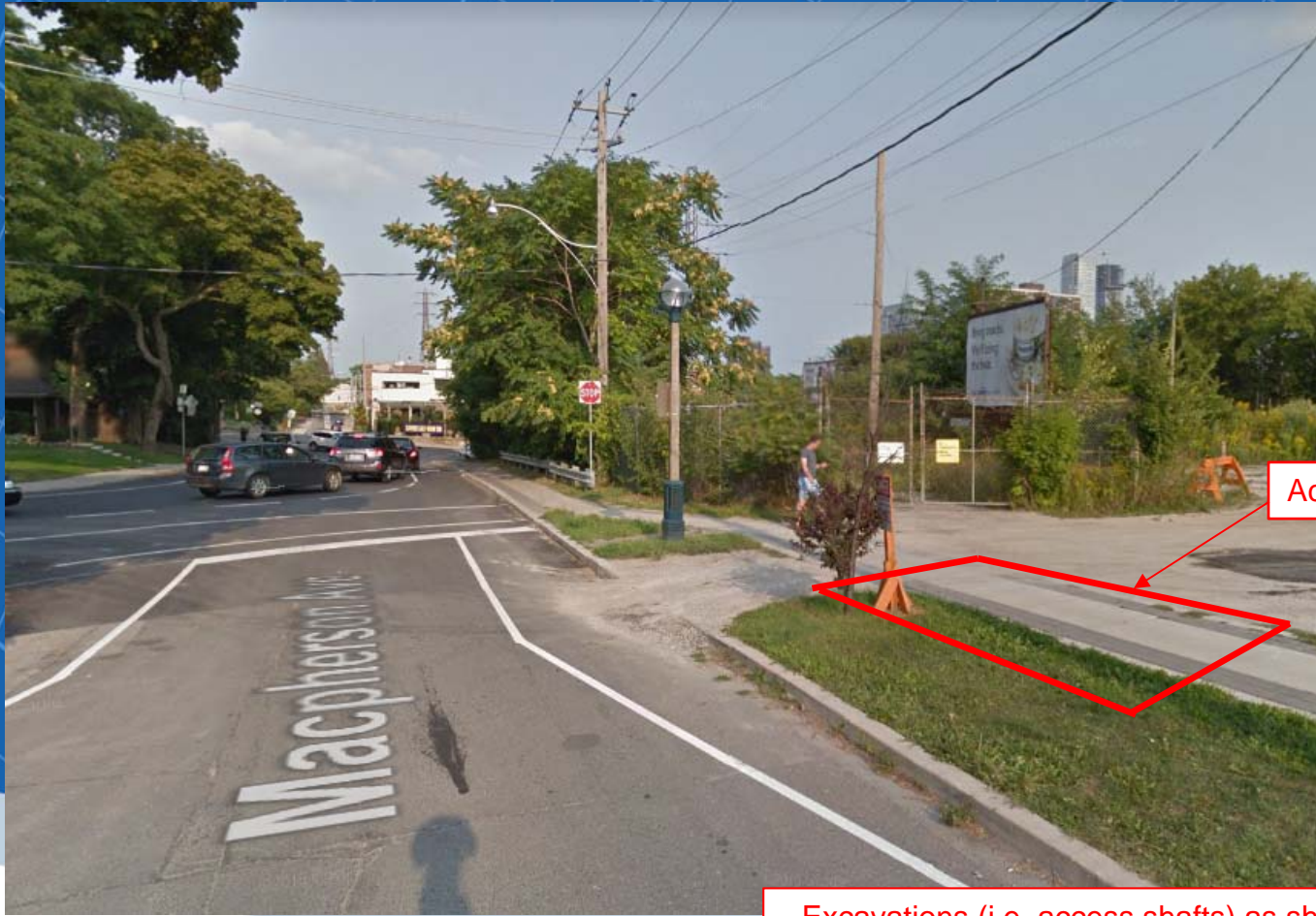
Excavations (i.e. access shafts) as shown in red will be required to gain entry into the watermain to complete the watermain rehabilitation work.



# Access Shaft Locations

## Macpherson Avenue and Davenport Road

- An excavation is required just west of Macpherson Avenue and Davenport Road to gain entry into the watermain to complete the rehabilitation work. The excavation will remain open for a period of approximately 1 month.



Access Shaft #7

Excavations (i.e. access shafts) as shown in red will be required to gain entry into the watermain to complete the watermain rehabilitation work.



## Access Shaft Locations Macpherson Avenue

- An excavation is required at 293 Macpherson Avenue to gain entry into the watermain to complete the rehabilitation work and to permit construction of an access chamber for future operation of this watermain. The excavation will remain open for a period of approximately 1 month.



Excavations (i.e. access shafts) as shown in red will be required to gain entry into the watermain to complete the watermain rehabilitation work.



# Access Shaft Locations

## Macpherson Avenue

- An excavation is required at 275 Macpherson Avenue, just west of Rathnelly Avenue, to gain entry into the watermain to complete the rehabilitation work. The excavation will remain open for a period of approximately 1 month.



Access Shaft #9

Excavations (i.e. access shafts) as shown in red will be required to gain entry into the watermain to complete the watermain rehabilitation work.



# Community Outreach

- A Pre-Construction notice was issued earlier in 2017.
- Construction notices will be distributed in June 2017.
- Construction Signage will be placed at the project limits. Construction Signage will contain all relevant information including the contract number start and end date
- Additional Construction Updates and Specific Notices for residents (Water service work, Temporary Parking if required, Flushing after new Service) will be issued as required.

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