

**Emergency Repair of Highland Creek 900mm - 1050mm
Sanitary Trunk Sewer**

Date:	August 29, 2011
To:	Public Works and Infrastructure Committee
From:	General Manager, Toronto Water
Wards:	38
Reference Number:	P:\2011\Cluster B\TW\pw11013

SUMMARY

The purpose of this report is to advise on the procurement of services and materials related to the emergency repair of the 900mm-1050mm Highland Creek Sanitary Trunk Sewer that crosses under Lawrence Avenue approximately 50 metres east of McCowan Road and to request the approved Toronto Water 2011 Capital Budget be amended to cover all costs associated with the emergency repair.

The repair of this trunk sewer was deemed an emergency by the General Manager, Toronto Water under Chapter 195-10F of the Municipal Code. Emergency bypass pumping to convey the flows around the damaged sewer section was implemented immediately under an emergency sole source purchase order. It is necessary to complete the remaining work using an expedited competitive procurement process due to the risk of imminent failure of the trunk sewer. Failure of the trunk sewer could result in a sewage spill into Highland Creek, legislative non-compliance, impact to public health and safety, and the collapse of a portion of Lawrence Avenue denying emergency services and the public access to a major east-west transportation corridor.

RECOMMENDATIONS

The General Manager, Toronto Water recommends that:

1. City Council approve the reallocation of funding in the Toronto Water 2011 Capital Budget in the amount of \$835,000.00 from WBS Element CPW543-01 Watermain Cleaning and Lining, and \$5,000,000.00 from CPW543-04 Watermain Structural Lining to WBS Element CWW014-13 Trunk Sewer Rehabilitation to provide total available funding of \$7,335,000.00 to cover all costs associated with the repair/replacement of the damaged section of Highland Creek Sanitary Trunk Sewer and to repair the Lawrence Avenue roadway.

Financial Impact

At this time the work to repair the damaged sewer and restore the roadway is progressing and final costs are not available. The total estimated cost of \$7,335,000.00 to complete all work can be accommodated in the approved Toronto Water 2011 Capital Budget by reallocating funding in the amount of \$835,000.00 from WBS Element CPW543-01 Watermain Cleaning and Lining, and \$5,000,000.00 from WBS Element CPW543-04 Watermain Structural Lining to WBS Element CWW014-13 Trunk Sewer Rehabilitation.

A report is required in accordance with the Financial Control Bylaw Municipal Code Chapter 71-9E for approval to reallocate funds within the approved Toronto Water 2011 Capital Budget.

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

DECISION HISTORY

Large diameter trunk sewers are among the most critical components of the City's underground infrastructure systems. Given the criticality, size, flow rates and location of this sanitary trunk sewer and the potential impact of a complete failure including basement flooding, sewage backup, sewage spill and collapse of a portion of Lawrence Avenue, the repair of this trunk sewer was deemed an emergency by the General Manager, Toronto Water under Chapter 195-10F of the Municipal Code.

ISSUE BACKGROUND

Toronto Water staff discovered a settlement in the eastbound curb lane of Lawrence Avenue approximately 50 metres east of McCowan Road. Subsequent investigation revealed that the 900mm and 1050mm sewer segments were severely damaged and structurally deformed. In addition, the brick maintenance hole where the sewer transitions from 900mm to 1050mm has fractured and settled. There is an immediate risk of a complete failure of this infrastructure. Funds were not provided in the Toronto Water 2011 Capital budget to specifically cover the cost of the repair/replacement of this sewer. Funds have to be reallocated to the appropriate account to cover the repair/replacement cost.

COMMENTS

In July 2011 a Toronto Water employee noticed a settlement of the roadway in the eastbound curb lane of Lawrence Avenue approximately 50 metres east of McCowan Road. The settling is in alignment with the City's 900mm-1050mm Highland Creek Sanitary Trunk Sewer. In consultation with staff from the Transportation Division, it was decided to immediately close this area of Lawrence Avenue to vehicular traffic.

To determine if there was a problem with the sewer, a closed circuit television (CCTV) inspection of this section of the trunk sewer was recommended. Due to the high flows contained within this sewer (980 l/s to 1,380 l/s) it was necessary to institute emergency bypass

pumping that would dewater this section of trunk sewer to allow for the CCTV inspection of the entire trunk sewer under Lawrence Avenue. The bypass pumping service was procured under an emergency sole source purchase order issued by Purchasing and Materials Management to Atlas Dewatering Corporation.

The CCTV inspection was carried out using an existing Toronto Water contract. The inspection revealed that there was an open pipe joint on the 900mm sewer. Furthermore, a number of sections of the 1050mm sewer had pieces of concrete missing along with substantial fracturing causing significant pipe deformation. Two consulting engineering firms reviewed the inspection data and concluded that the trunk sewer under Lawrence Avenue is structurally unsound. Both engineering consultants strongly recommended that to reduce the risk of a full sewer collapse the bypass pumping be maintained and the eastbound curb lane on Lawrence Avenue remain closed until repair or replacement of the damaged sewer is completed. Bypass pumping is continuing under the emergency sole source purchase order.

Concern was expressed as to whether the soil/slope instability could have contributed to the structural failure of the trunk sewer. To ascertain the condition of existing soil and obtain soil data required to design the repair and determine the most effective construction methodology, Golder Associates were retained under an existing City contract to perform a geotechnical investigation of the ground conditions in this area.

URS Canada Inc., consulting engineers, have been retained from Toronto Water's consulting engineering roster through a competitive bid process, to provide a design for the repair of the damaged trunk sewer based on the findings of the CCTV inspection and geotechnical investigation. URS will prepare the tender documentation, provide construction oversight and perform construction administration services.

In consultation with the Purchasing and Materials Management Division, it was determined that an accelerated tendering process would be the best approach in selecting a general contractor to effect any repair/replacement of the damaged trunk sewer and roadway. This alternative would ensure the City's decision to award the work is based on competitive pricing instead of proceeding with a sole source.

At the time of this report specifications are in development for the repair/replacement of the damaged section of trunk sewer. These specifications will be used as part of the City of Toronto's tendering document which is expected to be released during the week of August 29, 2011. Once the contract is awarded it is anticipated that construction will take approximately 16 weeks to complete.

The following table provides a breakdown of the estimated costs for the repairs to the Highland Creek Sanitary Trunk Sewer and to restore the Lawrence Avenue roadway. The repair work will be charged to WBS Element CWW014-13 Trunk Sewer Rehabilitation. Under this account, \$1,500,000.00 cashflow is available; an additional \$5,835,000.00 cashflow needs to be transferred from CPW543-01 Watermain Cleaning and Lining (\$835,000.00) and CPW543-04 Watermain Structural Lining (\$5,000,000.00) in order to fund all of the necessary work in 2011.

Table 1: Estimated Cost Highland Creek Sanitary Trunk Sewer Emergency Repair

Scope of Work	Cost (excluding HST)
1. CCTV Inspection and Analysis	\$32,000
2. Emergency Bypass Pumping	\$750,000
3. Geotechnical Investigation	\$215,000
4. Consulting Engineer (Design & Inspection)	\$138,000
5. Trunk Sewer Repair - construction	\$4,500,000
6. Lawrence Ave. road restoration	\$1,700,000
Total Estimated Cost	\$7,335,000

Except for the procurement through an emergency sole source for the bypass pumping, all other services and materials are being procured through the competitive bid process through the Purchasing and Materials Management Division.

CONTACT

Alex Marich,
Director Operational Support
Toronto Water
(416) 397-7296

amarich@toronto.ca

Don Sorel
Acting Manager Construction Maintenance Services
Toronto Water
(416) 392-9334

dsorel@toronto.ca

SIGNATURE

Lou Di Gironimo
General Manager
Toronto Water