

Municipality of Chatham-Kent
Infrastructure and Engineering Services
Drainage, Asset and Waste Management
Information Report

To: Mayor and Members of Council

From: Tim Dick, C.E.T.
Director,
Drainage, Asset and Waste Management

Date: June 29, 2020

Subject: Grand Avenue Emergency Repair

This report is for the information of Council.

Background

A large sink hole appeared in the curb lane of the westbound lanes of Grand Avenue in the Community of Chatham on July 16, 2019. The sinkhole was located over the outlet of the McFarlane municipal drain adjacent to the skate park and the former Crabby Joe's restaurant.

The McFarlane Drain provides the outlet for much of the developed area of Chatham located approximately between the Thames River and Oxley Drive. The drain is both open and closed. Most residents are familiar with the open portion along the Courthouse building which serves as a storm water management facility for the entire area. The failure occurred in the closed drain portion beneath Grand Avenue. The Average Annual Daily Traffic count (AADT) on this section of four lane street is 18,500 vehicles per day.

Comments

Grand Avenue West was fully closed to traffic on July 22, 2019 for approximately six weeks, reopening to one lane of traffic in each direction August 30, 2019. The enclosed portion of the drain consisted of a combination of corrugated steel pipe and concrete bell and spigot sewer pipe. The concrete backwater structure, located at the outlet on the north bank of the Thames River was previously rebuilt in 2018 by the Drainage Division.

Prior to rebuilding the outlet structure, a video inspection of the enclosed portion of the drain was done. The intent was to re-line the enclosed portion via one of the various “trenchless technologies” currently available. Several contractors visited the site and reviewed the camera footage. Serious concerns were noted including:

- Abnormally high water levels in the Thames River
- Various materials, shapes, sizes and structural condition of the outlet
- Several subtle bends in the outlet
- A depth of over 6.5 meters (22ft.)

As a result of these factors, all methods of trenchless repairs were dismissed and the Drainage Division planned to replace the culvert within the next few years. The appearance of the sinkhole merely expedited the project.

Logistics

The new Grand Avenue crossing consists of the following from its inlet end at the open drain adjacent to the skate park to its outlet at the Thames River structure:

- A fabricated steel trash inlet structure
- 12m (40ft.) of 48” diameter heavy gauge steel casing pipe
- 30m (97ft.) of 48” diameter reinforced concrete bell and spigot pipe
- 1 - 2.4m diameter concrete manhole
- 12m (40ft.) of 48” diameter heavy gauge steel casing pipe

The construction was complicated by the realignment of approximately 70m (230ft.) of 30” diameter sanitary trunk sewer main from the north edge of pavement to the boulevard between the edge of curb and the river on the south side of the street. There were 12” and a 6” diameter water mains, various service connections and many different utilities that all had to be supported in order to remain in service during the construction. All service connections to local businesses were altered or re-adjusted when the affected local businesses were closed.

Very large excavations like this require diligent backfill and compaction efforts in order to minimize road base settlement. To this end, a considerable amount of clear stone was used to support relocated and displaced sewers, water mains and manholes. The base layer of asphalt was laid last fall and allowed to settle over the winter. Observed settlement was isolated to only two areas and was generally minor considering the size of the excavation. Final asphalt and new curb and gutter work was completed in the last few weeks. This step will improve road drainage effectiveness as the new curb is graded properly to the relocated catch basins.

The depth, width and length of this project along with the servicing and utility challenges cannot be understated. It was a huge undertaking. The total cost of the repairs completed in 2019 was \$641,550. An additional \$126,450 was charged to the account in 2017 and 2018 to cover various aspects of maintenance. The total of \$768,000 for all work completed since 2017 was included in the 2020 approved budget. This year's final asphalt, curb and gutter work, completed over the last few weeks is estimated at approximately \$44,000 and will be charged to the Infrastructure and Engineering Services (IES) roads lifecycle budget.

Drainage Services was granted emergency authorization by the Chief Administrative Officer (CAO) supported by Executive Management Team (EMT). The general contractor was chosen from the approved Drainage Roster and possessed the ability to complete a large, complicated project of this nature. Per Council's purchasing policy, administration is required to provide an information report upon completion of the project. This report completes that requirement.

Consultation

This project required many different players to work together. Although Drainage Services managed the project, many other divisions assisted to varying degrees including:

- Clarke Construction
- Economic Development
- Public Works
- Engineering & Transportation
- Public Utilities Commission (PUC)
- Entegrus
- Enbridge
- C-K Police

A number of local businesses were negatively affected by the road closure. Economic Development and IES staff proactively communicated with all businesses before and during the construction. Their co-operation and understanding is acknowledged and appreciated.

Financial Implications

The total project cost is \$812,000. Costs were divided as follows:

- \$768,000 (including maintenance works in 2017 and 2018) was divided between the 2020 urban drainage and road drainage budgets.
- \$44,000 charged to the roads lifecycle for final curb/gutter and asphalt.

Prepared by:

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C: Economic Development
Public Works
Engineering & Transportation
PUC
Entegrus
Enbridge
C-K Police

Attachment: None

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