



Report to: Development Services Committee

Meeting Date: July 13, 2020

SUBJECT: Rouge Valley Trail Phase 4A (Markham Road to Tuclor Lane) – Change of Scope (Ward 4)

PREPARED BY: Dereje Tafesse, Senior Engineer, Ext. 2034

REVIEWED BY: Alain Cachola, Senior Manager, Infrastructure and Capital Works, Ext. 2711

RECOMMENDATION:

1. That the Staff report entitled “Rouge Valley Trail Phase 4A (Markham Road to Tuclor Lane – Change of Scope (Ward 4)”, be received; and
2. That the change of paving materials be approved to increase long term durability of the trail as outlined in this report; and
3. That Purchase Order PD 18232 issued to Orin Contractors Corporation, for the construction of Rouge Valley Trail Phase 4A (Markham Road to Tuclor Lane & 14th Avenue to Treeline Crt) be increased by \$154,522.56, inclusive of HST, to cover the change of scope for the project; and
4. That a contingency in the amount of \$15,452.26, inclusive of HST be established to cover any additional construction requirements and that authorization to approve expenditures of this contingency amount up to the specified limit be in accordance with the Expenditure Control Policy; and
5. That the additional Engineering Department Contract Administration Fee in the amount of \$10,198.49, be approved to cover the additional effort from Staff to administer the project; and
6. That the 2018 Engineering Department Capital Account 18049 (Rouge Valley Trail Multi-Use Pathway Phase 4 of 5) be increased by \$180,173.31 (\$154,522.56 + \$15,452.26 + \$10,198.49), inclusive of HST, from \$1,615,757.00 to \$1,795,930.31, and funded from the following sources;
 - a. Development Charges (DC) Reserve Fund (65%): \$117,112.65
 - b. Non-DC Growth Reserve Fund (35%): \$63,060.66; and further,
7. That Staff be authorized and directed to do all things necessary to give effect to this resolution;

PURPOSE:

The purpose of this report is to obtain Council authority to:

- Authorize replacing a portion of the Rouge Valley trail (i.e. Markham Road to Tuclor Lane) from limestone to asphalt to prevent washout
- Increase PO PD 18232 for Orin Contractors Corporation for additional works on the Rouge Valley Trail from Markham Road to Tuclor Lane in the amount of \$154,522.56, inclusive of HST
- Approve a 10% contingency in the amount of \$15,452.26, inclusive of HST
- Approve the additional Engineering Department Contract Administration Fee in the amount of \$10,189.49, to cover Staff administration

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- Increase the 2018 Engineering Department Capital Account 18049 (Rouge Valley Trail Multi-Use Pathway Phase 4 of 5) by \$180,173.31, inclusive of HST, and funded from the following sources:
 - DC Reserve Fund (65%), \$117,112.65
 - Non-DC Growth Reserve Fund (35%), \$63,060.66

BACKGROUND:

In 2018, Capital account 18049 (Rouge Valley Trail Multi-Use Pathway Phase 4 of 5) was approved to fund the construction of Rouge Valley Trail Phase 4A.

In September 2019, a majority of the work on of Phase 4A of the Rouge Valley Trail, from Markham Road to Tuclor Lane pedestrian bridge was completed and the trail was officially opened to the public. The remaining work (i.e. tree planting, trail paving, entry features, etc.) on Phase 4A was scheduled to be completed by summer 2020.

Phase 4A construction work from 14th Avenue to Treeline Court is currently underway and scheduled to be completed in summer 2020. This is the second last phase of the Rouge Valley Trail. To date, a total of 10 km of trail, 10 pedestrian bridges and 600 metres of boardwalk were completed.

In January 2020, a major storm event caused the Rouge River to swell, overtop the banks and caused damages to the trail surface while up-rooting the plantings. Some of the surface material including the granular base were washed out and caused uneven surfaces. The Rouge Valley Trail is situated within the valley floodplain in the Rouge River Valley. It is anticipated during the trail route planning stage that part of the trail would be underwater during flooding.

OPTIONS/ DISCUSSION:

During the environmental assessment ("EA") stage, the Toronto and Region Conservation Authority ("TRCA") restricted the use of asphalt material within the Rouge valley due to environmental concerns as well as to keep the aesthetics of the natural landscape. In light of the washout in these areas, Engineering Staff is recommending replacing the affected areas of the limestone trail with asphalt in order to mitigate future washout.

Engineering Staff contacted the TRCA and obtained approval to change the surface material from limestone screening to asphalt as an asphalt trail reduces/eliminates flood related washout and provides a longer service life.

Orin Contractors Corporation is currently working on site to finish the last part of the contract. After experiencing the washout in January (see photos of washouts below), staff and the consultant assessed the various repair options. It was determined that repairing the washed out sections with similar materials will not provide long-term durability. While sections of the trails that are susceptible to flooding were designed with a thicker granular layer, the limestone screenings have proven to be unstable and cannot withstand the high rate of flow of the Rouge flooding. Staff is recommending that these washed out areas be replaced with 75mm (3 inches) thick of asphalt paving. Staff is of the opinion that replacing these washed-out areas with asphalt will prevent future damage, increase service

life and reduce future maintenance costs. The portion of the trail constructed with asphalt did not exhibit any damage following the January 2020 storm. A cost comparison and pros/cons of the repair methods is provided in Table 2 below.



Comparison of Repairing with Different Materials

Orin Contractors Corporation provided estimates to complete the repair work using two repair options. The first option is to repair the trail based on original design (i.e. limestone screenings). The second option is to repair the trail using asphalt. The cost to complete the repair work for the two options including contingency and Contract Administration (CA) fee is as follows:

Table 1 - Repair Options and Cost

	Option 1 Limestone Screening	Option 2 Asphalt Surface
Replacement Cost	\$97,893.12	\$154,522.56
Contingency (10%)	\$9,789.31	\$15,452.26
CA Fee (6%)	\$6,460.94	\$10,198.49
Total	\$114,143.38	\$180,173.31

The initial change order price received from Orin Contractors to replace the limestone trail with asphalt was \$172,432.32. Following negotiations, Orin Contractors Corporation agreed to reduce their price to \$154,522.56, which represents a cost avoidance of \$17,909.76 or 10%. Engineering staff compared the change order prices with pricing received from the three lowest priced bidders under the original bid for the Rouge Valley Trail Construction (025-T-18) and determined that the average price is 40% or \$37,000 higher. Engineering and Procurement staff believe the price is reasonable taking into consideration the construction price index, smaller quantities of work, and locations of repair areas, which prevented the use of larger machinery. In addition, the City will avoid costs associated with mobilization and demobilization (in the range of \$20,000 to \$25,000) as the contractor is already on site. Moreover, the current price from the contractor includes costs associated with having a COVID-19 safety plan that assesses the risk of exposure and implements measures to keep its workers safe. Given the above

considerations, staff believes it is in the City's best interest to continue working with Orin Contractors Corporation to expedite the repair. This avoids any warranty issues, ensure completion within the TRCA permit window and avoids having the City becoming the Constructor to oversee two separate projects on the site at the same time.

Table 2 - Pros and Cons of Asphalt and Limestone Trail

Options	Pros	Cons
Option 1 – Replace with limestone screening	<ul style="list-style-type: none"> Initial cost is cheaper Complement the aesthetic of the natural landscape Good for flat areas out of flood plains Pervious surface 	<ul style="list-style-type: none"> High maintenance and repair cost due to flooding and washout Difficult to maintain consistent surface quality Environmental damage caused by limestone screening/gravel erosion
Option 2 – Replace with Asphalt Paving	<ul style="list-style-type: none"> Smooth surface material Minimal maintenance and longer service life (8 to 15 years). See Attachment 'B' – Photo (Limestone vs Asphalt Surface) 	<ul style="list-style-type: none"> Initial construction cost is expensive Impervious surface

Therefore, Staff recommends **Repair Option 2** (Replace with Asphalt Paving) in the amount of \$180,173.31 as asphalt surface provides longer service life, lower maintenance cost and better resist washouts during storm events.

FINANCIAL CONSIDERATIONS

Original Project Award Cost

The original award for Rouge Valley Trail Phase 4A was \$1,326,068.55.

Table 3 - Financial Summary

Description	Amounts
Current Award (PD 18232 & PD 18234) - includes previously approved PO increase of \$42,660.75 for increased handling of construction material due to restricted access	\$1,368,729.30
PO Increase requested	
PD 18232 Construction PO	\$154,522.56
PD 18234 Contingency PO	<u>\$15,452.26</u>
Total Increase	\$169,974.82
Revised PO total	\$1,538,704.12

Engineering staff recommend that Council approve the PO increase as noted above in order to facilitate the immediate repair of the trail surface as safety of the public is paramount. It should also be recognized that since Orin Contractors Corporation is already on site, there is no mobilization costs incurred.

In addition to the Purchase Order increase, Engineering staff is also recommending that the budget be increased for the additional Contract Administration Fee (based on 6% of the total project cost) in the amount of \$10,198.49. Engineering staff required additional time and effort to manage and administer the project until completion.

Staff recommends that the increase of \$180,173.31 (\$154,522.56 + \$15,452.26 + \$10,198.49) be funded 65% from the DC Reserve Fund (\$117,112.65) and 35% from the Non-DC Growth Reserve (\$63,060.66).

HUMAN RESOURCES CONSIDERATIONS

Not applicable

ALIGNMENT WITH STRATEGIC PRIORITIES:

The Rouge Valley Trail repair project is in line with the City of Markham's strategic focus relating to Municipal Services, Parks, Recreation including Accessibility and the Environment. The recommendations align with the City's Strategic Plan Goals of "Safe and Sustainable Community".

BUSINESS UNITS CONSULTED AND AFFECTED:

The Finance and Operations Departments were consulted and their comments have been included in this report.

RECOMMENDED BY:

Brian Lee, P.Eng.
Director of Engineering

Arvin Prasad, MCIP, RPP
Commissioner, Development Services

ATTACHMENTS:

Attachment 'A' – Rouge Valley Trail Construction Phasing Map
Attachment 'B' – Photo (Limestone vs Asphalt Surface)