



Report to: Development Services Committee

Report Date: June 26, 2017

SUBJECT: Rouge Valley Trail (MUP) – Operation & Maintenance Plan and Life Cycle Cost Summary – Ward 3, 4 & 7

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

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

RECOMMENDATION:

- 1) That the report entitled “Rouge Valley Trail (MUP) – Operation & Maintenance Plan and Life Cycle Cost Summary” be received;
- 2) That Operation & Maintenance Plan and Life Cycle Cost Summary as identified in Attachment ‘A’ to this report be approved for Operations and Environmental Services Department budgeting purposes;
- 3) 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 inform council of the Operation & Maintenance Plan & Life Cycle Cost of Rouge Valley Trail from 16th Avenue to Bob Hunter Memorial Park and to include the costs in future budget & life cycle.

BACKGROUND:

Council approved the Cycling Master Plan in 2010 and the Pathways and Trails Master Plan in 2008. Both plans implement the Official Plan policies that encourage pedestrian and cycling movement throughout Markham. Both plans were developed with comprehensive public consultation. A Municipal Class Environmental Assessment (EA) was completed by the City for the portion of Rouge Valley Trail from 16th Avenue to Bob Hunter Memorial Park through Toogood Pond and the Milne Dam Conservation Park. The EA was completed and approved by Council and the Minister of the Environment in 2012. The multi-use pathway system includes limestone & asphalt trail, boardwalks and pedestrian/cyclist bridges.

The pathway and associated structures require ongoing maintenance to provide safe and efficient connections to neighbourhood communities. Adequate budget and resources are required to maintain the Rouge Valley Trail system to the required standard. As a result, a life cycle cost analysis was conducted to determine the required maintenance and associated budget (capital replacement for some elements, e.g. structures).

In addition, the Community Liaison Committee representing 20 interest groups and local ratepayers' associations surrounding the Rouge Valley Trail area expressed the importance of Markham's commitment to Operation and Maintenance costs associated with the proposed trail system.

OPTIONS/ DISCUSSION:

Operations and Maintenance Plan and Life Cycle Cost Summary

Staff was previously directed by Council to report back on Life Cycle and O&M costs for the Rouge Valley Trail. This will assist Environmental Services & Operations to budget for the maintenance and life cycle cost.

The Rouge Valley Trail design consultant Schollen and Company prepared Operations & Maintenance Plan and Life Cycle Cost Summary (Attachment 'A'). The plan prescribes the proposed maintenance, monitoring, repair and replacement activities that are required to accommodate the various levels of service afforded by the trail system. The level of service identified for each trail type was determined based upon surface treatment, presence of structures such as bridges, boardwalks and retaining walls, as well as anticipated levels of use and environment context. The yearly maintenance cost including the complete replacement value is estimated and provided for budgeting purposes.

Based on the following level of services, the maintenance and life cycle cost analysis is determined:

- i) Resurfacing of limestone and asphalt trail
- ii) Monitoring (i.e. visual inspection) three times per year and after major storm events
- iii) Repair/maintain trail, boardwalk & pedestrian bridges
- iv) Repair vandalized signs/amenities
- v) Routine removal of debris from trail/bridge/boardwalk deck
- vi) Replacement of bridge/boardwalk deck surface
- vii) Complete replacement of the trail system including limestone, asphalt, boardwalk and bridge structures.

The document provides recommendations to guide the long term Operations and Maintenance of the Rouge Valley Trail system

Annual Operations & Maintenance/ Life Cycle Cost

Phase	Annual Operation & Maintenance Cost	25 Year Life Cycle Cost (Trail)	50 Year Life Cycle Cost (Bridges and Boardwalks)
1 & 2	\$52K	\$1.3M	\$2.5M (replacement year 2063)
3	\$11K	\$800K	\$2.0M (replacement year 2068)
4	\$13K	\$272K	\$1.5M (replacement year 2070)

The Operations and Maintenance plan includes the proposed maintenance, monitoring, repair and replacement activities that are required to accommodate the various levels of service afforded by the trail system.

The Phase 1 & 2 Rouge Valley Trail construction has been completed and operation and maintenance budget in the amount of \$52K is required for 2018. The Phase 3 work is awarded and construction is scheduled to be completed in August 2018 and an operation and maintenance budget in the amount of \$11K is required for 2019. The Phase 4 construction work is tentatively scheduled for 2019/2020 upon finalizing the acquisition of land. An estimated amount of \$13K is required for operation and maintenance in 2021.

FINANCIAL CONSIDERATIONS AND TEMPLATE:

The recommendations contained in this report have future operating budgets and life cycle impacts.


ALIGNMENT WITH STRATEGIC PRIORITIES:

The Operation & Maintenance Plan and Life Cycle Cost Summary is in line with the City of Markham's strategic focus relating to Municipal Services, Parks and Recreation including Accessibility and the Environment.

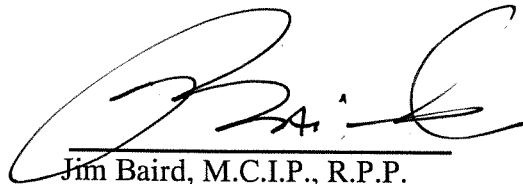
BUSINESS UNITS CONSULTED AND AFFECTED:

Operations, Environmental Services & Finance Departments have been consulted in the preparation of this report, and agree with the Operations and Maintenance Plan and Life Cycle Cost Summary in Attachment "A".

RECOMMENDED



Brian Lee, P.Eng.
Director of Engineering



Jim Baird, M.C.I.P., R.P.P.
Commissioner of Development Services

Attachments:

Attachment "A": Operation & Maintenance Plan and Life Cycle Cost Summary

Attachment 'A'

Rouge Valley Trail (MUP) – Operation & Maintenance Plan and Life Cycle Cost Summary – Ward 3, 4 & 7

16th Avenue to Bob Hunter Memorial Park

City of Markham

Executive Summary

Phases 1 -4

Description of Work	YEAR 1-4	YEAR 5-9	YEAR 10-19	YEAR 20-29	YEAR 30-39	YEAR 40-49	YEAR 50-59	YEAR 60-69	YEAR 70-79	YEAR 80-89	YEAR 90-99	YEAR 100	Average Annual
Type II Trail Limestone	\$ 84,445	\$ 105,556	\$ 211,111	\$ 211,111	\$ 651,100	\$ 211,111	\$ 211,111	\$ 651,100	\$ 211,111	\$ 211,111	\$ 651,100	\$ 21,111	\$ 34,311
Type II Trail Asphalt	\$ 12,567	\$ 15,709	\$ 29,343	\$ 668,600	\$ 31,418	\$ 668,600	\$ 31,418	\$ 668,600	\$ 31,418	\$ 668,600	\$ 31,418	\$ 668,600	\$ 35,263
Type IV Trail Limestone	\$ 11,022	\$ 13,778	\$ 27,555	\$ 27,555	\$ 68,000	\$ 27,555	\$ 27,555	\$ 68,000	\$ 27,555	\$ 27,555	\$ 68,000	\$ 2,756	\$ 3,969
Type IV Trail Asphalt	\$ 3,117	\$ 3,896	\$ 7,792	\$ 77,760	\$ 7,792	\$ 77,760	\$ 7,792	\$ 77,760	\$ 7,792	\$ 77,760	\$ 7,792	\$ 77,760	\$ 4,348
Boardwalks	\$ 47,369	\$ 68,510	\$ 399,220	\$ 388,030	\$ 388,030	\$ 388,030	\$ 1,969,723	\$ 388,030	\$ 388,030	\$ 388,030	\$ 388,030	\$ 1,969,723	\$ 70,863
Entry Nodes	\$ 35,420	\$ 141,680	\$ 177,100	\$ 332,500	\$ 354,200	\$ 332,500	\$ 354,200	\$ 332,500	\$ 354,200	\$ 332,500	\$ 354,200	\$ 332,500	\$ 34,335
Underpass	\$ 53,540	\$ 214,160	\$ 267,700	\$ 534,900	\$ 73,120	\$ 534,900	\$ 534,900	\$ 73,120	\$ 534,900	\$ 534,900	\$ 73,120	\$ 559,280	\$ 39,885
Bridges	\$ 34,610	\$ 122,540	\$ 165,350	\$ 588,027	\$ 300,900	\$ 498,027	\$ 3,403,074	\$ 273,100	\$ 525,828	\$ 273,100	\$ 525,828	\$ 4,034,274	\$ 105,647
Retaining Wall	\$ 12,600	\$ 50,400	\$ 63,000	\$ 100,920	\$ 122,200	\$ 100,920	\$ 122,200	\$ 100,920	\$ 122,200	\$ 100,920	\$ 122,200	\$ 124,600	\$ 10,683
Stairway	\$ 110	\$ 790	\$ 850	\$ 1,150	\$ 16,000	\$ 1,150	\$ 1,150	\$ 16,000	\$ 1,150	\$ 1,150	\$ 1,600	\$ 6,490	\$ 476
Culvert	\$ 8,000	\$ 32,000	\$ 40,000	\$ 83,051	\$ 81,843	\$ 83,051	\$ 80,000	\$ 81,843	\$ 80,000	\$ 83,051	\$ 81,843	\$ 83,051	\$ 8,056
Total	\$ 302,799.29	\$ 769,018.31	\$ 1,389,021.26	\$ 3,013,605.06	\$ 2,094,602.46	\$ 2,923,605.06	\$ 6,743,122.90	\$ 2,730,972.86	\$ 2,284,184.26	\$ 2,698,677.66	\$ 2,305,130.46	\$ 7,880,144.63	\$ 347,834.47
Average Cost/Year	\$ 75,699.82	\$ 153,803.66	\$ 138,902.13	\$ 301,360.51	\$ 209,460.25	\$ 292,360.51	\$ 674,312.29	\$ 273,097.29	\$ 228,418.43	\$ 269,867.77	\$ 230,513.05	\$ 7,880,144.63	