



Report to: Development Services Committee

Report Date: June 17, 2014

SUBJECT: Multi-use Pathway ("MUP") Update

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

RECOMMENDATION:

- 1) THAT the report entitled " Multi-use Pathway ("MUP") Update" be received;
- 2) AND THAT a design and construction administration contingency Purchase Order (PD 12264) originally approved in the staff award for the project be increased by **\$490,170.91**, inclusive of HST impact, (from \$93,267.77 to \$583,438.68) to cover the following;
 - Additional geotechnical investigation in the amount of \$159,884.29, inclusive of HST, (from \$71,232 to \$231,116.29);
 - Additional archaeological investigation in the amount of \$168,343.10 inclusive of HST, (from \$20,352 to \$188,695.10);
 - Detailed design for the crossing at McCowan Road in the amount of \$81,408.00 inclusive of HST;
 - Detailed investigation and analysis of Milne Dam bridge crossing in the amount of \$50,880.00 inclusive HST,
 - Permit fees in the amount of \$62,923.29, inclusive of HST.
 - A maximum allowance of \$60,000.00, inclusive of HST for additional time for design, contract administration, meetings, coordination and other investigations.
- 3) AND THAT the Purchase Order increase be funded from Capital Account 083-5350-14403-005 (Cycling and Trails – Toogood Pond to Bob Hunter Park);
- 4) AND THAT staff report back to Development Services Committee with proposed entry features and signage plan for the multi-use pathway network.
- 5) AND THAT Staff be authorized and directed to do all things necessary to give effect to this resolution.

EXECUTIVE SUMMARY:

The implementation of a complete and connected multi-use pathway system will provide a variety of transportation, economic, environmental and community health benefits. Pathways will be available to all residents regardless of age or ability and designed to be accessible where possible and practical.

The Phase 1 MUP construction work will be completed in late summer 2014. A construction tender for Phase 2 work will be issued in June 2014 and construction is expected to commence in August 2014. The Phase 3 MUP construction tender is scheduled to be issued in late summer or fall 2015, subject to budget approval.

PURPOSE:

The purpose of this report is to provide an update on the status of the three Phases of the Toogood to Bob Hunter MUP and to obtain approval to amend the existing purchase Order for the Multi-use Pathway design and construction administration services.

BACKGROUND:**1. Phase 1**

The construction of the Phase 1 MUP work from Carlton Road/Main Street Unionville to Drakefield Road was awarded in November 2013 and construction commenced in December 2013 following an extensive public consultation process that lasted more than two years.

The construction progress to date for Phase 1 is as follows:

- Construction area is cleared of archeological concerns;
- Four properties were acquired by the City to facilitate the construction of the MUP;
- Agency permits/approvals granted (i.e TRCA and MNR);
- Approximately 80 percent of construction work is complete and the pathway is scheduled to open in the summer of 2014. See Attachment 'A' Construction photos.

2. Phase 2

The design of Phase 2 MUP is currently over 90 percent complete. The Tender will be issued in June 2014 and construction is expected to commence in August 2014 and be completed in the summer of 2015.

The Phase 2 construction work will include the following areas as noted in the Attachment 'B':

- Area 1 - 16th Avenue through Toogood Pond to Main Street Unionville;
- Areas 1, 2, 3 and part of Area 4 – installation of signage, streetscape and entry features for Phase 1 & 2;
- Area 4 – signal crossing at McCowan Road;
- Construction of the accessible loop, boardwalk, reconstruction of the handicap parking in Milne Conservation Park;
- Pathway construction from Drakefield Road/Willowgate Drive to the Milne Dam upon finalizing TRCA's archaeology investigation;
- Area 6 - the construction of a pedestrian bridge north of 14th Avenue and west of 9th Line.

The major issues that are being addressed as part of the detailed design work prior to tendering Phase 2 are:

- a) TRCA staff completed Stage 1 to Stage 3 assessments in accordance with the Standards and Guidelines for consultant archaeologists developed by the Ministry of Tourism and Culture. During the initial archeological field assessment, archaeological evidence and artifacts were found in the Milne Conservation Park west of the Milne dam (Attachment 'C'). As a result of finding artifacts during the process, TRCA requires the City to conduct a Stage 4 assessment which is the final stage of the archaeological process which involves detailed documentation

and removal of archaeological artifacts on site through a large scale excavation, prior to the construction of the MUP.

- b) The City's consultant is in the process of securing all the necessary approvals including TRCA and MNR permits to facilitate the construction.
- c) A meeting with the Region of York is being arranged to finalize the signal crossing at McCowan Road.

a) Geotechnical Investigation and Material Testing

During the design stage, a geotechnical firm under Schollen and Company Ltd. was hired to conduct a geotechnical investigation to determine the subsurface soil conditions of the proposed trail (Phases 1, 2 & 3) so that the consultant (Schollen) can design the trail component including the structures (i.e. bridges and boardwalks) with appropriate foundations. During the process, the initial sub surface investigation (boreholes) in the valley land revealed that the existing soil conditions change rapidly within a short distance. In order to ensure proper design & construction and minimize future operation and maintenance costs, additional soil investigation work (additional boreholes) are required for Phases 2 and 3 which involves the construction of nine bridges including the proposed bridge over Milne Dam and the crossing at the Box Grove By-pass.

The original purchase order included an allowance for soil investigation in the amount of \$71,232, inclusive of HST which was utilized during Phase 1 construction. Additional soil investigation work in the amount of \$159,884.29 inclusive of HST is required to complete the work (Phase 2- \$36,917.51 and Phase 3 - \$122,966.78 inclusive of HST).

In order to ensure that the City obtained a competitive price for the geotechnical investigation and material testing inspection, the consultant, Schollen & Company Ltd. obtained three quotations to award a contract to the lowest priced consultant.

b) Archaeological Investigation

An allowance of \$20,352.00 inclusive of HST was initially included as part of Schollen's archaeological investigation for Phases 1-3. The archaeological investigation work within TRCA owned and regulated land, including the Milne Conservation Dam, is being conducted by TRCA archaeology staff. During the initial assessment and investigation in the Milne area, artifacts were encountered in 4 locations. Two locations were cleared of any further concern. The other 2 locations are in the open area west of the Milne Conservation Dam (Attachment 'C'). TRCA's investigation indicates that these 2 sites likely represent the remains of separate buildings (one outbuilding and one house) from a single 19th century homestead.

According to TRCA, the site will require a final Stage 4 archaeological assessment. Stage 4 assessment include the following:

1. Site specific assessment and mitigation of development impacts which includes implementing long-term protection strategies for archaeological sites to be impacted by the project.

2. Excavate the site to fully document features and remove artifacts prior to further soil disturbance activities taking place on site.

The total estimated cost for TRCA to conduct archaeological assessments is \$168,343.10 inclusive of HST.

Staff are continuing to negotiate with TRCA and are seeking quotes from private archaeological firms to ensure pricing is competitive. Staff are also reviewing potential time and cost savings in relocating the MUP to avoid the area.

The excavation will take place along the footprint of the proposed trail where artifacts were located during previous assessments, including a five meter buffer on each side of the proposed trail. Once the Stage 4 field work is completed, the TRCA archaeology unit will produce a Stage 4 Excavation Report which will be submitted to the Ministry of Tourism and Culture for acceptance to the Ministry's register. In addition, further archaeological investigation (Stage 1 and Stage 2 Assessment) is being conducted between the Milne Dam and Markham Road. However, the requirement for additional investigation (Stage 3 and Stage 4) will not be known until the initial assessment work is completed. Therefore, additional budget may also be required if artifacts are found during the assessment. Staff will request funding in 2015 for this requirement.

c) McCowan Road Crossing (Detailed Signal Design)

A signalized crossing for pedestrian/cyclists is required on McCowan Road either at the Milne Park entrance or north of the park entrance. The proposed road crossing signal at McCowan Road will require a detailed design to secure Region of York approval. The Region has requested Schollen provide traffic counts and analysis for both the full signalized intersection and pedestrian activated signal at McCowan Road so they can finalize their position. Schollen's RFP requires the design for a signalized intersection "or" pedestrian activated signal. The estimated cost for an additional crossing analysis and detailed design is in the amount of \$81,408.00 inclusive of HST. Staff is in discussion with the Region of York regarding the final crossing location, their approval and funding of the signal installation.

d) Permit Fees

According to the Design and Construction Administration RFP document, Markham is responsible to cover the cost of all MUP construction related permit fees. The total estimated cost of permit fees to complete the MUP project is in the amount of \$62,923.29, inclusive of HST.

Permit Fees

| Item | Description | Cost |
|------|--|--------------------|
| 1 | TRCA Permit Application Fee (Phase 1,2 & 3) | \$25,165.00 |
| 2 | MOE and MTO Permit Fee | \$2,770.00 |
| 3 | Permit to Take Water Report Preparation & Permit Fee | \$33,900.00 |
| | Total | \$61,835.00 |
| | Inclusive of HST Impact | \$62,923.29 |

3.0 Phase 3

Subject to budget approval, staff will issue a Tender for phase 3 construction which is expected to commence in late summer or early fall 2015 and be complete in late August 2016. The City will finalize the acquisition of two properties located within Areas 5 and 7 to facilitate the construction of the MUP. Staff will report back to Development Services committee to provide an update on phase 3.

A major issue that has to be addressed as part of detailed design for phase 3 is as follows:

a) Milne Dam Crossing (Detailed Investigation)

The installation of a pedestrian bridge on the dam structure requires considerable engineering investigation and is likely to trigger modifications to the dam to bring it up to the currently mandated requirements. A structural consultant (Brown Engineering Ltd) was retained via Schollen to review the structural capacity of the dam and the following options for construction of a pedestrian bridge:

Option 1: Install the bridge at top of dam

The dam safety report indicates that the dam may be flood vulnerable during major storm events (Regional Storm) and may be susceptible to overtopping and erosion. Installing the bridge on the dam has a potential to restrict and change the direction of the flow during major storm events. Therefore, this would require work on the dam to ensure it could withstand the flows from major storm events without decreasing its structural capacity.

Option 2: Install the bridge elevated above the design flood elevation and use a boardwalk approach

In this configuration the bridge itself would be above the major storm flow line but the supports for the bridge would be within the flood flow including the supporting structure of the boardwalk. The boardwalk supports would also have to be founded in the earth dam. This option would require a detailed geotechnical/structural review of the dam to determine its ability to withstand the localized bearing loads or the pile penetration.

After discussing the two construction options with TRCA, they requested Markham to retain an engineering firm specialized in dam design to conduct further analysis and investigation and to report back to TRCA with the findings.

The estimated cost of the additional investigation work required by TRCA which was not included in the Schollen's RFP is in the amount of \$50,880.00 inclusive of HST.

Additional Work by Schollen and Company Ltd.

The City's design and contract administrator for this project (i.e. Schollen and Company Ltd.) will be required to spend additional time to coordinate the additional geotechnical and archaeological works including the design modifications and construction administration work as required. A maximum allowance of \$60,000.00, inclusive of HST is being recommended to cover additional works that were not included in the original RFP document.

Financial

The following table shows the summary of the Purchase Order increase request:

| Item | Description | Purchase Order increase (inclusive of HST Impact) |
|------|---|--|
| 1 | Geotechnical investigation & material testing | \$159,884.29** |
| 2 | TRCA Archaeology investigation | \$168,343.10 |
| 3 | McCowan Road Crossing | \$81,408.00* |
| 4 | Milne Dam Crossing | \$50,880.00 |
| 5 | Permit Fees | \$62,923.29 |
| 6 | Design and Construction Admin (Allowance) | \$60,000.00 |
| | Total Extra | \$583,438.68 |
| | Available Contingency PO Amount | (\$93,267.77) |
| | PO Increase Requested Amount | \$490,170.91 |

*Potential funding by Region of York

**Through competitive bidding process

Staff is requesting that the increase in the amount of \$490,170.91 inclusive of HST be funded from Cycling and Trails Account# 083-5350-14403-005 "Cycling and Trails – Toogood Pond to Bob Hunter Park". This account was originally set up to cover the construction portion of the Phase 2 MUP work with an approved budget of \$2,540,700.

The scope of work for Phase 2 included the construction of the Milne Dam crossing. However, TRCA requested further investigation and analysis of the dam structure and as such the crossing work at the Milne Dam is postponed and will be completed as part of the Phase 3 MUP work. Subject to budget approval, the Phase 3 MUP construction work will include the crossing at Milne Dam.

Schollen will provide a detailed cost estimate upon completion of the Phase 2 design work. If the cost of Phase 2 MUP work is determined to be more than the remaining budget of \$2,050,529.09 (\$2,540,700 – \$490,170.91), a section of MUP work equivalent to the shortfall amount will be deferred to Phase 3. Staff will request a budget in 2015 to cover the deferred section of Phase 2 and the scheduled Phase 3 MUP work.

Consultation

Staff is currently arranging a meeting in June with the Community Liaison Committee (CLC), Milne Working Group and local Councillors to provide an update on the MUP program.

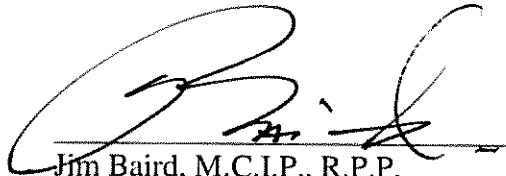
BUSINESS UNITS CONSULTED AND AFFECTED:

Finance staff have reviewed and commented on this report.

RECOMMENDED BY:



Alan Brown, C.E.T.
Director of Engineering



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

ATTACHMENTS:

Attachment 'A' – Phase 1 MUP Construction Photos

Attachment 'B' – Phase 2 Proposed Work

Attachment 'C' - Map Showing Proposed Stage 3 and Stage 4 Archaeological Investigation Area

Attachment 'A' – Phase 1 MUP Construction Photos

Area 2

Looking North to Carlton Road (limestone)



North of Victoria Avenue – Helical Piles Installation for Boardwalk



North of Victoria Avenue (limestone)



Looking south Victoria Avenue to Railway Crossing (limestone)



Area 3

West of McCowan Road (limestone)



At Annina Crescent (limestone)



South of Hwy 7 in the Valleyland (limestone)



South of Hwy 7 in the Valleyland (limestone)



Area 4

East of McCowan Road (limestone)



Milne Conservation Park – South of Drakefield Road (woodchips)



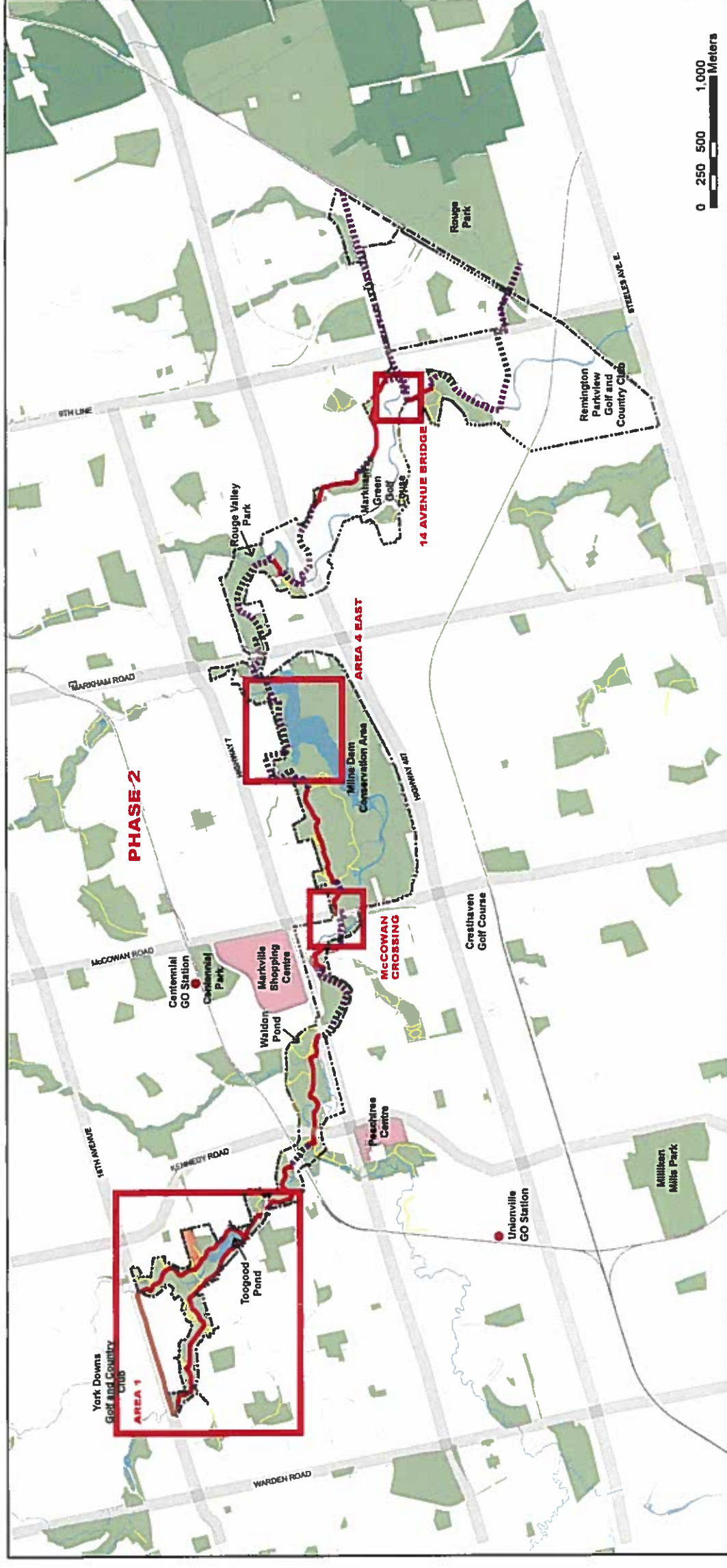
Milne Conservation Park – South of Drakefield (Boardwalk)



Milne Conservation Park (Boardwalk)



Attachment 'B' – Phase 2 Proposed Work



Attachment 'C' - Map Showing Proposed Stage 3 & Stage 4 Archaeological Investigation Areas



- Proposed Location of Trails
- Areas Assessed and Clear of Archaeological Concern
- Areas of Archaeological Concern that were Assessed and Cleared

- Site Boundary
- Stage 3/4 Assessment Required
- 50 Meter Monitoring Zone

