



Report to: Development Services Committee

Report Date: December 11, 2012

SUBJECT: 2012 Engineering Capital Projects – Purchase Order Adjustment Requests

PREPARED BY: Alain Cachola, Manager of Infrastructure and Capital Works,
Ext 2711

RECOMMENDATION:

- 1) THAT the report entitled “2012 Engineering Capital Projects – Purchase Order Adjustment Requests” be received;

Rodick Road and 14th Avenue Intersection Improvements

- 2) AND THAT Purchase Order PD 12223 issued to North Rock Construction for contract 170-T-12 (Rodick Road and 14th Avenue Intersection Improvement) be increased by \$248,909.58, inclusive of HST, to cover the proposed design revision to address the utility conflict on site and potential delay claim, and be funded from Capital Account 083-5350-7652-005 (Rodick Road Phase 2);

Rehabilitation of John Street Canadian National Railway (CNR) Overhead Bridge

- 3) AND THAT Purchase Order PD 12167 issued to Marbridge Construction Ltd. for contract 072-T-12 (Rehabilitation of John Street CNR Overhead Bridge (B42)) be increased by \$238,559.02, inclusive of HST, to cover the additional rehabilitation works identified during construction, and be funded from Capital Account 058-5350-10267-005 (Bridge Rehab – John Street at CNR);
- 4) AND THAT Purchase Order PP 12374 issued to CN for the flagging requirements for the Rehabilitation of John Street CNR Overhead Bridge project be increased by \$50,880.00, inclusive of HST, to cover the additional CN flagging required for the additional work, and be funded from the following Capital Accounts, and be funded from the following Capital Accounts, and be funded from Capital Account 058-5350-10267-005 (Bridge Rehab – John Street at CNR);
- 5) AND THAT Purchase Order PD 10227 issued to GD Jewel Engineering for the contract administration of the Rehabilitation of John Street CNR Overhead Bridge project be increased by \$25,440.00, inclusive of HST, to cover the design work and contract administration services required for the additional work, and be funded from Capital Account 058-5350-10267-005 (Bridge Rehab – John Street at CNR);
- 6) AND THAT the existing 2010 Asset Management capital account 058-5350-10267-005 (Bridge Rehab – John Street at CNR) be increased by \$314,879.02, inclusive of HST, to be funded from the Life Cycle Repair and Replacement Reserve and Waterworks Reserve and to be funded as follows:
 - Life Cycle Repair and Replacement Reserve Funding (\$200,399.02)
 - Waterworks Reserve Funding (\$114,480.00)

Birchmount Road – Phase 2 (14th Avenue to CN Tracks)

- 7) AND THAT Purchase Order PD 10255 issued to Dagmar Construction Ltd. for contract 105-T-10 (Birchmount Road – Phase 2) be increased by \$212,457.76, inclusive of HST, to cover the additional cost for the intersection works at 14th Avenue and Birchmount Road as well as the repairs on Birchmount Road Phase 1, be funded from Capital Account 083-5350-8047-005 (Birchmount Phase 2 construction) and that the remaining funds in the order of \$600,000.00 be returned to the original funding source;

Rodick Road - Phase 3 (Esna Park to 14th Avenue)

- 8) AND THAT Purchase Order PD 11177 issued to AECOM for the contract administration of the Rodick Road Phase 3 project be increased by \$164,626.56, inclusive of HST, to cover the additional contract administration work required for the additional work, and be funded from Capital Account 058-5350-11064-005 (Rodick Road Phase 3);

Hwy 404 Mid-Block Crossing, North of Hwy 7

- 9) AND THAT Purchase Order PD 10391 issued to URS Canada for contract 116-R-10 (Detailed Design of Hwy 404) be increased by \$153,235.30, inclusive of HST, to cover the additional detailed design work and to be funded from Capital Account 083-5350-10050-005 (Hwy 404 Mid-block Crossing, North of Hwy 7) and that the remaining funds of \$952,105.69 be returned to the original funding source;

- 10) AND 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 approval to adjust the Purchase Orders for the 2012 Capital Projects shown in Attachment 'A'.

BACKGROUND:

The expenditure control policy establishes internal controls over the authorization of expenses. As per this policy, the level of authority for capital expenditures that exceed awarded commitments greater than \$100,000 is subject to Council approval.

All of the above projects incurred additional work outside the original scope of work that required a Purchase Order adjustment. The above five (5) projects have available funding through existing capital accounts for the Purchase Order increase, with the exception of the John Street Bridge Rehabilitation project which will be funded from existing Asset Management capital accounts and waterworks reserves.

A. RODICK ROAD AND 14TH AVENUE INTERSECTION IMPROVEMENTS

Council approved the Rodick Road Phase 2 (14th Avenue to Miller Road) and Phase 3 (Esna Park to 14th Avenue) utility relocation works on November 16, 2010 in anticipation of the proposed construction of Rodick Road (Phases 2 and 3). The utility relocation design for the section of Rodick Road Phase 2 (14th Avenue to Miller Road) was reviewed and signed off by the City's design consultant (Morrison Hershfield) and utility companies. The utility relocation works as identified in the detailed design were completed by September 2012.

As part of the 2012 works, staff tendered the intersection improvements on Rodick Road and 14th Avenue in anticipation of the opening of Rodick Road, from Esna Park to 14th Avenue in December 2012. Contract 170-T-12 (Rodick Road and 14th Avenue Intersection Improvement) was awarded to North Rock Construction on July 10, 2012. The construction commenced in August 2012.

During the road construction, the City's contractor (North Rock) identified that certain sections of the existing Bell and Enbridge Gas structures within the road allowance were much shallower than originally identified. Bell Canada and Enbridge Gas inspected the existing structures and confirmed that a certain section of the structures will have to be lowered prior to constructing the road, or the final road grades will be required to be raised to achieve the minimum clearance required by the utility companies.

Staff and consultant conducted a review of the original road design drawings and made design revisions (i.e. raised road grades), as required, in order to satisfy the minimum clearance requirements from the utility companies. The original estimate for the utility relocation and potential delay claim was in the order of \$700,000 and would have taken 3-4 weeks to complete. The revised design is currently being reviewed by the utility companies for their approval on the revised design so construction can commence.

Due to the issues pertaining to the utility conflicts, the contractor had to stop their operation and has advised the City that they will be issuing a delay claim. Staff and the consultant will review the request and a recommendation will be provided to senior management for approval. Staff recommends an allowance of \$248,909.58, inclusive of HST, be protected for adjustment of road grade and any delay claim. This allowance is in no way reflective of the final staff position on such claim.

The existing account for the Rodick Road Phase 2 project (083-5350-7652-005) has remaining funds of \$2,416,945.56. These remaining funds are to be used for the construction and capital admin fee recovery for the Rodick Road Phase 2 project scheduled for Fall 2013. Staff will review the cost estimate for the Rodick Road Phase 2 project and will request additional funding in 2013, if required.

B. REHABILITATION OF JOHN STREET CNR OVERHEAD BRIDGE

Council approved the award of tender for the John Street bridge rehabilitation over CN to Marbridge Construction Ltd. on May 29, 2012.

During the construction, the City's consultant identified the following additional rehabilitation works were identified that were not included in the original tender items for the John Street CNR Overhead Bridge project:

1. Parapet Wall Liner

As a part of the motion carried by the Development Services Committee on June 12, 2012, it was directed by the committee that public art be incorporated into the structure, in consultation with the Public Realm Advisory Committee. It was determined that the concrete in parapet walls be revised to provide a "Burgenland" finish on the interior face of the parapet walls. The cost estimate for this additional work was not available at award stage, however, the recommendation was to incorporate this Public Art component into the project. The cost of the form work required for the finish and work associated with installation is \$27,841.54, inclusive of HST. This work has already been completed. The staining of the parapet walls are required which has an estimated additional cost of \$10,176.00, inclusive of HST. This work is scheduled to be completed before the end of the year. The total cost for this initiative is \$38,017.54, inclusive of HST.

2. Watermain support replacements

During construction, it was found that the watermain support underneath the bridge has deteriorated and requires immediate repair. These repairs were not identified at the detailed design stage as it was not feasible to identify the condition of the watermain supports until the scaffolding was setup by the contractor. The cost of installing temporary supports while installing new support system for the watermain is \$84,969.60, inclusive of HST. An additional \$9,158.40, inclusive of HST, will be required for the manufacturing and installation of the new watermain flange to support the watermain. The total cost of this work is \$94,128.00, inclusive of HST. This work has commenced and is approximately at 30% completion and is scheduled to be completed by the end of the year.

3. Repairs to Beams

After the installation of the scaffolding by the Contractor, it was observed that there is extensive, deterioration of the underside of the precast girders directly above the bearings and at the piers. The deterioration extends in some cases across the entire length and width of the bearing. It was originally anticipated that the repair work could be done in stages and would not require jacking. But the current condition was worse than originally anticipated during the 2010 detail condition inspection and that original construction methodology was not suitable as the girders need to be raised. The scope of work described under Item C7, "Concrete Removal – Partial Depth Type "B"", does not include jacking and temporary shoring of the girders. Therefore, the jacking and shoring work required to repair the girders are additions to the work tendered. The additional work includes the jacking and shoring of the girders at the piers. An additional \$127,200.00, inclusive of HST, is required to complete

the repairs described above. This work has commenced and is approximately at 10% completion and is scheduled to be completed by January 2013.

4. Light Pole Base installation

There is no streetlight along the section of the bridge and the spacing between existing lightings is 122m. As the lighting on the existing bridge is insufficient, one additional street lighting pole will be installed on the north side of the bridge. The cost of lighting pole concrete base is \$16,892.16, inclusive of HST. This work has already been completed as a part of the wall installation.

Contractor Change Orders (1-4)

The total amount of extra work for the contractor is in the amount of \$276,237.70, inclusive of HST. A construction contingency Purchase Order (PD 12168) originally approved in the staff award for the project was set aside in the amount of \$37,678.68, inclusive of HST. As such, staff requests a Purchase Order increase in the amount of \$238,559.02, inclusive of HST.

The City's consultant has reviewed these additional works and has recommended that these additional costs are reasonable for this type of work.

5. CN Flagging Services

As all works are completed within CN right of way, a part of the requirement is that CN flagging services are to be provided during all works as noted above. A purchase order in the amount of \$24,999.00 was issued to CN for the proposed flagging work based on \$1000/day (8 hrs/day) for 25 working days. Originally, CN agreed that flagging services is required only during setting up the fencing at the piers to isolate the work area, however, during construction it was identified by CN's operations department that full time flagging will be required for the duration of the work. In addition, additional flagging services will be required due to the Contractor's extended working hours and due to the additional rehabilitation works on the beam and watermain supports. The current estimate for additional works is in the order of \$50,880.00, inclusive of HST. This work is on-going and will be completed by January 2013.

6. Additional Contract Administration Services

The City's contract administrator for this project (i.e. G.D. Jewell Engineering) will be required to spend additional time to coordinate the additional works listed above. As such, an additional \$25,440.00, inclusive of HST, is required to cover the additional design works and contract administration services during the extended contract time. This work is completed as the design revisions have to be finalized prior to construction of the noted changes.

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

Item	Description	Purchase Order increase (inclusive of HST)
1	Parapet wall liner	\$38,017.54
2	Watermain support replacement	\$94,128.00
3	Repair to beams	\$127,200.00
4	Light pole base installation	\$16,892.16
	Construction Contingency (PD 12168)	(\$37,678.68)
	Sub-Total (Contractor)	\$238,559.02
5	CN flagging services (CN)	\$50,880.00
6	Contract Administration (Consultant)	\$25,440.00
	Total:	\$314,879.02

The table above summarizes the requested budget increase for this project and is to be funded from Life Cycle Repair and Replacement Reserve (\$200,399.02) and Waterworks Reserve (\$114,480.00).

C. BIRCHMOUNT ROAD – PHASE 2 (14th Avenue to CN Tracks)

Council approved the award of tender for the Birchmount Road Phase 2 project (14th Avenue to CN Tracks) to Dagmar Construction on June 22, 2010. The overall road construction included works at the intersection of 14th Avenue and Birchmount Road which is 100% funded by the Region of York. The City of Markham received a Purchase Order from the Region for these works.

During the construction, the City's consultant and contractor identified the following works that were not included in the original tender items for the Birchmount road Phase 2 Project:

1. Intersection Works on 14th Avenue and Birchmount Road

As part of the original scope of work, staff included the intersection improvements of 14th Avenue and Birchmount Road for the Region of York. Prior to the start of construction, the Region of York issued a Purchase Order to the City of Markham in the amount of \$1.2 million. The Region of York requested additional work (i.e. watermain lowering, additional concrete and paving works, etc.) on the intersection of 14th Avenue and Birchmount Road during the construction of the project. The Region of York has since increased the Purchase Order issued to the City of Markham to cover these additional works. The estimate for this work is in the order of \$148,235.64, inclusive of HST. Staff has issued an invoice to the Region for the project including the noted extra works and the City has recovered these funds but cannot issue payment to the contractor without an increase in the Purchase Order.

2. Hwy 407 Drainage Issue

In Spring 2012, the contractor came back to the site to place the final lift of asphalt for the entire section of Birchmount Road, from 14th Avenue to Enterprise Drive (Phase 1 and 2). Prior to the placement of the asphalt, it was identified that there were deficiencies (i.e. drainage on Hwy 407 flowing towards the sidewalk which resulted in frozen sidewalk conditions during the winter and hydrant relocation) within the road that required repair prior to asphalt placement. This additional work was not included in the original scope of work for

this project as this was from a previous contract. The estimate for this work is in the order of \$64,222.12, inclusive of HST.

The existing account for the Birchmount Road Phase 2 project (083-5350-8047-005) has remaining funds of \$1,160,771.37. Staff requests that the purchase order adjustment request in the amount of \$212,457.76, inclusive of HST, be approved and that upon approval of the purchase order increase and the capital admin fee recovery (\$348,000.00), that the remaining funds in the order of \$600,000.00 be returned to the original funding source.

D. RODICK ROAD – PHASE 3 (ESNA PARK DRIVE TO 14TH AVENUE)

Council approved the award of the contract administration of the Rodick Road – Phase 3 (Esna Park Drive to 14th Avenue) project to AECOM on May 31, 2011. The construction commenced in Summer 2011 and the project was completed in September 2012. The road and bridge over CN is scheduled to be officially open to public traffic on December 14, 2012.

During the construction of the project, the consultant and contractor encountered numerous site issues, not included in the original scope of work that resulted in additional time and effort to ensure that the project was completed. The following are the major site issues and additional consultant services not included in the original scope of work:

1. Earthworks (site excavation)

At the start of construction, the existing ground conditions were identified by the geotechnical engineer as unsuitable and a significant effort by the consultant and geotechnical engineer side was made to ensure that the final soil conditions are acceptable for a proposed bridge structure.

2. Utility Coordination (Relocation)

The utility relocation plan for this project was approved and all relocation works as identified in the engineering drawings were signed off by the consultant and utility companies. During the construction stage, there was a significant change in the constructability requirements for the protection of the existing utility within the bridge area and a significant amount of coordination and review was completed by the City's consultant to satisfy the utility protection requirements.

3. Property Acquisition requirements

As a part of the construction process, the City's consultant coordinated the works that were required within the private lands. There were some works that were not included in the original scope of work for the contract (i.e. driveway grading change, hydro transformer coordination for removal, etc.) that the City's consultant completed. Most of these works that were being completed were done when the bulk of the construction was finished and the City's consultant was not required on a full time basis. Staff will continue to negotiate with the property owners until the required lands are acquired.

4. Settlement Monitoring Fee

Due to the scale of the project, it was beneficial to the City to make arrangements to monitor the newly constructed bridge and road for an extended period. The consultant has made such arrangements and that this monitoring program will continue until June 2013.

AECOM requested an increase of \$285,864.19, inclusive of HST, for the additional contract administration work. Staff reviewed the request and negotiated with the City's consultant and both agreed to the amount to \$164,626.56, inclusive of HST. As such, staff recommends that the Purchase Order for AECOM be increased by \$164,626.56, inclusive of HST.

The existing account for the Rodick road – Phase 3 project (083-5350-11064-005) has remaining funds of \$993,088.93. Staff requests that the purchase order adjustment request be approved. The remaining funds in this account are to be used for the works as originally identified in the budget request for Rodick Road Phase 3.

E. HWY 404 MID-BLOCK CROSSING, NORTH OF HWY 7

Council approved the award of the detailed design for the Hwy 404 Mid-block Crossing, North of Hwy 7 to URS Canada Inc. on June 15, 2010. This project was being completed by the City of Markham with funding partnership with the Town of Richmond Hill and Region of York (i.e. 33% cost share each). The tri-party agreement for the detailed design for the Hwy 404 Mid-block Crossing was executed by all parties on July 9, 2010.

During the detailed design for the project, the Ministry of Transportation (MTO) requested significant changes to the design which resulted in additional design fees. In addition, the City's consultant has encountered difficulties in dealing with the acquisition of the lands required from private property. Additional design work on the driveway and entrances was requested by the private landowners to ensure that the road design matches the existing driveways and entrances.

Staff received a request for additional design fees from URS Canada Inc. earlier this year in the amount of \$520,844.31, inclusive of HST. Subsequent to the review of the requested fees, staff met with the Town of Richmond Hill and Region of York to provide the details and recommendations for an increase of \$153,235.30. All parties agreed that the increase of \$153,235.30, inclusive of HST, is acceptable. URS Canada Inc. was advised of the approved increase. The total amount is being cost shared equally by the three (3) parties in accordance to the executed Tri-party Agreement. The City of Markham's share for this increase is \$51,075.43, inclusive of HST.

The existing account for the Hwy 404 Mid-block Crossing, North of Hwy 7 project (083-5350-10050-005) has remaining funds of \$1,105,340.99. Staff requests that the purchase order adjustment request be approved and that upon approval of the purchase order increase the remaining funds of \$952,105.69 be returned to the original funding source.

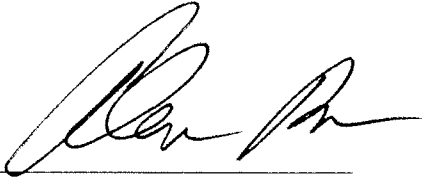
HUMAN RESOURCES CONSIDERATIONS:

Not applicable.

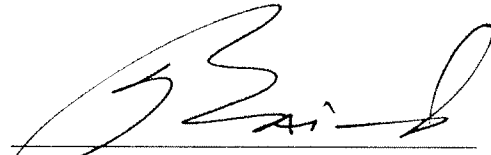
BUSINESS UNITS CONSULTED AND AFFECTED:

Environmental Services, Asset Management and Finance have been consulted, provided input and reviewed this report.

RECOMMENDED BY:

A handwritten signature in black ink, appearing to read 'Alan Brown', written over a horizontal line.

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

A handwritten signature in black ink, appearing to read 'Jim Baird', written over a horizontal line.

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

ATTACHMENTS:

Attachment 'A' – Purchase Order Adjustment Summary

PURCHASE ORDER ADJUSTMENT REQUEST - 2012 ENGINEERING CAPITAL PROJECTS

Item	Project Name	Supplier	PO Number	Purchase Order Original Amount	Account Number	Project Remaining Funds	Requested PO Increase	Adjustment to Capital Account Inc. / (Dec.)	Funds remaining after PO increase and adjustment to Capital Account
A	Rodick Road - Phase 2	North Rock	PD 12223	\$ 1,143,954.65	083-5350-7652-005	\$ 2,416,915.56	\$ 248,909.58	\$ -	\$ 2,168,005.98
B1	John Street Bridge Rehabilitation over CN	Marbridge Construction	PD 12167	\$ 962,722.80	058-5350-10267-005	\$ 37,678.68	\$ 276,237.70	\$ 238,559.02	\$ -
B2	John Street Bridge Rehabilitation over CN	Canadian National (CN)	PP 12374	\$ 24,999.00	058-5350-10267-005	\$ -	\$ 50,880.00	\$ 50,880.00	\$ -
B3	John Street Bridge Rehabilitation over CN	GD Jewell	PD 10227 - Line 3	\$ 31,260.00	058-5350-10267-005	\$ -	\$ 25,440.00	\$ 25,440.00	\$ -
*B					Total:	\$ 37,678.68	\$ 352,557.70	\$ 314,879.02	\$ -
**C	Birchmount Road - Phase 2	Dagmar Construction	PD 10255	\$ 7,789,551.51	083-5350-8047-005	\$ 1,160,771.37	\$ 212,457.76	\$ (600,000.00)	\$ 348,313.61
D	Rodick Road - Phase 3	AECOM	PD 11177	\$ 391,275.00	083-5350-11064-005	\$ 993,088.93	\$ 164,626.56	\$ -	\$ 828,462.37
***E	Hwy 404 Mid-block Crossing, North of Hwy 7	URS Canada	PD 10391	\$ 717,584.50	083-5350-10050-005	\$ 1,105,340.99	\$ 153,235.30	\$ (952,105.69)	\$ -

*Note: The shortfall in the amount of \$314,879.02, inclusive of HST, is to be funded from the Life Cycle Repair and Replacement Reserve (\$200,399.02) and the Waterworks Reserve (\$114,480.00).

**Note: Budget will be reduced by \$600,000.00 and will be returned to the original funding source.

***Note: Remaining budget of \$952,105.69 will be returned to the original funding source.