



Report to: General Committee

Date of Report: September 30, 2016

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**SUBJECT:** Award of Tender 196-T-16 Thornhill Community Centre HVAC & BAS Upgrade

**PREPARED BY:** Mario Puopolo, Facility Coordinator, Ext 3788  
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**RECOMMENDATION:**

- 1) THAT the report entitled "Award of Tender 196-T-16 Thornhill Community Centre HVAC & BAS Upgrade" be received;
- 2) AND THAT contract 196-T-16 Thornhill Community Centre HVAC & BAS Upgrade be awarded to the lowest priced supplier (Marnoch Facilities Maintenance Inc.) in the amount of \$430,114.03, inclusive of HST;
- 3) AND THAT a 10% contingency in the amount of \$43,011.40, inclusive of HST, be established to cover any additional construction costs and authorization to approve expenditures of this contingency amount up to the specified limit in accordance with the Expenditure Control Policy;
- 4) AND THAT balance remaining in project #16140 "Thornhill CC HVAC/Control Replacement Project in the amount of \$71,335.37 be returned to original funding source.
- 5) AND THAT the PowerStream utility rebates of approximately \$30,000 be returned to the Lifecycle Replacement and Capital Reserve Fund;
- 6) That Staff be authorized and directed to do all things necessary to give effect to this resolution.

**PURPOSE:**

To obtain approval to award the contract for the replacement of fourteen (14) new energy efficient Heating, Ventilation, and Air Conditioning (HVAC) units and the comprehensive replacement of the Building Automation System (BAS) for Thornhill Community Centre.

**BACKGROUND:**

The project scope is to remove and dispose of the existing HVAC units and to supply and install (14) new energy efficient HVAC units to meet the heating and cooling requirements for the Community Centre. Additionally, the project will include the replacement of the Building Automation System (BAS) to work with the 14 new high efficiency units as well as the remainder of HVAC and building service equipment in the facility.

**HVAC UNITS**

Of the 28 Rooftop HVAC units at Thornhill Community Centre, the City is replacing 14 units which were originally installed in the 1990s and are at the end of their expected lifecycles. The new HVAC units will be more efficient, contain improved controls, and are eligible for applicable incentives.

**Building Automation System (BAS)**

The BAS scope will essentially be a retrofit replacement of the current system to work with the 14 new high efficiency units as well as the remainder of HVAC and building service equipment in the facility. The count for equipment connected to the current BAS is approximately 33 pieces of HVAC equipment such as 28 rooftop units, 2 arena dehumidifiers, and 3 vestibule heaters. In addition there are also approximately 38 pieces of zone temperature control equipment and miscellaneous systems such as certain external lighting zones and sump pit monitoring.

As the Building Automation System spanned across the facility is a crucial component that interconnects the vast amount of building service equipment such as the HVAC units, to maintain operational requirements the BAS controls should be simultaneously configured and updated to maintain functionality and efficiency. Additionally, the existing BAS comprises of outdated operating software, hardware, and 20 year old communications network wiring that has a high risk of failure.

In the development of this scope, Staff ensured the project deliverables met the City's new directional requirements to adopt industry standards for open communication protocols in regards to BAS and equipment integration. Consideration was also given such that the completed project is in alignment to the developing BAS strategy addressing control system consolidation.

**BID INFORMATION:**

Advertised	ETN
Bid closed on	August 30, 2016
Number picking up document	28
Number responding to bid	11*

\*One bid was disqualified due non-compliance to mandatory requirements. Bid was submitted without the appropriate Bid Form

**PRICING SUMMARY:**

<b>Bidder</b>	<b>(Option A) (Inclusive of HST)</b>	<b>(Option B) (Inclusive of HST)</b>
<b>Marnoch Facilities Maintenance Inc.</b>	<b>\$ 331,834.22</b>	<b>\$ 469,027.05*</b>
SIG Mechanical Services Ltd	\$ 386,496.00	\$ 505,030.81
Nutemp Mechanical Systems Ltd	\$ 387,689.54	\$ 503,505.55
Servocraft Ltd.	\$ 425,000.00	\$ 495,062.40
DNA Mechanical Inc.	\$ 444,582.00	\$ 563,579.44
Mapleridge mechanical	\$ 445,900.00	\$ 545,331.84
Canadian Tech Air	\$ 461,100.00	\$ 527,218.56
Firenza Plumbing & Heating	\$ 479,969.46	\$ 546,276.64
Combined Air Mechanical Services	\$ 499,800.00	\$ 620,532.48
Smartair HVAC Ltd	\$ 516,684.00	\$ 583,637.36

\*Staff negotiated a reduction on Option B pricing from \$469,027.05 to the recommended award amount of \$430,114.03, an 8% savings to the overall total price (all figures inclusive of HST impact).

Staff issued the tender with two options due to uncertainty with market pricing and available budget.

#### Option A

This option was a “like for like” scenario by integrating the 14 HVAC with a data communication protocol for building automation and control networks. There would be no integration with the 14 other HVAC units.

Option A’s approach had a lower initial cost, as the scope addresses controls integration to the 14 new HVAC units only, through partial replacement of the existing BAS. Remainder of the control architecture will be salvaged and will be left in as-is condition. **(Not Recommended)**

#### Option B

This option is the replacement of the existing BAS as a whole new system (hardware, software, control wiring, communication cabling, commissioning) for the 14 new HVAC units as well as remainder of equipment controlled by the BAS in the facility. **(Recommended)**

This approach carries a higher initial cost, as the scope covers the comprehensive replacement of the full BAS covering the 14 new HVAC units as well as all remaining equipment not due for replacement but still connected to the controls architecture. As the result pricing from the bidding process came in favourable for both Options, approach B is recommended as it achieves aforementioned goals in regards to the City’s BAS development in much greater capacity.

Option B is also the logically sound choice as it prevents fragmenting the BAS control architecture, provides for a full re-commissioning sweep, and delivers an updated and uniform system of manufacturer devices implemented and commissioned at the same time. Furthermore, upon future life cycle replacement of the remainder HVAC units and building service equipment, the prospective “future-proofed” BAS will already be in place, resulting in future cost avoidance on the controls portion of work.

Applicable to Option B, the HVAC equipment installed and controlled by the current BAS from previous renovation phases are accounted for in the defined comprehensive BAS replacement. All existing BAS controllers, engines, software, and the interconnecting network cabling will be replaced to resume operational requirements.

Work is scheduled to commence December 1, 2016 and to be completed before May 30, 2017, weather/temperature permitting. There will be minimal disturbance to the operational activity at the community centre as the Contractor will replace on one area at a time while also performing work after-hours.

### **ENVIRONMENTAL CONSIDERATIONS**

Construction waste will be disposed as per properly in accordance with applicable laws, regulations and industry standards. Proof of recycling was included in the scope and is a requirement to qualify for utility rebates. The new units will also reduce maintenance costs and will improve occupant comfort with more sophisticated controls. The BAS will also provide a re-commissioning sweep over the facility to ensure both new and current equipment are optimized for energy efficiency and occupant comfort.

**FINANCIAL CONSIDERATIONS AND TEMPLATE:**

Recommended Supplier(s)	Marnoch Facilities Maintenance Inc. (Lowest Priced Bidder)	
Original Budget and Account #	\$587,200.00	500-101-5399-16140 Thornhill CC HVAC/Control Replacement Project
Current Budget Available	\$544,460.80	
Less Cost of award	\$430,114.03	Cost of Award
	\$ 43,011.40	10% Contingency
	\$ 473,125.43	Total Award (Inclusive of HST Impact)
Budget Remaining after this award	\$ 71,335.37	*

\*The remaining balance of \$71,335.37 in the original budget will be returned to source

The City of Markham is anticipating a one-time \$30,000 utility incentive from PowerStream for the installation of the energy efficient HVAC units and an electricity savings of \$7,500 per year. In addition, the installation of the BAS may achieve no less than a 5% energy savings and Staff will closely monitor the utility consumption following the project completion and could then use any savings achieved in the following year's budget (2018).

Additionally, Staff are in negotiations with the maintenance contractor who performs preventative maintenance on all 28 HVAC units, since the facility will have 14 new units. Staff may have a potential opportunity to reduce the monthly rate with the service provider.

**HUMAN RESOURCES CONSIDERATIONS**

Not Applicable

**ALIGNMENT WITH STRATEGIC PRIORITIES:**

Staff recommendation supports the developing BAS strategy where communication protocols are standardized, with a limit of three manufacturer platforms across the City. Vendor selection criteria is based on consideration of multiple factors such as: impact on staff operation and training from system diversion, existing City assets and invested infrastructure, local resources for support and competitive bidding, relevant experience in similar facilities/clients, feedback from City staff in terms of satisfaction experience and value, product features and ease of use, etc

**BUSINESS UNITS CONSULTED AND AFFECTED:**

Not Applicable

**RECOMMENDED BY:**

10/25/2016

X

Mary Creighton  
Director, Recreation Services

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Brenda Librecz  
Commissioner, Community & Fire Services