



Report to: General Committee

Meeting Date: May 6, 2025

SUBJECT: 004-T-25 Building Automation Systems Expansions & Upgrades for Six Markham Facilities

PREPARED BY: Darius Chung, Senior Buyer, Ext. 2025
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Aaron Cheung, Building Automation Coordinator, Ext. 5283

RECOMMENDATION:

1. That the report entitled “004-T-25 Building Automation Systems Expansions & Upgrades for Six Markham Facilities” be received; and,
2. That the contract for 004-T-25 Building Automation Systems Expansions & Upgrades for Six Markham Facilities be awarded to Viridian Automation Inc. (lowest priced bidder) in the amount of \$1,202,462.30 inclusive of HST; and
3. That a contingency in the amount of \$120,246.23 inclusive of HST, be established to cover any additional construction costs and that authorization to approve expending of the contingency amount up to the specified limit be in accordance with the Expenditure Control Policy; and
4. That the award in the total amount of \$1,322,708.53 (\$1,202,462.30 + \$120,246.23) be funded from the capital project account 056-6150-24091-005 “Building Automation Systems Replacement Program”, which has an available budget of \$990,500.00; and
5. The budget shortfall in the amount of \$332,208.53 (\$990,500.00 - \$1,322,708.53) be funded from the Non-DC capital contingency account; and
6. That Staff be authorized and directed to do all things necessary to give effect to this resolution.

PURPOSE:

To obtain Council approval to award the contract for the complete replacement of the building automation systems (BAS) at six facilities as follows. This includes BAS upgrades and expansion to the 6 facilities:

1. Armadale Community Centre
2. Fire Station 93
3. Fire Station 99
4. Museum Collections Building
5. Markham Village Library
6. Varley Art Gallery

The work involves replacing existing BAS systems with an open-source BAS solution that optimizes control sequences to improve energy-efficiency and occupant comfort. It also includes migrating the old BAS platform that is no longer being supported onto the City’s new central BAS, ensuring consistency with all other City facilities. This project aligns with

the principles as stipulated in Markham's Corporate Energy Management Plan (CEMP), and coincides with the Digital Markham initiatives in the area of Smart Building Technology.

BACKGROUND:

The six facilities currently utilize a legacy BAS control and standalone zone controllers that do not connect with each other. The systems have reached end-of-life status with diminishing manufacturer support and replacement parts.

The selected Delta Controls BAS will provide the following benefits:

- Reducing utility costs and GHG emissions;
- Improving efficiency in the operations and maintenance of the facilities' HVAC systems;
- Improving building users' comfort level and internal air quality;
- Standardizing building automation system on the City facilities, by integrating the new system to the City wide centralized user-friendly BAS platform (currently the City has 7 other facilities are on the Delta Controls systems);
- Mitigating cybersecurity risk by utilizing modernized BAS system with firmware/software that are up to date and supported;
- Modern, web browser-based platforms that can be accessed from a variety of locations or platforms (e.g. tablets, laptops, computers, phones).

The work will be completed by October 2026.

BID INFORMATION:

Bid closed on	March 6, 2025
Number picking up bid document	3
Number responding to bid	3

FINANCIAL CONSIDERATIONS:

Recommended bidder	Viridian Automation Inc. (lowest priced bidder)	
Current budget available	\$ 990,500.00	056-6150-24091-005 Building Automation Systems Replacement Program
Less cost of award	\$ 1,128,136.80	Cost of Award (Incl. of HST)
	\$ 74,325.50	Provisional Items (Incl. of HST)
	\$ 120,246.23	10% Contingency
	\$ 1,322,708.53	Total cost of award (Incl. of HST)
Budget remaining after this award	(\$332,208.53)	

The budget shortfall in the amount of \$332,208.53 will be funded from the Non-DC capital contingency account.

OPTIONS AND DISCUSSIONS

All bids received in response to this Request for Tender exceeded the City's budget. The shortfall can be attributed to the following reasons:

1. Inflationary factors since budget development:

The lifecycle cost estimate in 2021 was utilized for this project budget and since then, the construction industry has faced unprecedented spike in construction costs driven by pandemic and post-pandemic inflation, global supply chain disruptions, and material shortages. Over the same period (2021-2025), the consumer price index (CPI) has increased by 14% and construction index has increased between 26% - 59% dependent on construction, types materials or methods.

Therefore, a significant portion of the shortfall is due to these inflationary factors.

2. Unbudgeted items:

Included in the total shortfall are provisional items totaling \$74,325.50 plus 10% contingency (\$81,758.05). These items for Fire Station 93, Museum Collections Building, Markham Village Library, and Varley Art Gallery are recommended to be included in the award of the project as these items will enhance operational efficiency, reduce energy costs and emissions, improve performance, and support project delivery.

OPERATING BUDGET AND LIFE CYCLE IMPACT

This is a Capital Project funded by Life Cycle, and the award is consistent with the Life Cycle study amount. The Life Cycle Reserve study will be updated to reflect the cost of this award.

By completing this project in 2026, the City will start saving approximately \$35,000/year in utility savings, consisting of natural gas, district energy, and hydro consumption reductions. Given the significant draw from the Non-DC capital contingency account, the \$35,000/year in utility savings will be used to pay back the Life Cycle in the amount of the budget shortfall of \$332,208.53. As such, the payback period is anticipated to be 9.5 years for the shortfall amount only.

After the payback is finished in 2036, the operating budget will be reduced by 50% of the utility savings (\$17,500) and the remaining 50% of the utility savings (\$17,500) will be transferred to MECO to fund other low-carbon initiatives. The 50-50 split acknowledges the importance of MECO as a funding source for corporate energy initiatives, such as EV chargers and the green fleet strategy. This is consistent with the previous staff award 083-T-24 (Building Automation System Replacement at 8100 Warden).

ENVIRONMENTAL CONSIDERATIONS

The new BAS systems will have a positive effect on the internal air quality of the building by having control for air temperature and humidity levels which should increase occupant comfort level during operation and reduce energy usage during closure. In addition to the reduction of overall GHG emissions.

HUMAN RESOURCES CONSIDERATIONS

Not Applicable.

ALIGNMENT WITH STRATEGIC PRIORITIES:

Goal	Examples – How the Solution can Help Achieve the Goal
Exceptional Services by Exceptional People	Enhance service levels, as a result of a more user friendly and mobile accessible system. Improves building owner oversight to improve occupant comfort and response times.
Engaged, Diverse & Thriving City	Supports Smart Building work under the Digital Markham initiative. Modernizing assets and tools to drive innovation and collaboration.
Safe & Sustainable Community	Reduce energy consumption and GHG emissions, support Cybersecurity best practices.
Stewardship of Money & Resources	This initiative is consistent with the City's Asset Management Plan, to maintain our assets in a state of good repair.

BUSINESS UNITS CONSULTED AND AFFECTED:

Comments from Sustainability and Asset Management, Recreation, Fire, Culture, Markham Public Library and Finance have been incorporated into this report.

RECOMMENDED BY:

Graham Seaman,
Director, Sustainability and
Asset Management

Trinela Cane,
Commissioner, Corporate Services