Report to: General Committee Meeting Date: June 25, 2024

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| **SUBJECT**: | 083-T-24 Building Automation System Replacement at 8100 Warden GC Report Final.docx |
| **PREPARED BY:** | Darius Chung, Senior Buyer, Ext. 2025<br>Emad Atassi, Project Manager, Facility Assets Ext. 2042 |

**RECOMMENDATION:**

1. That the report entitled "083-T-24 Building Automation System Replacement at 8100 Warden GC Report Final.docx" be received; and,

2. That the contract for 083-T-24 Building Automation System Replacement at 8100 Warden GC Report Final.docx Services be awarded to Viridian Automation Inc. (lowest priced bidder) in the amount of $647,193.60 inclusive of HST; and

3. That a contingency in the amount of $64,719.36 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 $711,912.96 ($647,193.60 + $64,719.36) be funded from the capital project account 043-6150-23142-005 "Building Automation Systems Replacement Program", which has an available budget of $621,812.00; and

5. The budget shortfall in the amount of $90,100.96 ($711,912.96 - $621,812.00) 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 system (BAS) at 8100 Warden. The work involves optimizing control sequences to improve energy-efficiency and occupant comfort as well as to migrate the old BAS platform that is no longer being supported, onto the City's new central BAS, consistent with all other City facilities.

**BACKGROUND:**

8100 Warden currently utilizes a legacy Siemens BAS control and old pneumatic standalone Johnson Controls zone controllers that do not connect with each other. Both systems have reached end-of-life status with diminishing manufacturer support and replacement parts. Additionally, legacy systems pose a cybersecurity risk as well as difficulty in operations.

The intent of this project is to replace this existing BAS system with the installation of a new Delta Controls BAS with new building' and equipment' controllers and sensors in order to tie in existing hardware and Heating Ventilation and Air conditioning (HVAC) equipment.

The new Delta Controls BAS will provide the following benefits:

- Reducing utility costs and GHG emissions;
- 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;
- 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 includes but is not limited to removal, replacement, and integration of all existing digital and pneumatic controls and tubing, including controllers, operators, control valves, wiring throughout the facility, thermostats and all other existing sensors, relays and devices that currently operate the mechanical systems in the building.

The work will be completed by May 2025.

**BID INFORMATION:**

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| Bid closed on | April 26, 2024 |
| Number picking up bid document | 3* |
| Number responding to bid | 2 |

*There are three approved installers of Delta Controls BAS in the Greater Toronto Area who were invited to bid on this project.

**OPTIONS AND DISCUSSIONS**

Both bids received in response to this Request for Tender exceeded the City's budget. Consequently, Staff entered negotiations with Viridian Automation Inc. to reduce the budget shortfall. Staff were able to reduce the shortfall by $172,318.44 ($884,294.40-$711,912.96) by:

1. Removing integration of lighting controls on all three floors at 8100 Warden. This reduction of scope reduces the bid price by $138,800.64 ($126,182.40 + $12,618.24) including 10% contingency. This scope can be integrated in the future in phases as-needed, noting that the existing lighting is still operational and performing well.

2. Including final commissioning, performance verification, and building management manuals as part of the contractor's scope of work. This work was initially stipulated as a cash allowance in the bid but will now be included by the recommended bidder at no cost to the City. This cost avoidance reduces the bid price by $33,580.80 ($30,528 + $3,052.80) including 10% contingency.

The original budget was established in 2020, but the project had to be deferred due to the pandemic. During the pandemic, challenges to supply logistics, material shortages and inflation had an impact worldwide and resulted in a significant spike in cost ranging from 10% to 20% increase.

**FINANCIAL CONSIDERATIONS:**

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| Recommended bidder | Viridian Automation Inc. (lowest priced bidder) | |
| Current budget available | $ 621,812.00 | 043-6150-23142-005 Building Automation Systems Replacement Program |
| Less cost of award | $ 647,193.60<br>$ 64,719.36<br>$711,912.96 | Cost of Award (Incl. of HST)<br>10% Contingency<br>Total cost of award (Incl. of HST) |
| Budget remaining after this award | ($ 90,100.96) | |

The budget shortfall in the amount of $90,100.96 will be funded from the Non-DC capital contingency account.

**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 2025, the City will start saving $14,000/year in utility savings, consisting of natural gas, district energy, and hydro consumption reductions. The $14,000/year in utility savings will be used to pay back the Life Cycle in the amount of the budget shortfall of $90,100.96. As such, the payback period is anticipated to be 6.4 years for the shortfall amount only. After the payback is finished in 2032, the operating budget will be reduced by 50% of the utility savings ($7,000) and the remaining 50% of the utility savings ($7,000) will be transferred to MECO to fund other low-carbon initiatives.

**ENVIRONMENTAL CONSIDERATIONS**

The new BAS system 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** |
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| 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. |

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| 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 and Finance have been incorporated into this report.

**RECOMMENDED BY:**

Graham Seaman,
Director, Sustainability and Asset Management

Andy Taylor,
Chief Administrative Officer

Trinela Cane,
Commissioner, Corporate Services