



Report to: General Committee

Meeting Date: July 9, 2024

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**SUBJECT:** 125-T-24 and 126-T-24 Thornhill and Clatworthy Energy GHG Retrofit GC Report

**PREPARED BY:** Darius Chung, Senior Buyer, Ext. 2025  
Rafael Abo, Project Manager, Facility Assets, Ext. 3120  
Joanna Chan, Senior Financial Analyst, Ext. 2073

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**RECOMMENDATION:**

1. That the report entitled “125-T-24 and 126-T-24 Thornhill and Clatworthy Energy GHG Retrofit GC Report” be received; and,
2. That the contracts 125-T-24 and 126-T-24 be awarded to the lowest priced bidder for both projects, Modern Niagara Building Services, in the amount of \$4,028,579.69 inclusive of HST:  
Thornhill - \$2,770,149.39  
Clatworthy - \$1,258,430.30  
\$4,028,579.69; and,
3. That a 10% contingency in the amount of \$277,014.94 for Thornhill and \$125,843.03 for Clatworthy 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 for Thornhill Community Centre Energy & GHG Retrofit in the total amount of \$3,047,164.33 (\$2,770,149.39 + \$277,014.94) be funded from the capital project account 043-5399-23164-005 “Thornhill Near Net-Zero Emissions Retrofit Pilot”, which has an available budget of \$2,460,036.00; and
5. That the award for Clatworthy Arena Energy & GHG Retrofit in the total amount of \$1,384,273.33 (\$1,258,430.30+ \$125,843.03) be funded from the capital project account 043-5399-23145-005 “Clatworthy Near Net-Zero Emissions Retrofit Pilot Project” which has an available budget of \$1,365,693.00; and
6. That the budget shortfall for #125-T-24 Thornhill Community Centre Energy & GHG Retrofit in the amount of \$587,128.33 (\$3,047,164.33 -\$2,460,036.00) be funded from the Non-DC Capital Contingency account; and
7. That the budget shortfall for #126-T-24 Clatworthy Arena & GHG Retrofit in the amount of \$18,580.33 (\$1,384,273.33 -\$1,365,693.00) be funded from the Non-DC Capital Contingency account; and
8. 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 approval to award the following contracts:

1. Thornhill Community Centre Arena Energy & GHG Retrofit
2. Clatworthy Arena Energy & GHG Retrofit

The project aims to utilize federal grant funding and Life Cycle funds to replace aging equipment coming to end of life with low carbon upgrades that will significantly reduce GHG emissions and energy consumption, in alignment with the City’s Council-endorsed target of achieving net-zero emissions by 2050.

**BACKGROUND:**

In 2021, the Government of Canada launched the Green & Inclusive Community Buildings Program (GICB), which provides grants for up to 80% of eligible project costs. Applications submitted in 2021 have been accepted and awarded through contracts making full use of the grant.

As a requirement from the GICB program, a net-zero study was completed in 2021-2022 for both Thornhill Community Centre and Clatworthy Arena that identified a suite of deep retrofit solutions to significantly reduce Greenhouse Gas (“GHG”) emissions and energy consumption. The net-zero study focused on replacing all major systems, equipment, and components, that were reaching end of life, with low-carbon solutions to significantly reduce GHG emissions and energy consumptions.

This requested project for Thornhill Community Centre and Clatworthy Arena includes the replacement of several antiquated mechanical, electrical, architectural, and structural systems in the facility, as follows:

Thornhill Community Centre:

- Boilers B-1 to B-4 (Qty. 4) fuel conversion to heat pump system,
- Domestic hot water fuel conversion to a hybrid electric water tank heat pump system for the Senior Centre,
- Shower head replacement to low-flow for change rooms,
- Rink unit heaters conversion from natural gas to hydronic unit heaters,
- Interior lighting conversion to LED,
- Make-up unit replacement and upgrade paired with condensing unit for cooling,
- Rooftop units (11) conversion to air source heat pumps,
- Exterior doors & glazing replacement, and
- Infiltration Mitigation to reduce air leakages within the facility.

Clatworthy Arena:

- Replacement of Gas Furnace (F1) with an efficient air handling unit,
- Radiant tube heaters upgrade to electric,
- Replacement of electric baseboard heaters with an energy recovery ventilator interior lighting upgrade to LED,
- Refrigeration plant upgrade with new heater,

- Domestic Hot Water Boiler (DHW-2) fuel conversion to air source heat pump,
- Shower head replacement to low-flow for change rooms,
- Exterior doors & glazing replacement,
- Infiltration Mitigation to reduce air leakages within the facility, and
- A new Building Automation System for newly installed equipment.

Staff in conjunction with expert consultation thoroughly investigated various options and equipment combinations to ensure a cost-efficient approach that will meet the targeted GHG reductions and energy savings annually while remaining eligible based on the criteria set by the GICB.

**PROPOSAL INFORMATION (125-T-24):**

Bid closed on	May 23, 2024
Number picking up bid document	12
Number responding to bid	4

**FINANCIAL CONSIDERATIONS (125-T-24) Thornhill:**

Recommended bidder	Modern Niagara Building Services (lowest priced bidder)	
Current budget available	\$2,460,036.00	043-5399-23164-005 (Thornhill CC GHG & Energy Retrofit)*
Less cost of award	\$ 2,770,149.39	Cost of award (Incl. HST)
	\$ 277,014.94	10% Contingency
	\$ 3,047,164.33	Total cost of award (Incl. HST)
Budget remaining after this award	(\$ 587,128.33)	**

\*Budget for the construction phase, which is 80%-funded by the GICB grant. There is no further opportunity to increase the grant funding, so any incremental cost will need to be covered by the City.

\*\*The shortfall of \$587,128.33 will be funded from Non-DC Capital Contingency account, which has a balance of (\$601,729) as of July 3, 2024 and will be replenished back to \$250,000 in the next Capital Status update. Approximately \$440,000 that is already included in Life Cycle for planned asset replacement at Thornhill will no longer be required as a result of this project (i.e., they are within the scope of this request), and will be advanced to help offset the shortfall. Please refer to the Operating Budget and Life Cycle Impact section for further details.

**PROPOSAL INFORMATION (126-T-24):**

Bid closed on	May 22, 2024
Number picking up bid document	13
Number responding to bid	6

**FINANCIAL CONSIDERATIONS (126-T-24) Clatworthy:**

Recommended bidder	Modern Niagara Building Services (lowest priced bidder)	
Current budget available	\$1,365,693.00	043-5399-23145-005 (Clatworthy GHG & Energy Retrofit)*
Less cost of award	\$ 1,258,430.30	Cost of award (Incl. HST)
	\$ 125,843.03	Contingency (10%)
	\$ 1,384,273.33	Total cost of award (Incl. HST)
Budget remaining after this award	(\$ 18,580.33)	**

\*Budget for the construction phase, which is 80%-funded by the GICB grant. There is no further opportunity to increase the grant funding, so any incremental cost will need to be covered by the City.

\*\*The shortfall of \$18,580.33 will be funded from the Non-DC Capital Contingency account, which has a balance of (\$601,729) as of July 3, 2024 and will be replenished back to \$250,000 in the next Capital Status update. Approximately \$18,000 that is already included in Life Cycle for planned asset replacement at Clatworthy will no longer be required as a result of this project (i.e., they are within the scope of this request), and will be advanced to offset the shortfall. Please refer to the Operating Budget and Life Cycle Impact section for further details.

**OPTIONS AND DISCUSSIONS:**

Infrastructure Canada (INFC)'s Green and Inclusive Community Building (GICB) program will provide a contribution of up to 80% of eligible project costs (up to \$2.3M grant) for each project to support the transition of retrofitting community buildings to net-zero by 2050. This project leverages Life Cycle funds and external grants to accelerate the replacement of building components coming due for replacement with lower energy/carbon alternatives.

Funding for some critical building components (i.e., interior lighting in common and transition spaces such as hallways) had not been included in the Life Cycle study when the original budgets were developed, contributing to the budget shortfall. Other factors that contribute further to this shortfall are trade union wage rate increases enacted in 2023 (which had not been captured when budget estimates were developed), and pressures due to current technology demand and price hike, and global supply chain issues.

Implementing the full project scope now offers significant strategic benefits, including operational efficiencies, maintaining project momentum, optimally leveraging existing resources, and delivering a comprehensive solution at a lower overall cost. As all of the systems included in this project are due for replacement between 2022-2025, limiting the scope now would result in additional facility interruptions and maintenance, and further resource and budget requirements due to grant funding availability, re-engagement and mobilization of consultants and contractors, and retendering price risks.

**ENVIRONMENTAL CONSIDERATIONS:**

The package of solutions to retrofit both Thornhill and Clatworthy includes replacing aging equipment, including heating, ventilation, and air-conditioning (HVAC) units, boilers, furnaces, shower heads, and lighting, with more energy efficient alternatives.

Furthermore, the project includes architectural and building envelope upgrades (ex: insulation, doors and windows) to improve the building’s efficiency.

By completing this project now, Thornhill Community Centre and Clatworthy Arena will be on a course to achieve net-zero energy emissions by 2050.

**OPERATING BUDGET AND LIFE CYCLE IMPACT**

By completing this project, the City is forecasted to avoid costs of at least \$2.5M over the next 30 years, and reduce GHG emissions by over 50% and energy consumption by 25% for Thornhill Community Centre. The City is also forecasted to avoid \$300k over the next 30 years, and reduce GHG emissions by over 70% and energy consumption by 25% for Clatworthy Arena. The avoided costs are related to anticipated increase in utility rates and legislated carbon tax over the long-term.

The budget shortfall of \$587,128.33 at Thornhill C.C. will be funded from the non-DC Capital Contingency account. However, there is available funding of approximately \$440k in Life Cycle that can be advanced to support the replacement of key assets. The budget shortfall of \$18,580.33 at Clatworthy Arena will be funded by the non-DC Capital Contingency account; this shortfall can be covered through advancing available funding from Life Cycle. The assets, along with their useful life and costs, will be adjusted accordingly in the Life Cycle.

**HUMAN RESOURCES CONSIDERATIONS:**

Not applicable.

**ALIGNMENT WITH STRATEGIC PRIORITIES:**

<b>Goal</b>	<b>Examples – How the Solution can Help Achieve the Goal</b>
Exceptional Services by Exceptional People	Performing building enhancements with the goal of reducing energy waste and supporting a clean City for all.
Engaged, Diverse & Thriving City	Modernizing assets and tools to drive innovation and collaboration.
Safe & Sustainable Community	Reduce energy consumption and GHG emissions to support the green and inclusive community buildings initiative.
Stewardship of Money & Resources	This project supports that target and the commitments made through the Corporate Energy Management Plan (requirement per O. Reg. 507/18) and seeks to reduce overall GHG footprint and realize energy savings.

**BUSINESS UNITS CONSULTED AND AFFECTED:**

Comments from Sustainability and Asset Management, Recreation and Finance have been incorporated into this report.

**RECOMMENDED BY:**

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Mary Creighton,  
Director, Recreation Services

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Morgan Jones,  
Commissioner, Community Services

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Graham Seaman,  
Director, Sustainability and  
Asset Management

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Trinela Cane,  
Commissioner, Corporate Services

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Andy Taylor,  
Chief Administrative Officer