



TOWN OF
HALTON HILLS
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REPORT

TO: Mayor Bonnette and Members of Council

FROM: Johanna Amaya-Carvajal, Supervisor of Facility Capital Projects

DATE: July 4, 2022

REPORT NO.: RP-2022-0016

SUBJECT: Award of Contractor for Bundled Arenas Heat Recovery and Dehumidification Replacement Request for Tender T-088-22

RECOMMENDATION:

THAT Report No. RP-2022-15, dated July 4, 2022, for the Award of Contractor for Bundled Arenas Heat Recovery and Dehumidification Replacement Request for Tender T-088-22 be received;

AND FURTHER THAT Council authorize the Senior Manager of Purchasing and Risk Management to issue a purchase order to the lowest compliant bidder for the supply and installation of the Heat Recovery and Dehumidification Replacement at both Mold-Masters SportsPlex and Acton Arena Community Centre to an upset limit of \$4,356,414.00 plus applicable taxes (including cash allowances);

AND FURTHER THAT Council authorize the Mayor and Clerk to execute the CCDC 2 Contract to the lowest compliant bidder for the supply and installation of the Heat Recovery and Dehumidification Replacement at both Mold-Masters SportsPlex and Acton Arena Community Centre to an upset limit of \$4,356,414.00 plus applicable taxes (including cash allowances).

KEY POINTS:

The following are key points for consideration with respect to this report:

- The dehumidification units are at their end of life and require replacement.

- The new design and integration of a heat recovery system will utilize the waste heat from the refrigeration operations at both arenas and contribute to our net zero goals.
- The heat recovery and dehumidification replacement projects for the two arenas have a combined budget of \$4,829,084.00 for the projects inclusive of construction, design and engineering, and project management costs.
- The three dehumidifiers which were tendered (T-078-22) and awarded separately is included as a Cash Allowance in tender T-088-22.
- The new equipment and design is an integral part of the low carbon design approach to equipment replacement and will contribute significantly to the reduction of GHG emissions in both facilities

BACKGROUND AND DISCUSSION:

The major components of heating, ventilation, and dehumidification for the Alcott/Fernbrook rinks at the MMSP and the Townsley rink within the AACC are nearing the end of their life cycle. As such most of these major components have been scheduled for replacement within the 2022 and 2023 budget years. Staff have been reviewing options for replacements of these units for the past several years in anticipation that the units will need replacement and have been looking for best options for the future with regards to the replacements of these critical pieces of equipment. In 2021 the Town had Enerlife Consulting, through the Mayor's Megawatt Challenge (MMC) complete a Net Zero Feasibility Study for the both the AACC and the MMSP. The study reviewed current equipment, energy consumption and intensity, capital replacement planning and developed a strategy for the best path forward for each of these facilities to align with Council's objective to achieve net zero GHG emissions within Town facilities by the year 2030. For both arenas the study concluded that the best means of moving forward was to utilize the unused capacities of both arenas to harness the naturally occurring waste heat by-product from the refrigeration process and utilize this heat recovery to support the dehumidification, ventilation, and heating systems of the arenas. This would allow the facilities to design and develop replacement systems that would replace direct supplied natural gas-powered equipment with equipment that would re-use significant amounts of waste heat product generated from an ongoing refrigeration process (electric energy) supplemented with other electric energy heating sources. As the facilities were due for a substantial replacement of the equipment based on life-cycle costing, the opportunity to replace the systems with ones derived on newer technology and non-GHG emitting technologies was seen as the opportunity to complete needed capital replacements with upgraded systems aligning with the climate change objectives.

The key element of the initiative would be the full capacity development of heat recovery systems within each of the arenas. While the new refrigeration plant at MMSP substantively utilizes a full heat recovery system and employs this system for

dehumidification, pre-heating domestic water, and some space heating, the older refrigeration plant at MMSP (Alcott and Fernbrook rinks) and the refrigeration plant at AACC were not designed to utilize heat recovery. Heat recovery for both refrigeration plants was added to the capital budget for 2022 as the implementation of the heat recovery system was key to any future additions to the dehumidification, ventilation, or space heating systems of both arena facilities. The Net Zero Feasibility Study provided a budget estimate for the implementation of heat recovery systems for each refrigeration room. An amount of \$1,078,000 was added to the capital budgets for the 2022 year to design and construct heat recovery systems in the refrigeration rooms for each of the facilities. Heat recovery expansion into mechanical rooms to integrate with future HVAC and space heating upgrades would be done as part of the later phases of the project.

In addition, each of the facilities had dehumidification systems that were at the “end of life” and were historically under-sized for their respective facilities. Dehumidification is a critical function of an arena environment. It impacts the performance and capacities of the refrigeration system, space heating and thermal comfort, as well as the ventilation of the facility space. Properly designed and integrated dehumidification is key to creating a safe and comfortable environment within the facility as well as one that is energy efficient. Replacement dehumidification was included as a key first step in the plan to design a facility that could be a net zero facility in the future.

Staff issued a bid for a Request for Tender for the Arenas Heat Recovery & Dehumidification Renovations on June 3, 2022. At the time of this report eleven (11) firms have downloaded the bid. The bid will be closing on June 28, 2022. Bids will be reviewed at that time and staff may be able to provide Council with firm details of the lowest compliant bid at the Council meeting.

Project Budget Breakdown

Element	Cost
Design & Engineering (HR & Dehumidification)	\$335,280
Installation and construction	\$4,356,414
Sub-Total	\$4,691,694
Design Contingency	53,868
HST	83,522
Total Project Costs	\$ 4,829,084

STRATEGIC PLAN ALIGNMENT:

This report aligns to the Town’s Strategic plan recognizing the value to provide responsive, effective municipal government and strong leadership in the effective and efficient delivery of municipal services.

This report also identifies climate change and the environment as one of the Town's Strategic priorities.

RELATIONSHIP TO CLIMATE CHANGE:

This report impacts and/or helps address climate change and the Town's Net Zero target through corporate energy savings.

The implementation of these projects in the arenas as recommended by the Net Zero Arenas study is critical to ensuring alignment with the town's target of net zero carbon emissions by 2030. It is expected that because of the implementation the town would avoid 203.7 tCO₂e on annual basis which is 21.7% reduction below the 2019 level of 940.4 tCO₂e of annual carbon emissions for both AACC and MMSP.

PUBLIC ENGAGEMENT:

Public Engagement was not needed as this report is administrative in nature.

INTERNAL CONSULTATION:

This report has been reviewed with staff of Finance, Purchasing, Corporate Climate Change and Asset Management and Recreation & Parks.

FINANCIAL IMPLICATIONS:

This report will be funded through an existing approved budget source.

The funds for this project falls under five (5) Heat Recovery & Dehumidification Replacement Projects for Acton Arena & Mold-Masters Sportsplex that have a total combined budget of \$4,829,084.00 as per approved Council Report RP-2022-0009.

Reviewed and approved by,

Moya Jane Leighton, Town Treasurer and Director of Finance

Paul Damaso, Commissioner of Recreation and Parks

Chris Mills, Chief Administrative Officer