
To: Mayor Glover and Members of Council

From: Scott MacKinnon, Superintendent of Parks and Facilities

Date: July 12, 2022

Subject: Ice Plant Replacement at the Lake of Bays Community Centre

Report Highlights

- Environmental Savings and reduction of the Township's carbon footprint
- Three Proposals were received for the Refrigeration Plant Replacement in the Lake of Bays Community Centre
- Three different types of Refrigeration Plants were proposed
- Environmentally friendly, efficient and safe ice plants have been suggested by the Tender applications

Recommendation

WHEREAS the Council of the Corporation of the Township of Lake of Bays receives the staff report "Ice Plant Replacement at the Lake of Bays Community Centre", dated July 12, 2022

BE IT RESOLVED THAT the Council of the Corporation of the Township of Lake of Bays accepts staff recommendation to accept the Trak International Green Energy Resources Inc. proposal for the ice plant replacement in The Lake of Bays Community Centre as laid out in RFP 2022-02, Supply and Installation of an Ice Plant in the Lake of Bays Community Centre

AND FURTHER THAT the remainder of the monies budgeted for this project be placed into the Parks and Facilities Reserve for future projects.

Origin

The Lake of Bays Community currently has a freon R22 refrigeration plant. Freon R22 became obsolete as of January 2020 and is no longer available for purchase. Freon R22 is not considered environmentally friendly and is not an efficient use of energy for creating and maintaining ice in arenas.

In September of 2021 Council directed staff to apply for a grant from the Trillium Foundation for the refrigeration plant replacement in the Lake of Bays Community Centre.

In February of 2022 the Township was awarded \$500,000.00 from the Trillium Foundation to be used towards the replacement of the refrigeration plant in The Lake of Bays Community Centre.

Staff then released a Request for Proposal for the replacement of the ice making plant, looking for an environmentally sound and financially feasible solution for the replacement. Staff set a minimum level of cooling capabilities in the form of Horsepower and Tonnage for the new system.

Analysis

In response, three companies submitted proposals. All three meet or exceeded our requirements. Each one of the three companies were required to do a site visit and meet with staff.

Trak International came to the Lake of Bays Community Centre and met with staff. Trak is an award-winning engineering and construction firm with over 25 years of continual growth and experience. The Trak proposal for a Geo-Thermal ice plant meets or exceeds all the requirements set out by the proposal for the ice plant, including the environmental and safety requirements as staff feels these are important aspects. With the Trak proposal, the expectation is to use a Geo-Thermal technology to cool the floor to make ice while capturing all the heat from this process to heat the building and produce domestic hot water. In Trak's proposal they project that the Township will reduce its' energy consumption by 30 percent.

Trak is a module-built system where more modules can be added to do more cooling and heating. For example, in the future we could add to the system and eventually provide heat and cooling to the attached library, thereby reducing the use of propane gas to heat the building envelope. With the Trak system there is a small charge of refrigerant required which removes the need to have a Technical Safety Standards Association (TSSA) inspection every year. No building modification will be required to accommodate their system.

Cimco Refrigeration met with staff and is one of the largest refrigeration companies in Canada. Cimco Refrigeration has a proven track record in engineering and providing a product that will meet or exceed the requirements. Cimco submitted a proposal for a Carbon Dioxide (CO₂) refrigeration system. Environmental and safety requirements are also being met in the proposal as staff required. With the CO₂ system, it could be used to heat the arena lobby, changerooms, auditorium and flood water. They would require no renovation to the current mechanical room as their system would be all outside the building. CO₂ operates on extremely high pressures and requires mechanical expertise when servicing.

Black and McDonald Limited, our current refrigeration mechanical company submitted an Ammonia refrigeration system. Black and McDonald has been the preferred contractor in the Lake of Bays Community Centre for approximately 12 years. Their proven reliability and professionalism have been a definite asset. Ammonia is the most used refrigerant in arenas being six times more efficient than freon R22. Ammonia is an efficient way to cool ice but the heat from that process is rejected to the outside,

hence wasted. Do to the fact that ammonia is toxic, it requires multiple steps to recapture any heat generated by the refrigeration process. The current mechanical room would need extensive renovations to make it safe for staff and users of the facility which was included in the proposal. A small ammonia leak could be catastrophic to staff and minor incidents happen regularly in the industry. The Ammonia option meets the environmental requirements.

Financial Implications:

Here are the results from the Request for Proposal 2022-02 for the Supply and installation of an ice plant at the Lake of Bays Community Centre.

Company	Refrigerant	Total Cost
Trak International	R407C	\$ 558,844.18
Cimco Refrigeration	CO2	\$1,312,721.00
Black & McDonald	NH3	\$ 876,654.00

Trak International did not include the removal of the old refrigeration equipment or converting the arena floor secondary refrigerant from brine to glycol. Staff are expecting the removal of the existing equipment to be covered by the salvage value or sale. The estimated cost at time of the proposal was approximately \$30,000 to switch to glycol as the secondary refrigerant.

The budget allocation for this project was a combined \$800,000 dollars. \$500,000 from the Trillium Fund and the other \$300,000 from the capital budget.

The Trillium Foundation will extend the one-year timeline to accommodate supply chain and procurement issues. Installation will occur in Summer 2023 with the preparation work being done prior to the installation. Start up of the refrigeration plant/ice making will be approximately late September as per normal practice. The intention of the acceptance of this proposal is to secure pricing.

Alternatives

Option 1

Township of Lake of Bays accepts staff recommendation of the acceptance of the Trax International Green Energy Resources Inc. proposal for the ice plant replacement in The Lake of Bays Community Centre.

Option 2

Award the proposal to Cimco Refrigeration and increase the 2023 budget to include the extra expense of the Carbon Dioxide refrigeration system.

Linkage to the Community-Based Strategic Plan

This report represents the following strategic priorities:

- Engage and communicate openly with the community;

- Ensure sound, innovative, transparent financial planning;
- Develop long-term land and community plans that are balanced and adaptive;
- Protect, preserve and promote our healthy natural environment;
- Work in collaborative partnerships; and

Approvals

Prepared by: **Scott MacKinnon,**
Superintendent of Parks and Facilities

Financial Implications
Reviewed by: **Patricia Allen**
Director of Finance/Treasurer

Reviewed by: **Bryan Brown,**
Chief Administrative Officer

References

- Request for Proposal 2022-02 Supply and Installation of an Ice Plant in the Lake of Bays Community Centre.
- Trak International Proposal
- Trak International presentation
- Cimco Refrigeration Proposal
- Black and McDonald Refrigeration Proposal