

Date: 2021-03-16

Subject: **Zero Carbon Retrofit of South Fletcher's Sportsplex – Budget Amendment and Request to Begin Procurement**

Contact: **Chun Liang, Supervisor – Energy Management**

Report Number: Public Works & Engineering-2021-370

Recommendations:

Based on the following report, it is recommended:

1. That the report from Chun Liang, Supervisor, Energy Management, to the Committee of Council meeting of March 31 2021, re: Zero Carbon Retrofit of South Fletcher's Sportsplex – Budget Amendment and Request to Begin Procurement be received; and
2. That a budget amendment be approved and a new capital project be established in the amount of \$1,420,000 for detail design services of the Zero Carbon Retrofit of South Fletcher's Sportsplex, with funding of \$1,420,000 transferred from Reserve #30-Energy Efficiencies to this capital project; and
3. That the Purchasing Agent be authorized to commence the procurement for the **Zero Carbon Retrofit of South Fletcher's Sportsplex**
4. That staff be authorized to enter into a contract for detailed design services with subsequent phases for construction and measurement and verification subject to Council approval.

Overview:

- **In 2019, the City committed to reduce corporate facility GHG emissions by 80% from 2010 levels by 2050; 30% from 2010 levels by 2030; and 20% from 2010 levels by 2024.**
- **In 2020, the City of Brampton completed the City's first carbon neutral feasibility study for the South Fletcher's Sportsplex which identified various options to reach 50-100% in GHG emissions reductions for the facility**

- **This report seeks Council approval to commence procurement to complete work at South Fletcher's in order to make it the City's first zero carbon recreation facility.**

Background:

In 2019, the City of Brampton released the Energy & Emissions Management Plan 2019-2024: A Zero Carbon Transition, which aims to achieve a zero carbon transition for the City's new and existing corporate facilities. This plan outlines three key objectives: to minimize emissions intensity, to minimize energy intensity, and to maximize cost recovery.

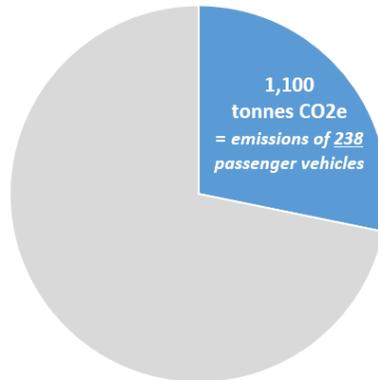
The City of Brampton is committed to leading by example, and has adopted the provincial and federal greenhouse gas (GHG) emission reduction targets of 30% and 80% for 2030 and 2050, respectively (using a 2010 baseline) for all City owned and managed facilities. The City has set an interim target of 20% GHG emissions reduction for all City owned and managed facilities by 2024.

The City has also demonstrated its commitment towards improving energy efficiency and reducing GHG emissions in Brampton through:

- City Council's Climate Emergency declaration, which included a target to reduce GHGs generated in Brampton by 80 percent by 2050.
- City's Community Energy and Emission Reduction Plan (CEERP), which includes community wide energy efficiency and GHG emission reduction targets.
- City's membership in the Global Covenant of Mayors for Climate and Energy, a first-of-its-kind global alliance of more than 9,200 cities leading the fight against climate change.
- the City's participation in the Peel Climate Change Partnership, a collaboration between the Region of Peel and local municipalities that work together on projects and to secure funding to help reduce GHG emissions and adapt to climate change across Peel.
- The Brampton Grow Green Environmental Master Plan, which recommends the development of energy conservation and GHG emission reduction strategies for City facilities.

In order to achieve its environment sustainability and climate change targets, the City must reduce GHG emissions from the largest GHG emitting City-owned facilities.

Recreational facilities account for nearly 50 percent of the City's annual GHG emissions. South Fletcher's Sportsplex has been identified as one of the City's top five GHG emitters. This facility is also one of the City's largest multi-use recreational facilities at about 173,000 ft² and most of the major building systems are at the end of their useful life. As such, the South Fletcher's Sportsplex provides an opportunity to undertake retrofit options that will transform the City asset into a zero carbon facility.



■ South Fletchers Sports Complex ■ 9 Recreation Facilities

Figure 1 - Top 10 Recreational Facilities >15 years old

Current Situation:

A Carbon Neutral Study was recently completed by a consultant, to identify options for GHG reductions, and energy and life cycle savings for South Fletcher’s Sportsplex.

The preferred two options from this study include:

- 1) Option 1: an 80% reduction in GHG emissions from energy efficiency measures, and carbon offsets to reach 100% reduction; and
- 2) Option 2: a 100% reduction in GHG emissions.

The major measures included within each of these options are summarized in the table below

Measure	Option 1	Option 2
Battery Energy Storage	✓	✓
Ground Source Heating and Cooling	*Low-Temp	**High-Temp
Automation and Control	✓	✓
High Efficiency Ice Plant with Heat Recovery	✓	✓
Solar PV – Rooftop		✓
Carbon Offsets	✓	

The estimated costs for implementing Options 1 and 2 (**not including design**) are summarized in the table below:

	Option 1	Option 2
Capital Costs (M)	\$12.97*	\$20.84
Annual Utility Savings (M)	\$0.50	\$0.50
Life Cycle Cost Savings (M)	\$3.08	-\$3.49
Cost/ GHG Reduction	\$7,501	\$12,091

*Note: The \$12.97M capital costs includes an additional \$100k for the costs of carbon offsets. This also affects the cost per GHG reduction.

At this time, Energy Management staff recommend that the City retain an Energy Services Company (ESCO) as the ESCo can provide a guarantee on the energy cost savings and emissions target delivered through a performance contract. Pricing will be requested for detailed design, construction and measurement and verification for a 100% GHG reduction project; however, the final costs for construction will be confirmed by the ESCo after completion of the detailed design. Staff will report back to Council with the final implementation costs for the project.

Programming Considerations

Staff will also consider the implications of each of the options in regards to the operation of the facility due to COVID-19, impacts to recreation programming, life cycle age of the equipment to be replaced, payback periods, as well as work associated with the proposed Community Youth Hub.

Carbon Neutral Design and Guarantee

The proposed delivery method includes a performance guarantee for meeting the energy and emissions targets to ensure success of the project. The guarantee is important in ensuring that the ESCo meets the target specified. This approach has been used by other municipalities and by the federal government.

The successful ESCo will undertake the project in two phases. The first phase, to be completed in 2021, is the **Detailed Design** for which the ESCo will provide the City with detailed drawings and specifications for the selected GHG and energy cost reduction measures to complete the work required to make South Fletcher's a zero carbon recreational facility. Subsequent to Council approval to proceed, construction will be planned for 2022 with the same ESCo who was awarded the detailed design in order to maintain the performance guarantee. This will be followed by Measurement & Verification.

Project Benefits

This project has the following benefits in addition to GHG reductions and energy cost savings:

Operational

- Reduced equipment failure due to major building systems being at the end of their useful life
- Lifecycle cost savings for maintenance of building systems

Community

- Broader education and awareness regarding zero carbon technologies
- Improved thermal comfort for facility users
- Community pride in one of the first carbon neutral recreation centres

Corporate Implications:

Purchasing Comments

A public procurement process will be conducted and the submissions shall be evaluated in accordance with the published evaluation process within the bid document. The document will request submissions and pricing for the full scope of the project, being detailed design, construction and measurement and verification; however, provisions will be included to allow for a decision point after award of the detailed design phase where approval by Council will be required to proceed with the subsequent phases for construction and measurement and verification. Purchase approval shall be obtained in accordance with the Purchasing By-law.

All communication with Bidders involved in the procurement must occur formally, through the contact person identified in the Bid Document.

Financial Implications:

Subject to Council approval of the budget amendment, a new Capital Project will need to be established for detail design services of the Zero Carbon Retrofit of South Fletcher's Sportsplex, with funding of \$1,420,000 transferred from Reserve #30-Energy Efficiencies, which has sufficient funding as at December 31, 2020.

Subsequent phases for Zero Carbon Retrofit of South Fletcher's Sportsplex, will require additional funding, which will be confirmed by the ESCo after completion of the detailed design and staff will report back to Council on the final construction, and measurement and verification costs for the project, subject to council approval.

Based on the initial feasibility study, staff expects annual utility costs savings of approx. \$500,000 as a result of this initiative, and if construction is approved, the South Fletcher Capital projects, listed in table below, which council has Approved in Principal in the amount of \$4,245,000 for year 2022 may be incorporated into this initiative.

South Fletchers Capital Program-Approved In Principal			Forecast	
Project Id	Activity Id	Activity Description	Year	Budget
201650	016	Solar Photovoltaic Panels Addition	2022	1,598,000
201650	048	Replacement of Heat Pumps	2022	1,041,000
201650	049	Building Automation System (BAS) Replacement	2022	296,000
201650	051	Replacement of Refrigeration Plant Equipment	2022	1,059,000
201650	052	Replacement of Mechanical Equipment	2022	251,000
Total				\$ 4,245,000

Legal Implications

Given the anticipated monetary expenditure with a third party Vendor, and following the Purchasing By-Law (19-2018), Procurement should be engaged to provide a full, open and transparent competitive bid process. Legal will assist to review and provide input for any third party engagement agreement to ensure that the City is protected in accordance with industry practices.

Other Implications:

There are no other implications resulting from the approval of the recommendations of this report.

Term of Council Priorities:

The South Fletcher’s Sportsplex Zero Carbon Retrofit project directly fulfills the “Brampton is a Green City” Term of Council Direction, in particular Council Priority “Lead Environmental Innovation” that includes the Key Initiative to “Implement environmental and energy efficiency standards across City facilities”.

This project also supports the Term of Council Direction “Brampton is a Well-Run City”, particularly the Council Priorities for the “Stewardship of Assets and Services” and “Service Excellence”.

Conclusion:

An investment in the zero carbon retrofit of South Fletcher’s Sportsplex will further the City’s role as a leader in creating sustainable facilities, and as champion of energy conservation and GHG emissions reductions.

It is also possible that the South Fletcher’s Sportsplex may be recognized as the country’s and City’s first zero carbon recreational facility retrofit, under the CaGBC’s zero carbon performance standard. This would bring wider recognition to the City as a whole confirming Brampton’s commitment to reducing the effects of climate change.

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Attachments:

- South Fletcher’s Carbon Neutral Feasibility Study