



City of  
**Peterborough**

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**To:** **Members of the General Committee**

**From:** **Cynthia Fletcher**  
**Commissioner of Infrastructure and Planning Services**

**Meeting Date:** **April 14, 2020**

**Subject:** **Report IPSIM20-009**  
**Centennial Fountain Operation**

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## **Purpose**

A report to provide information related to the energy consumption and associated greenhouse gas emissions from the operation of the Centennial Fountain in Little Lake and to recommend an operational schedule for 2020.

## **Recommendations**

That Council approve the recommendations outlined in Report IPSIM20-009, dated April 14, 2020, of the Commissioner of Infrastructure and Planning Services, as follows:

- a) That staff adjust the hours of operation of the Centennial Fountain by 2 hours per day, reducing to 12 from 14 hours; and
- b) That savings from the reduction of daily operation of the fountain be directed to the Climate Change Reserve at the end of 2020.

## **Budget Implication**

There will be a projected cost savings of \$11,400 in 2020.

## Background

The Centennial Fountain was installed in 1967 and historically operates for 22 weeks starting on the Victoria Day weekend. Daily operation of the pump has been for 14 hours per day between 10:00 am and midnight. Staff is proposing to reduce operation to 12 hours per day and run the fountain from 11:00 am – 11:00 pm.

The Centennial Fountain uses an electric pump. Some electricity in Ontario is generated through the burning of fossil fuels (natural gas) that results in greenhouse gas (GHG) emissions. Reducing the operating hours of the pump would result in less electricity used and an associated decrease in related GHG emissions.

## Council Motion

As part of approving the 2020 Budget, Council passed a motion related to the budget provision for the Centennial Fountain in Little Lake in the amount of \$108,454 as shown on page 121 of the 2020 Draft Budget Highlights Book. The motion states:

“That the Centennial Fountain energy consumption be modeled with the goal of keeping the carbon footprint as low as reasonably achievable while maximizing the in-service days between the start of the Victoria Day weekend to the end of Thanksgiving weekend; and

That a report on the possible variations, including reducing the daily running time, be brought back to Council prior to the first of May.”

## Operational Limitations

There are fixed seasonal start-up, shutdown and maintenance costs of approximately \$20,000. In order to maximize the number of in-service days, any potential changes in operating schedule should focus on reducing the number of hours of operation per day. Any reduction in hours per day should result in a single block of operation (i.e. no split-shifts) to minimize additional wear on the pumping equipment, and in recognition that a significant electrical draw is required to start the pump.

## Impact of Modified Operations

The estimated annual energy consumption, GHG emissions and costs are summarized below.

Hours per day	Energy (kWh)	GHG (tCO <sub>2</sub> e)	Cost (\$1000)
14	~447,000	8.0	~80
13	~415,000	7.4	~74
12	~383,000	6.8	~69

Therefore, a reduction in one hour of operations per day, approximately equates to:

- 32,000 kWh
- 0.6 tonnes of CO<sub>2</sub> equivalent
- \$5,700 of savings per year

### **Future considerations**

A review of the pump could be performed to determine if there is the opportunity to modify or replace the pump to achieve more efficient operation. However, the application of the pump does not lend itself to significantly more efficient pumping technologies.

For example, the pump operates at a fixed speed to achieve a predetermined height of water so a common energy efficiency measure such as a variable-frequency drive (VFD), which adjusts the speed of the pump motor in variable flow applications, would not be applicable.

Another option to be considered is carbon offsets to mitigate the GHG impact of operating the fountain. The use of carbon offsets would need to be part of a broader GHG mitigation initiative to be considered on a more holistic basis corporate-wide and is not recommended at this time.

### **Climate Adaption or Mitigation Impact**

The reduced operating schedule for the Centennial Fountain is projected to mitigate 0.12 tonnes of CO<sub>2</sub> equivalent in 2020.

## **Summary**

The operation of the Centennial Fountain consumes electricity and indirectly creates GHG emissions as a result. The energy use and associated GHG emissions is directly proportional to the operating time of the fountain. Reducing the operating time of the fountain by 2 hours per day results in 64,000 kWh, 0.12 tonnes of CO<sub>2</sub> equivalent and \$11,400 of savings in 2020. It is recommended the financial savings be directed to the to the Climate Change Reserve at the end of 2020.

Submitted by,

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