



## Corporation of the Township of Brock

### Staff Report to the Mayor and Members of Council

**From:** Wayne Ward  
**Position:** Director Parks, Recreation and Facilities and Acting Director Public Works  
**Title / Subject:** Real Ice Review  
**Date of Report:** June 5, 2024  
**Date of Meeting:** June 24, 2024  
**Report No:** 2024-PRF-016

#### 1.0 Issue / Origin

Report 2022-PRF-017 Arena Cost Savings was brought to Committee of the Whole on September 9, 2022 to report on the installation and evaluation of the Real Ice system.

#### 2.0 Background

The Real Ice system is a cold water flood system that uses pressure to eliminate microbubbles in water to create the same affect as heating water to create ice.

Due to the date of the original report to Committee the installation was delayed as the Foster Hewitt Memorial Community Centre ice had already been installed and it was recommended that the ice be removed, the Real Ice system be installed, and the ice be reinstalled with the new system. Staff determined this was not a viable recommendation as it would have additional costs for water, hydro, paint supplies and staff time.

The installation was postponed until August 2023 for it to be in place for the 2023/2024 ice season.

#### 3.0 Analysis

The Real Ice system was installed and found to be relatively unsupported by Elexicon Energy who provided little instruction or guidance. Staff communicated with ice technicians at the Uxbridge Arena and Recreation Centre for recommendations and suggestions as they had installed the system one year previous and had a year of

experience. Upon further examination of the schematic drawings for the installation of the system it was found that this unit required a mixing valve to mix hot and cold water and piping of the same size on the input sides. No mixing valve was installed and the service side piping was of different sizes. When this was noted to the representative it was dismissed and suggested that the different size service pipes acted as a mixing valve.

Staff found building the ice surface was very similar to using hot water with the exception of slightly longer time frames to freeze. This may have been due to the unusually warm September weather.

Once built the ice surface was found to be very difficult to regulate. The recommended system components for ice building and maintenance include the use of an Infrared (IR) temperature system to provide actual ice surface temperatures along with the ice pad surface temperatures to balance the overall temperatures. However, the IR unit at Foster Hewitt Memorial Community Centre is not operational and requires replacement which was not included in the 2024 Capital Budget submissions due to other projects taking priority. The lack of an operational IR unit may have contributed to the issues with the Real Ice system but this cannot be confirmed.

With this lack of actual surface temperature readings to allow staff to regulate the ice and pad temperatures there were issues of the ice turning grey in color, becoming too hard to properly maintain and with the recommendations with the Real Ice system to raise the pad temperature, loss of white painted ice in some corner areas was noted.

During heavy use periods and ice maintenance days staff found the ice surface required additional time to provide a smooth and safe ice surface that was free of large ice cuts from high usage. Staff also found the cold water floods did not migrate into the corners as well as hot water floods thus not allowing the corners to be a free of cuts and chips. This additional shaving of the ice surface required additional blade changes and sharpening of the blades as they became dull more quickly and did not provide the smooth surfaces needed by user groups.

With casual staff operating through all three arena locations having different methods of operation at one location can be difficult for consistency of the ice surface.

User group feedback was mixed with no consistency between positive and negative.

#### **4.0 Related Policies / Procedures**

N/A

#### **5.0 Financial / Budget Assessment**

When the agreement was signed with Elexicon Energy the agreement allowed for a free one year trial period, with the decision to either keep or remove the system to be confirmed by September 2024.

In order to ensure funding was in place to purchase the system this was included in the 2024 Capital Budget requests that were approved by Council. The total cost of the system is \$45,000.

## 5.1 Asset Management

This unit contains no moving parts and as such should last forever with no required replacement date noted. However, there is no confirmed evidence of how hard water may affect the system or if water scaling could reduce the effectiveness of the system.

## 6.0 Climate Change Impacts

There is little evidence from the electrical and natural gas usage to indicate that any positive environmental impacts can be gained from this system. Below is a chart outlining the billed consumption for both Elexicon and Enbridge for the ice seasons of 2017/2018, 2018/2019 and 2023/2024. The seasons of 2019/2020, 2020/2021, 2021/2022 and 2022/2023 were not included as there was reduced usage during these time frames.

Gas - Enbridge (cubic metres)					
	2017-2018	2018-2019	2 year average (2017-18, 2018-19)	2023-2024	Increase/(Decrease)
Sept - Oct	476	945	711	38	(673)
Oct - Nov	2,751	3,938	3,345	3,797	453
Nov - Dec	4,359	4,123	4,241	3,993	(248)
Dec - Jan	6,249	6,081	6,165	5,590	(575)
Jan - Feb	5,633	5,863	5,748	4,990	(758)
Feb - Mar	2,679	6,924	4,802	4,333	(469)
Mar - Apr	4,040	3,780	3,910	6,740	2,830
Total	25,711	30,709	28,210	29,443	1,233
Hydro - Elexicon (kilowatt hours)					
	2017-2018	2018-2019	2 year average (2017-18, 2018-19)	2023-2024	Increase/(Decrease)
Sept - Oct	58,406	52,356	55,381	51,055	(4,326)
Oct - Nov	47,957	44,605	46,281	44,437	(1,844)
Nov - Dec	41,666	42,334	42,000	43,739	1,739
Dec - Jan	42,091	36,719	39,405	42,008	2,603
Jan - Feb	37,950	34,399	36,175	38,982	2,808
Feb - Mar	37,893	40,973	39,433	44,811	5,378
Total	265,963	251,386	258,675	265,032	6,358

During this trial period Elexicon Energy and the Township also entered into an agreement that would see Elexicon Energy provide monitoring equipment on the ice systems. This was installed at the same time as the Real Ice system and was abandoned by Elexicon Energy with the cancellation of the agreement as of December 2023 and no data provided.

## **7.0 Communications**

This report is being published on a public agenda.

## **8.0 Conclusion**

Staff feel that the Real Ice system does not meet the needs or provide the desired outcomes for continuation of the program. There is no confirmed data to show this system has provided any cost savings or environmental savings. There may be more costs in using this system due to more frequent resurfacer blade replacements and sharpening and possibly additional wear and tear on the ice resurfacer unit.

Staff are more confident in their abilities to provide smooth safe ice through traditional methods of hot water floods and ice maintenance than with the Real Ice system.

Staff suggest that investing in a new IR unit to provide better temperature readings will have a better outcome of the ice surface. Redirecting the previously approved funding for the Real Ice System towards the replacement of the IR system plus additional funding to cover the cost difference would be more beneficial towards the creation and maintenance of the ice surface.

## **9.0 Recommendation**

BE IT RESOLVED THAT Committee receive report 2024-PRF-016, and

THAT staff be directed to arrange for the removal and return of the Real Ice system and associated equipment, save any plumbing installations, to Elexicon Energy, and

That Council permit the reassignment of the previously approved capital funds for this system to be held for the 2025 Capital budget deliberations for the replacement of the Infrared system at the Foster Hewitt Memorial Community Centre, and

That this report be ratified at the Council meeting of June 24, 2024.