

Report to Council

Report Title: Spring Ice and Permafrost

Prepared By: Eric McDougall, Parks, Recreation and Facilities Supervisor

Department: Parks and Recreation

Date: December 17, 2019

Report Number: REC2019-28

File Number: C11REC

Attachments:

Recommendation:

That the Council of the Municipality of Brockton hereby receives Report Number REC2019-28 – Spring Ice and Permafrost prepared by Eric McDougall, Parks, Recreation and Facilities Supervisor and in doing so directs staff to proceed with Option _____ as outlined.

Report:

Background:

During an education workshop hosted through Ontario Recreation Facilities Association (ORFA) the topic of permafrost was discussed and the effects that it potentially has on facilities that host extended ice seasons. This information on permafrost is being presented to Council to seek direction in regards to the extended ice season at the Walkerton Community Centre (WCC). Since approximately 2008 the WCC has hosted the Quick Feet Program that extends ice usage until the Victoria Day weekend (typically the 3rd week in May). Prior to 2008 the ice season ranged from the second or third week in August until March 31st.

Analysis:

In new construction an additional under floor loop is installed that is a warming loop to aid in controlling frost levels under the ice pad to allow for a longer ice season. The WCC was not designed with this additional loop and under those conditions ORFA recommends a 2:1 ratio (for every 2 months of ice there should be 1 month of thaw). This ensures that the floor has enough time to warm up and drive down the frost levels preventing potential heaving of the concrete floor. The ice is currently in for 9 months with 3 months of thaw (3:1 ratio) to accommodate the spring Quick Feet Program. Keeping the ice in for the extended season creates the potential hazard of permafrost heaving the arena floor and could result in the total failure of the ice system and could result in the complete replacement of the floor and brine loops. Both ORFA and Black and MacDonald recommend that we limit our ice season to allow for more thaw time. They also recommend testing to determine the current frost levels.

Currently the spring ice program is relatively cost neutral as provided in the attached summary, however there are benefits in continuing to offer this type of programming in our community with the participants visiting our local businesses and residents not having to go to other communities for this type of program.

Due to the scope of the risk associated with this new knowledge we felt it pertinent to bring forward and present Council with the following options:

Option 1:

Continue with the spring ice program understanding that there is an inherit risk that the floor could potentially heave.

Option 2:

Discontinue the spring ice program and give notice to the ice users.

Option 3:

Discontinue the spring ice program for 2020 and test to determine the depth of permafrost and the level of risk associated with the extending the season in future years.

Option 4:

Continue the program and test for permafrost after the spring ice is removed understanding that there is an inherit risk that the floor could potentially heave.

Sustainability Checklist:

What aspect of the Brockton Sustainable Strategic Plan does the content/recommendations in this report help advance?

- | | |
|---|-----|
| • Do the recommendations help move the Municipality closer to its Vision? | N/A |
| • Do the recommendations contribute to achieving Cultural Vibrancy? | N/A |
| • Do the recommendations contribute to achieving Economic Prosperity? | N/A |
| • Do the recommendations contribute to Environmental Integrity? | N/A |
| • Do the recommendations contribute to the Social Equity? | N/A |

Financial Impacts/Source of Funding:

- Do the recommendations represent a sound financial investment from a sustainability perspective?
N/A

There is a risk of the floor potentially heaving due to permafrost with repair costs that could exceed \$500,000.

The spring ice currently generates revenues of approximately \$31,000 with costs to operate it during the extended season of approximately \$29,000 for utilities and staffing. Wear and shortened life span of the equipment due to the extended ice season has not been calculated in the costs.

Reviewed By:

A handwritten signature in black ink, appearing to read 'Trish Serratore', with a stylized, looping flourish at the end.

Trish Serratore, Chief Financial Officer

Respectfully Submitted by:

A handwritten signature in black ink, appearing to read 'Eric McDougall', with a long, horizontal, slightly wavy line extending from the end.

Eric McDougall, Parks, Recreation and Facilities Supervisor

Reviewed By:

A handwritten signature in black ink, appearing to read 'Sonya Watson', with a long, horizontal, slightly wavy line extending from the end.

Sonya Watson, Chief Administrative Officer