

Recommendation:

That the Recreation Facilities-2024-05 report, dated October 1st, 2024, regarding Douro CC Ice Surface Floor Replacement be received and that Council directs staff to apply for the Community Sport and Recreation Infrastructure Fund for the purpose of replacing the Douro Community Centre ice surface floor and further provides direction on the possibility of in-floor heat as part of the project.

Overview:

The ice surface floor at the Douro Community Centre was installed in 1980 and is therefore 44 years old and has now exceeded the industry standard lifespan of a 30-40 year life expectancy.

The Douro Community Centre has been the central hub for recreation and events in our community. However, as the ice surface floor has surpassed its designed lifespan, issues have begun to emerge, such as increased maintenance/repair costs. In the past 4 years the surface has had a few leaks which indicates that the internal poly piping in the concrete is starting to fail. These leaks can be difficult to trace as there may not be signs of a leak on the surface or if there are signs of the leak, they may not be in the area in which the failure is located.

There are associated risks with the continued use of the current floor such as increased costs and a potential facility closure. In the event of an emergency repair during the season, the Township could be forced to close the facility, impacting the community programs and revenues.

The replacement of the ice surface floor comes with considerable costs. Staff have received a quote from a company who completed a similar project for the City of Peterborough in 2023, 2024 and is currently working with Selwyn as well. The initial estimate is \$2,153,000. A project like this takes approximately 5 months to complete. The ideal timeframe with as little disruptions as possible to service would be from April to September.

Optional Underfloor Heating

The above estimate includes an option to add underfloor heating for an additional \$250k for a total of \$2.4 million. Underfloor heating is typically used in community centres that have only 4 months or less of down time between seasons; this is to allow for the frost that accumulates beneath the concrete slab to release. It takes about 4 months to make sure all the frost is out of the ground without this system. Our current operations allow for us to have approximately 5 months of down time between seasons.

At this time, given the demand and the current state of the facility it would not be advisable for the building to operate with 4 or less months of down time. The building would need other upgrades to improve energy efficiency to be able to operate in the warmer months and maintain quality ice.

Underfloor heating in an ice surface concrete slab can provide several key benefits, especially in terms of ice quality, energy efficiency, and structural integrity. Here's how:

1. Prevention of Frost Heave

- Frost heave occurs when freezing temperatures penetrate the ground beneath the ice slab, causing the moisture in the ground to freeze, expand, and push the concrete upward. This can lead to cracks and damage to the slab.
- Underfloor heating prevents the ground below the ice from freezing by maintaining a consistent, slightly elevated temperature, thereby avoiding frost heave and structural issues.

2. Improved Ice Quality

- By stabilizing the temperature of the concrete slab, underfloor heating ensures a more uniform and predictable ice surface. Without it, the cold from the ice can penetrate unevenly, potentially causing areas of the ice to be too soft or hard, which affects the overall ice quality.
- Consistent slab temperature helps maintain an ideal surface for skating, providing a better experience for players and reducing maintenance efforts.

3. Energy Efficiency

- With underfloor heating, the system uses less energy to maintain the ice surface and protect the slab compared to dealing with slab degradation or inefficient freezing cycles.
- It can complement the refrigeration system, helping maintain the temperature balance across the slab, which can reduce overall energy consumption.

4. Prolonged Slab Life

- Consistent, controlled temperatures help reduce thermal stress on the concrete, minimizing cracks or other structural damage over time. This can extend the life of the slab and reduce the need for expensive repairs or replacements.

5. Enhanced Control of Humidity and Condensation

- Heating beneath the slab can help reduce condensation that might occur due to the temperature differential between the ice surface and the subsoil. This can prevent excess moisture buildup and protect the arena's infrastructure from mold and corrosion.

6. Improved Comfort for Spectators

- While not a primary purpose, underfloor heating can contribute to a more comfortable environment for spectators seated close to the ice, by slightly warming the surrounding area and reducing cold radiating from the slab.

7. Reduced Maintenance Costs

- Preventing frost heave and maintaining a stable environment below the ice reduces maintenance costs over time. Fixing damage caused by frost heave can be expensive and disruptive, so avoiding it with underfloor heating is a cost-effective solution.

Overall, underfloor heating in an ice arena's concrete slab helps maintain a stable, high-quality ice surface while protecting the structure and improving energy efficiencies. These are the summarized benefits of underfloor heating. While some of the benefits are straight forward, staff are continuing to research the energy efficiencies would look like overall.

Although there are positives to installing underfloor heating, this would be an added component from what currently exists and there could be future risks of failure and additional maintenance/repair cost could be associated with this option.

New Versus Retrofit

The future of the Douro Community Center ultimately has two options, retrofit the existing facility or build a new facility. A new arena is now estimated at \$20 - \$25 million dollars to build. Given the pending construction of the new Joint Public Works and Fire Hall facility, the Township would not have the debt capacity, nor the reserves to take on an additional project such as a new arena. Therefore, retrofitting the arena is the most prudent option for the Douro Community Centre so long as it is Council's intention to continue to operate this facility going forward.

There is currently a study being conducted that will outline the potential improvements needed at the DCC to improve efficiency and keep the facility operating for the long term.

Conclusion:

The Douro Community Centre's ice surface is a vital asset to the township, and its replacement is now a pressing necessity. The aging infrastructure could fail at any time, potentially leading to the closure of the facility for an extended period, which would disrupt community activities. This project would extend the life of the facility.

Financial Impact:

The total cost of the project is estimated to be \$2.2 to \$2.4 million depending on whether underfloor heating is added.

Staff are seeking approval on this project ahead of the 2025 Budget because there is a grant program currently being offered by the Ontario Ministry of Tourism, Culture, and Sport call Community Sport and Recreation Infrastructure Fund. The program will provide funding for 50% of the project with a maximum project amount of \$2 million. However, there is an opportunity for Townships under 20,000 population to apply for special consideration and receive up to 70% funding which would total \$1.4 million.

The Township's Asset Management Plan highlights the shortfall in funding that has been allocated to facilities. Being able to leverage funding from upper levels of government is a key strategy to closing the infrastructure deficit.

The total municipal cost of the project if the grant application is successful for the full amount of \$1.4 million would be \$800k - \$1 million. This will be funded through reserves of which the Township has \$7.95 million as of December 31, 2023.



Service Modernization and Innovation

Modernizing, refining and innovating services for residents is essential to effectively meet the needs of our community, enhance our operational efficiency, and ensure we remain adaptable in a rapidly changing world.



Business Attraction, Expansion, and Retention

Business attraction, expansion, and retention is vital for the economic health and sustainability of our Township, such as job creation, tax revenue, investing in innovation, maintaining our quality of life, and supporting community stability.



Infrastructure Renewal

Infrastructure renewal is a critical investment for our Township as it will ensure our adherence to health and safety, economic development, investment attraction, environmental sustainability, quality of life, public confidence, and regional competitiveness.

Report Approval Details

Document Title:	Douro CC Ice Surface Floor Replacement.docx
Attachments:	- Douro CC Slab Replacement Budgets 9.24.24.pdf - DMH Support Letter.docx - Letter of Support - DCC Floor Replacement.docx
Final Approval Date:	Sep 24, 2024

This report and all of its attachments were approved and signed as outlined below:

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