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Town of Aurora

## Committee of the Whole Report

No. OPS24-011

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**Subject:** Outdoor Artificial Ice Rinks

**Prepared by:** Matthew Volpintesta, Manager, Parks and Fleet

**Department:** Operational Services

**Date:** May 7, 2024

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### Recommendation

1. That Report No. OPS24-011 be received for information; and
2. That the conditional approval be lifted for \$50,000 in budget authority for the Artificial Rink capital project; and
3. That staff procure a consultant to prepare a business case for an artificial roof covered ice rink, including cost-estimate, feasibility studies and design concepts.

### Executive Summary

Outdoor artificial ice rinks (OAIRs) provide opportunities to extend winter recreational activities and often become enjoyable outdoor community spaces with cross-seasonal functionality. As seasonal weather continues to become less predictable, recreational space providers are creating solutions that range from modified artificial ice hockey rinks, some covered by roof, to non-covered skating trails. Previewed within this report, are options presented by staff detailing future considerations to weigh when deliberating project goals for an outdoor artificial ice rink, including features, design, budget, potential locations, and cross-seasonal functionality.

- Natural outdoor ice rinks in Aurora have been successful however, weather and climate impacts continue to shorten the operational season.
- Outdoor ice rinks identified as a priority in Aurora's Parks and Recreation Master Plan.

- There are several key elements which can be incorporated when building a municipally owned and operated ice rink in Ontario.
- Additional considerations when designing and planning an outdoor artificial ice rink or skating trail project.
- It is the opinion of staff that a covered refrigerated outdoor ice rink is the best return on investment given the numerous operational advantages.
- List of possible locations for outdoor artificial ice rinks in Aurora.

## **Background**

**Natural outdoor ice rinks in Aurora have been successful; however, weather and climate impacts continue to shorten the operational season.**

In 2024, the Town of Aurora constructed six temporary rink locations. As recent weather patterns have become less optimal for natural rinks formed by rolling snow and hardening with thin layers of ice build up, all Town operated outdoor rinks have now transitioned to plastic liners filled with water and left to naturally freeze. Due to an unusually mild winter season in 2023/2024, Aurora ice-rinks were opened the first week of January for an average of 29 calendar days, and all were closed for the season before March break (March 4).

As localized weather seemingly becomes warmer year after year, it's less likely that naturally freezing outdoor rinks will be sufficient in providing a successful winter skating season, questioning the return on investment and prompting a solution to provide residents of Aurora with opportunities for ice skating during winter months.

### **Outdoor ice rinks identified as a priority in Aurora's Parks and Recreation Master Plan.**

Outdoor ice rinks are identified as a priority in Aurora's Parks and Recreation Master Plan (PRMP). Section 7.14 of the PRMP specific to outdoor skating rinks outlines that during the pandemic, additional outdoor rinks were a popular request in Aurora. As per the PRMP, more than 22 per cent of Aurora households participated in outdoor ice sports or skating since 2019 and 67 per cent identified outdoor ice rinks as a high priority for investment. The PRMP goes on to recommend that in addition to a new artificial outdoor ice rink, the Town continue to maintain up to four municipally operated natural outdoor ice skating rinks not including Aurora Town Square volunteer-led rinks. Further, the PRMP recommends the Town prepare a business plan to consider the costs and benefits of establishing a refrigerated boarded ice rink to replace one or more natural rinks. The PRMP goes on to reference that the viability of natural rinks continues to be impacted by temperature and climate change, and that refrigerated outdoor rinks

offer a safer and more reliable skating surface and are available for an extended season, three to four months (approximately 100-120 days) compared to about a one-month season (approximately 20-30 days) for natural rinks.

**There are several key elements which can be incorporated when building a municipally owned and operated ice rink in Ontario.**

There are great examples of successful OAIRs across Ontario, some roofed, with varieties of configurations as ice-hockey rinks and skating trails, ranging in scale of additional amenities based on available space, budget, and site characteristics. The following section will provide some detail and design aspects which should be considered, along with optional amenities which compliment site programming.

Site size and location:

Determining appropriate layout or configuration is specific to a site and determined on case-by-case basis. Design must consider the overall footprint to determine layout, whether ice hockey or skating trail, and be inclusive of storage for an ice resurfacing machine, refrigeration plant, and changing areas with seating as a minimum service level, with options for pavilion, heated change areas, skate rental or vendor buildings. Servicing, including electrical and water infrastructure are a necessity on site.

Roofed cover:

Open air roofed covered ice hockey facilities range in design features with the main benefit of preventing precipitation from falling onto the ice surfaces, such as wet snow, rain, or sleet. In the warmer months of December and March, when daylight is the longest, having the ice protected from the sun offers extended operational seasons up to 30 days. Uncovered facilities require additional maintenance machines such as tractors for heavy snow clearing. Cost effective design options may consider basic steel beam and metal roofing, which are sometimes less aesthetically attractive (Attachment 1). Wood beam structures are far more sustainable and aesthetically attractive but are often more costly (Attachment 3).

Cross-seasonal functionality during summer months often sees underlay of tennis, basketball, or pickleball courts, including event hosting such as farmers markets, beer gardens during events, and private facility rentals. When looking at covered options, events such as Aurora's Ribfest, farmers market, and recreational sport court needs should be considered.

**Parking:**

Research indicates that smaller skating trails demand the least amount of parking stalls, particularly if situated in a densely populated area, with full size ice-hockey pads requiring the most parking stalls, similar to that of an arena. This should be considered when reviewing spatial planning.

**Refrigeration:**

A dedicated refrigeration plant will be required including an ice-resurfacing machine and housing. Even if located near an existing facility like a Town-owned arena, the technical nature of the facility would require a complete replacement, therefore a dedicated building is a necessary component. Ammonia systems are currently being phased out to more environmentally conscious solutions, such as glycol-based alternatives.

**Additional Design Elements:**

Consideration should be given for additional amenities, such as event pavilions, skate rental, and food vending, including cross-seasonal functionality such as sport court underlay, and other amenities for event hosting during warmer months.

Synthetic ice, configured with attachable tiles made of a hard plastic surface to simulate ice do not offer the same skating experience as true ice, and therefore are not being recommended by staff as an alternative. Staff also investigated temporary portable layout refrigeration systems.

**Analysis****Additional considerations when designing and planning an outdoor artificial ice rink or skating trail project.**

Operational cost is a key consideration depending on program size and configuration. Different models of daily maintenance have been observed, with skating trails requiring only daily or twice daily flooding, and ice-hockey pads more frequent with hourly flooding. Typical daily tasks to be determined per site with operations staff and supplier for standard ice keeping to maintain quality, minimize hazards on ice and maintain equipment. This would include visual inspection of facility, ice depth measurements, edging or chipping manually, scraping and flooding the ice. As mentioned, weather conditions and usage greatly impact ice maintenance. Regular refrigeration readings are also performed every two hours when in operation.

Budget considerations vary significantly depending on design, whether roofed, and what additional amenities can be supported. Looking at examples within Ontario, the most recent project estimate for a full-sized professional ice-hockey pad, including housing for an ice-resurfacing machine, and changing areas, was quoted at over \$8 million +/- 15 per cent, not including a roof and without incorporating the cost of staff and operational maintenance. With the addition of a roofing structure, it is estimated depending on materials and aesthetic design, could cost up to an additional \$3 to \$5 million, which is a conservative estimate. Constructed in 2022, the Town of Innisfil outdoor skating trail is the most recent reference of a skating trail project, which includes seating nodes, landscaping, and a pavilion with heated washrooms, change areas and skate rentals, with a total project budget just over \$6 million. The site also includes a splash pad feature that is operational during the summer months with a walking track.

**It is the opinion of staff that a covered refrigerated outdoor ice rink is the best return on investment given the operational advantages.**

It is the opinion of staff considering all associated factors, focusing on seasonal weather patterns trending more mildly, and the realized threats of climate change, a facility with a roof and full refrigeration should be the only consideration, given the significant funding commitment for the asset and the cross seasonal functionality with year-round multi-purpose use. In speaking with other municipalities, facilities without roofing are undoubtedly more susceptible to weather impacts, particularly skating trails often having thinner, softer ice due to the refrigeration plant being less rigorous. When above ten degrees Celsius, ice quality is impacted, often requiring immediate closure for safety and hours of operational maintenance to re-form the ice with cooler temperatures. Having a roof does lower ice surface temperature and offers year-round protection from precipitation and sunlight during peak times, which can have the most significant impact on deteriorating ice conditions and allows for full-time daily use during warmer months as a multi-purpose facility.

In alignment with the PRMP, staff recommend Council approve funding to secure a consultant to prepare a business case for an artificial refrigerated ice rink with roofing, to include a cost estimate and design concept around a preferred location option. Staff are requesting \$50,000 to retain a consultant to conduct initial site feasibility studies and draft design concepts, which will provide Council with a more accurate cost estimate given the funding commitment for this type of project. If approved, once a preferred location or locations are identified, staff will work to secure a consultant to present this information in an updated report with recommendations to consider.

### List of possible locations for outdoor artificial ice rinks in Aurora.

Table – Possible Locations for Outdoor Artificial Ice Rinks in Aurora

	Potential Outdoor Rink Locations	Availability	Additional comments
1.	Fleury Park	Not suitable	Within floodplain, no LSRCA approval.
2.	Machell Park	Not suitable	Within floodplain, no LSRCA approval.
3.	Town Park	Available with constraints	Can accommodate if ball diamond relocated. If roofed, potential for sightline issue, footprint large depending on preferred option. Parking constraints already existing. Potential for skate trail as alternative.
4.	Edward Coltham Park	Available with constraints	Could accommodate a modified professional sized ice-hockey pad, parking constraints. Could also accommodate skate trail.
5.	14378 Yonge Street	Potentially suitable	Significant excavation works required to make site useable, including extensive site servicing works. Would also limit additional recreation programming as previously indicated.
6.	115 George Street	Not suitable	Tableland limited with topography constraints.
7.	Queens Diamond Jubilee Park	Available with constraints	Size constraints as full ice-hockey pad not able to accommodate. A skate trail more suitable in this location.
8.	Ada Johnson	Available with constraints	Size available for modified ice-hockey pad or skate trail, parking would need to be addressed.
9.	Confederation Park	Potentially suitable	Would require removal of exiting amenity to fit skating trail or modified ice-hockey pad.

Once further direction from Council is provided, staff recommend reviewing locational opportunities based on the preference of either an ice-hockey pad, roofed or without cover, or a skating trail. As parkland acquisition opportunities arise, staff will consider

the potential use as suitable for an artificial outdoor ice rink. Once a preferred location is identified, if approved, staff will further investigate what is feasible on a particular site and procure a consultant to provide more detailed project estimates based on design concepts before preparing a business case and report back to Council.

### **Advisory Committee Review**

None.

### **Legal Considerations**

None.

### **Financial Implications**

As part of the 2024 capital budget, conditional budget authority of \$3,250,000 was approved for Artificial Rink capital project. At this time staff recommend that the conditional approval be lifted for \$50,000 in budget authority for the Artificial Rink capital project to retain a consultant to conduct initial site feasibility studies and draft design concepts, which will provide Council with a more accurate cost estimate given the anticipated funding commitment for this type of project.

### **Communications Considerations**

This report will be posted to the Town's website to keep the public informed.

### **Climate Change Considerations**

As climate change impacts localized seasonal weather patterns, it is important to ensure lifecycle planning of recreational assets incorporate climate resilient solutions. Specific to artificial outdoor ice rinks, while refrigeration is necessary with more milder temperatures, there are limitations on capacity to freeze efficiently when temperatures rise above 10 degrees Celsius. When rinks are uncovered, rain and wet precipitation can have immediate impacts to ice durability. Further humidity combined with increased temperature despite roofing an OAIR, can also negatively affect ice rinks often resulting in closures. Over the last few years, the Town has already had to alter the method of natural rink creation, shifting to polyvinyl liners, however it may now be time to look to refrigeration to improve viability of outdoor skating. It is also important, if looking to

artificial refrigeration, that eco-conscious refrigerants such as glycol are considered as an alternative to ammonia.

## **Link to Strategic Plan**

Outdoor Ice Rinks support the Strategic Plan Goal of Supporting an Exceptional Quality of Life for All, by encouraging an active and healthy lifestyle.

Develop a long-term needs assessment for recreation programs, services, and operations to match the evolving needs of the growing and changing population.

## **Alternative(s) to the Recommendation**

1. Council provide staff direction.

## **Conclusions**

Seasonal weather changes continue to pose a challenge to natural outdoor ice rinks in Aurora. In alignment with recommendation from the PRMP to consider establishing one artificial outdoor ice-rink. If approved by Council, staff will retain a consultant to prepare a detailed business case on a preferred location, including cost estimates, feasibility, and concept designs, which will be presented to Council for direction in a future update.

## **Attachments**

Attachment 1 – Pefferlaw Artificial Ice Rink

Attachment 2 – Pefferlaw Sport Court Underlay

Attachment 3 – Gore Meadows Wood Beam Roof

Attachment 4 – Innisfil Skating Trail in Winter

Attachment 5 – Innisfil Skatin Trail in Summer

## **Previous Reports**

None.



## **Pre-submission Review**

Agenda Management Team review on April 18, 2024

## **Approvals**

Approved by Sara Tienkamp, Director, Operational Services

Approved by Doug Nadorozny, Chief Administrative Officer