

City of Mississauga
Corporate Report



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| <p>Date: November 29, 2021</p> <p>To: Mayor and Members of Council</p> | <p>Originator's files:</p> |
| <p>From: Jodi Robillos, Commissioner of Community Services</p> | <p>Meeting date: December 8, 2021</p> |

Subject

Outdoor Artificial Ice Facilities for City Parks

Recommendation

That the Corporate Report entitled "Outdoor Artificial Ice Facilities for City Parks" dated November 29, 2021 from the Commissioner of Community Services be received for information.

Executive Summary

- Evaluating outdoor ice facility park locations is best completed through the next iteration of Parks, Forestry & Environment's Future Directions Master Plan. Consideration to be given to geographic coverage across all service areas.
- Staff will consider piloting a synthetic ice location and a conversion ice system in 2023 in conjunction with the development of the Future Directions Master Plan.
- Additionally, it is recommended that new potential locations continue to be evaluated during facility redevelopments or development applications.
- Identifying the optimal facility type for each city park is a multidimensional undertaking that requires subject matter expertise based on the unique location identified.

Background

As a result of the Covid-19 Pandemic, community interest in outdoor skating facilities in Mississauga has noticeably increased. During the winter season, skating is a popular activity and supports an active healthy lifestyle for residents of all ages.

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City Ice Facilities

The city-wide ice network includes 25 indoor ice pads at 12 arenas, two outdoor artificial ice pads as well as over 48 natural ice rinks. In 2019, the indoor ice pads accommodated over 44,100 rental hours as well as 10,700 participants in registered programming, in addition to drop-in programming.

The two outdoor artificial ice locations include Celebration Square and Woodhurst Outdoor Rink, both ammonia-based refrigeration plants that are operationally legislated and typically run from December through March. While the Burnhamthorpe Community Centre Outdoor Rink was recently removed to accommodate the community centre's redevelopment, a new outdoor artificial rink is currently being considered for the nearby Gulleden Park redevelopment.

The City's extensive network of natural ice rinks are operated by community volunteers with support from City staff. While artificial refrigerated rinks can operate for a longer seasonal duration, natural skating rinks operate when temperatures are consistently below freezing, typically from January through March. Due to global climate change, natural ice skating opportunities are becoming increasingly more difficult to provide.

Municipal Trending and Benchmarking

The Parks & Forestry 2019 Future Directions Master Plan indicates, "Mississauga provides more outdoor skating opportunities than most regional counterparts. Accordingly, no new community-level outdoor rinks are recommended. The City, however, may explore new outdoor ice as part of a major economic development or civic enhancement initiative."

Other regional municipalities, including Toronto and Brampton, have varying set service levels for indoor and outdoor ice. Only the City of Toronto has established per capita provisional levels for outdoor artificial ice at 1:46,300. However, the Toronto Parks & Recreation Facilities Master Plan (2019-2038) recommends an increase in the provisional target to 1:100,000. Both the City of Mississauga and City of Brampton offer outdoor artificial ice amenities but do not have set service level standards, as shown in the table below.

| Facility Type | City of Mississauga | | City of Toronto | | City of Brampton | | Large GTA Cities | Large Canadian Cities |
|--------------------------------------|---------------------|-------------------------|-----------------|-------------------------|------------------|-------------------------|-------------------------|-------------------------|
| | Current Supply | Current Provision Level | Current Supply | Current Provision Level | Current Supply | Current Provision Level | Average Provision Level | Average Provision Level |
| Arena (pads) | 25 | 1:29,180 | 65 | 1:44,100 | 20 | 1:30,715 | 1:29,000 | 1:27,000 |
| Outdoor Artificial Ice Rinks (pads)^ | 2* | N/A | 62** | 1:46,300 | 2*** | N/A | 1:228,000 | 1:40,000 |

Data Sources: Toronto Parks & Recreation Facilities Master Plan 2019-2038; Brampton Parks & Recreation Master Plan (2017)

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^ Refrigerated pads

* Plus 48 natural ice rinks (neighbourhood rinks)

** Plus 5 skating trails

*** Plus 1 skating trail

Regarding future facility planning and development, the City of Toronto's master plan recommends adding five outdoor artificial ice pads and two skating trails by 2038 whereas the City of Brampton's plan indicates maintaining its current supply to 2031. However, in December of 2020, the City of Brampton opened an additional 4 outdoor artificial conversion ice rinks.

Comments

As requested by Council, and in consideration of increased community demand for outdoor skating as well as global warming impacts to outdoor natural rink skating facilities, staff have researched next-steps required in the development of additional ice facilities in City parks.

Locations

A systematic analysis is required to identify appropriate locations throughout the City to ensure artificial outdoor ice accessibility in all service areas. Many factors must be taken into consideration when identifying park locations, including close proximity to community centres to utilize existing staffing compliments, ease of access for residents, on-site storage, and washroom amenities. Examples of possible locations are the basketball courts at Meadowvale Community Centre, Churchill Meadows Community Centre. Fittingly, this evaluation can be completed through the next iteration of Future Directions. Additionally, it is recommended that new locations continue to be evaluated during facility redevelopments such as Gulleden Park, or development applications such as the Lakefront development. A large scale, refrigerated skating facility is being proposed at the Lakeview site.

Outdoor Ice Facilities Types

Once locations are identified, the optimal facility type needs to be determined for each city park. This is a complex undertaking that requires extensive subject matter expertise.

A number of key design and operational requirements must be considered when determining the most suitable facility type. Design considerations included system lifespan, optimal operating temperatures, base requirements, site servicing requirements and on-site supporting amenities such as washrooms, change rooms and warming areas. Operation requirements include seasonal set-up and take down, regular maintenance, staffing, utility usage and on-site storage.

The outdoor ice facility types available in the marketplace include permanent refrigeration, conversion refrigeration and synthetic ice. Below is a brief overview of each type.

- **Permanent Refrigeration:** Refrigeration is embedded into the concrete slab and can be designed as a stand-alone rink or integrated with an off-season use, such as sports courts

or spray pads. City facilities include Woodhurst, Celebration Square and future Lakeview location. Permanent refrigeration systems have a high operational cost and require significant staff time and often additional buildings and infrastructure in order to support maintenance equipment.

- **Conversion Refrigeration:** Roll-out refrigeration installed temporarily on top of existing concrete or asphalt pads, such as sports courts. Currently there are no conversion rinks in Mississauga. One of the benefits of conversion refrigeration is it allows for multiple uses of the same facility year-round. Conversion refrigeration requires staff support to build and maintain ice similar to permanent refrigeration but often without the need for the number of staff to support larger ice plants.
- **Synthetic:** Plastic surfacing system (no refrigeration) that can be installed on any hard flat surface and operated year-round. Currently there are no synthetic rinks in Mississauga. Synthetic ice has a lower operational cost with staff required to complete inspections to ensure ice surface is flush.

Precedent examples of outdoor refrigerated and synthetic skating facilities are provided in Appendix 1 - Outdoor Permanent, Conversion and Synthetic Ice Facilities Precedents. Each example identifies location, type of system, installation date and approximate project capital cost. Operational costs vary by system and location.

Ice Surface Types

In combination with the multiple ice facility options, there are multiple ice refrigeration options available for consideration. Refrigeration systems can be ammonia-based with brine or glycol; Freon-based with brine and glycol; or CO₂.

Multiple factors significantly impact the capital and operating costs of an outdoor refrigerated skating facility, including availability and proximity to site servicing and connections (water and higher voltage electrical); maintenance buildings/bunkers for storage of ice making equipment; facility size, design and customization; accommodation of accessibility requirements; Ontario Building Code Legislation; structural rink requirements; site works; and maintenance requirements.

The pros and cons of each ice refrigeration system needs to be considered based on the specific location to determine the most cost-effective, efficient, and appropriate option.

Outdoor Rink Roofs

Facility design considerations also need to include a thorough cost-benefit analysis regarding rink roofs. A roof structure is estimated at an addition \$1.5 to \$3 Million dollars in capital costs. With climate change, mitigation tools are required to ensure ice surfaces can remain operational for as many days as possible while also managing operational costs. Historically, a rink roof only adds an extra 4 days to the skating season at Mississauga outdoor rinks. On average, the former Burnhamthorpe Outdoor Rink had eight closure days per season due to warm weather compared to Woodhurst Outdoor Rink's 12 closure days.

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In addition to the increased capital costs, roof structures also lead to increased operational costs. These structures cause a shadow-effect on the ice, requiring higher use of artificial lighting and resulting in higher utility costs. Also, some roof types, such as the steel construction at the former Burnhamthorpe Outdoor Rink, reverberate sound which create neighbourhood noise complaint issues and higher operational costs for installing.

Financial Impact

There is no financial impact associated with this report. All outdoor ice facilities spending and future initiatives will be approved through the City's annual Capital and Operating Budget process. Examples of original capital costing and costing estimates of different systems are included in Appendix 1 and Appendix 2.

Conclusion

This report provides an overview of considerations required in the development of new outdoor ice locations in City parks.

The evaluation of outdoor ice facility locations can be undertaken as part of the next iteration of Parks, Forestry & Environments's Future Directions Master Plan, ensuring geographic coverage across all service areas and accessibility to residents. The master plan can also assess the establishment of a provisional standard for outdoor ice. Additionally, locations may be considered as part planned park redevelopments or future land development applications.

When it comes to selecting the optimal outdoor ice facility for each park location, a thorough assessment of the multiple facility and ice surface types is necessary. This will ensure all key factors are taken into consideration to identify the ideal cost-effective solution.

Attachments

- Appendix 1: Outdoor Permanent, Conversion and Synthetic Ice Facilities Precedent
- Appendix 2: Outdoor Rinks

Jodi Robillos, Commissioner of Community Services

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