



STAFF REPORT ACTION REQUIRED

Skating on Grenadier Pond

Date:	September 01, 2015
To:	Parks and Environment Committee
From:	General Manager, Parks, Forestry and Recreation General Manager, Toronto Water
Wards:	Ward 13 Parkdale – High Park
Reference Number:	P:\2015\Cluster A\PFR\PE05-091815-AFS#21019

SUMMARY

This report provides a review of conditions under which a skating program for Grenadier Pond could be reinstated, including best practices from the National Capital Commission on testing, monitoring, and communicating the ice conditions on bodies of water, the cost of implementing similar practices for Grenadier Pond, as well as what actions would be required to mitigate the City's liability.

Also included in this report is a review of the designated Environmentally Significant Areas (ESA's) and Area of Natural and Scientific Interest (ANSI) and discussion of ways to enhance protection of the wildlife and natural environment.

This report underscores the need to ensure a safe program, and outlines the resources that will be required to mitigate the risks and potential liabilities.

RECOMMENDATIONS

The General Manager, Parks, Forestry and Recreation and the General Manager, Toronto Water recommend that:

1. Parks and Environment Committee receive this report for information.

Financial Impact

There is no financial impact arising from the recommendation of this report.

The cost to convert a designated area on Grenadier Pond to a natural outdoor ice surface would consist of one-time capital costs of approximately \$192,000 and estimated annual operating costs of \$123,000, assuming an 8 week operating period.

This expenditure cannot be accommodated within the 2015-2024 Approved Parks, Forestry and Recreation Capital Plan or the 2015 Approved Parks, Forestry and Recreation Operating Budget. Funding required to re-instate skating on Grenadier Pond would have to be submitted through the annual budget process.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

The Parks and Environment Committee, at its meeting on February 25th, 2015, adopted Item PE2.4 "Skating on Grenadier Pond" and requested the General Manager of Parks, Forestry and Recreation to:

1. Report to the Parks and Environment Committee in the second quarter of 2015 on:
 - a. The best practices from other municipalities on testing, monitoring, and communicating the ice conditions on bodies of water, and the cost of implementing similar practices for the return of skating on Grenadier Pond.
 - b. What actions, at minimum, would be required to mitigate the City's liability?
 - c. A review of the designated Environmentally Significant Areas and Area of Natural and Scientific Interest (ANSI) and whether there are ways to enhance protection of the wildlife and natural environment.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PE2.4>

ISSUE BACKGROUND

The former City of Toronto maintained a Natural Ice Rink program in High Park which ran for 9 weeks, (weather permitting, January to March). At that time, the Metro Toronto Police Service - Marine Unit monitored the ice for safety and thickness at an annual cost of approximately \$50,000 per year. This ice monitoring service continued until 1996 when it was transferred to the Parks and Recreation Department of the former City of Toronto.

In 2001, staff from the Toronto Police Service - Marine Unit and Toronto Water Division advised Parks and Recreation staff, that open water and storm water management pond ice in Toronto was unstable and never truly safe. Given the significant annual operating cost of approximately \$60,000 (in 2001) to provide staff to monitor and maintain the area for a 7 to 10 day skating season (due to weather conditions) each year, as well as ongoing

safety concerns, it was decided that the natural ice rink program on Grenadier Pond should be discontinued.

Signs at Grenadier Pond were installed every 75 to 100 feet around the perimeter of the pond to inform the public that skating on the pond is not permitted and access is prohibited. Despite this prohibition, skating remains popular during winter months on the Pond. Community members maintain a clear ice surface, and, especially during the 2014-15 season there was increased general public interest through media reports of people skating on the Pond.

The *Occupiers Liability Act* applies to owners and occupiers of property and establishes certain obligations on owners for the safety of the public. The City makes a reasonable effort to enforce and record measures taken to make people aware of potential hazards and advise members of the public not to go on frozen bodies of water. Currently, Parks, Forestry and Recreation has authorized Toronto Police Services to act as agents for the Division to enforce the provisions of the *Trespass to Property Act*, allowing for removal of persons from the ice when necessary.

COMMENTS

In addition to safety, legal and financial considerations there are a number of environmental factors and past incidents which underscore the need for the development of a robust ice monitoring and safety program, as described below, if a skating program on a portion of Grenadier Pond were to be resumed.

Occupiers' Liability Act

City of Toronto Risk Management and Legal Services staff have advised that under Subsection 3(1) of the *Occupiers' Liability Act*, an occupier has a duty to take reasonable care to see that people entering the premises are kept reasonably safe. As the owner and occupier of parks, the City has a duty to ensure that, if skating were permitted on Grenadier Pond (or other similar surfaces in City parks), the conditions on the pond are reasonably safe for skaters. The City's duties include protecting the public against dangers that are foreseeable and potentially severe in this case, potentially death/drowning. This includes a responsibility to make safe the designated access route to the pond, monitor the thickness of the ice, clear the ice of snow, prevent access to areas that are not safe for skating, and erect signs advising skaters of the dangers inherent in skating on pond ice.

Claims against municipalities under the *Occupiers' Liability Act* expose the City to costly legal expenses to defend lawsuits and also include the risk of an adverse court judgement.

Suitability of Grenadier Pond for Safe Skating

Grenadier Pond is a 14.2 hectare body of water and is considered to be a shallow pond, having an average depth of 2.9 metres with maximum of 6 to 9 metres located in the central basin. In addition to its ecological and social benefits, Grenadier Pond also serves an important stormwater management function.

The City currently prohibits skating, tobogganing, walking or other like activities on stormwater management ponds because such facilities are designed to have quite variable water levels to accommodate their water quality and quantity improvement function. With the inflow at the north end of the pond and the outflow through a controlled weir at the south-west end, a constant current further complicates the formation of ice on the surface. Dynamic, variable water levels mean that any ice on the surface causes an unacceptable risk to humans attempting to use the surface. In addition, chemical analysis of Grenadier Pond has shown elevated levels of sodium and chloride compared to Lake Ontario. The result of elevated salt levels is that water is slower to freeze and may not freeze solidly, even when the outside temperature reaches zero degrees Celsius. These factors underscore the need for a rigorous ice monitoring program to ensure safety.

Staff from the National Capital Commission (Rideau Canal) in Ottawa met with staff from the Parks Branch at Grenadier Pond on March 7, 2015. Representatives from the National Capital Commission (NCC) felt that the inability to control access to the site was a concern and could be problematic. Given the nature of Grenadier Pond, it is not feasible to fence off the entire Pond to ensure access is controlled in a way to prevent damage to the shoreline and habitat.

Ensuring Safe Skating on Grenadier Pond

Based on advice from National Capital Commission experts, the following would be required in order to provide a reasonably safe recreational skating program on Grenadier Pond. A team of experts to provide daily analysis and testing of ice, safety equipment, equipment for ice preparation such as a Zamboni and plough or snow blower, ice maintenance equipment and staff, skating area barriers, lighting, washrooms and first aid support.

Skating on a designated area on Grenadier Pond will require a comprehensive natural ice monitoring program, as advised by Legal Services and Risk Management, and would need to be instituted in order to satisfy our legal obligation to provide reasonably safe skating conditions. A skating program would be run during daylight hours from 10am-5pm seven days a week. To extend into evening hours, the installation of significant pond, pathway and parking lot lighting is required, which given environmental considerations is not recommended.

Based on best practices, such a program would require the following measures:

1. The services of an ice engineer and ice surveyor to analyze and monitor the ice surface to ensure a safe thickness (12 inches or greater), ice load and freeboard on a daily basis for the duration of the skating season.
2. De-naturalization of a portion of the eastern shoreline to ensure safe access to the skating area that will minimize impact on the natural environment.
3. Maintenance staff to operate equipment, maintain the ice surface and provide support to the ice testing and monitoring team.
4. Staff on site for supervision and first aid.
5. Safety equipment and clothing for staff working at the location.
6. Purchase of required maintenance equipment such as a Zamboni, snow blower and submersible pumps for flooding the surface.
7. Construction of a seasonal storage building.
8. Safety perimeter boundary, a flag system, minor safety lighting and signage.
9. Seasonal washroom facilities and office space for staff.

Ice Formation, Monitoring and Maintenance

Freezing & Ice Types

The process of ice formation is complex: ice can appear to be safe when it is not. Generally it takes 10 to 14 days of continuous cold (-15 degrees Celsius or colder) for the frozen cap on the surface to become solid enough to skate on. This type of ice is called clear ice and is preferable for safer skating. White ice or “snow ice” results when snow becomes soaked with water which freezes to create ice that is opaque and milky. This ice contains many air bubbles and as a result is not as solid and strong as clear ice. The periods of extended cold weather associated with the formation of clear ice are not regularly experienced in the City of Toronto.

Any snow that falls on clear ice creates an insulating blanket and causes melting. In order to ensure that the ice quality is maintained, snow must be removed as quickly as possible to prevent a thaw and refreeze into white ice.

Ice Measurement

Ensuring that ice is safe for skating involves a series of activities being undertaken by trained technical professionals. Samples of the ice must be regularly taken, not just to measure the total thickness, but also to analyze the composition for any combinations of clear and white ice. Thickness alone does not indicate the safety of the ice but how it was formed is essential in determining its overall strength.

Weight

In addition to the thickness and composition of the ice, it is also essential to ensure that there is not too much weight on the ice surface, particularly in any one spot. The weight of skaters and any maintenance equipment must be distributed in a manner that does not make the ice unsafe. Ice depresses gradually as weight is applied and gradually rises as the weight is removed so an excessive number of skaters may outweigh the surface’s capacity to stay afloat.

Process of Monitoring

Based on standards used by the National Capital Commission (NCC) in Ottawa to ensure staff safety on the Rideau Canal, monitoring needs to involve a minimum of three staff outfitted with flotation suits and other appropriate safety equipment. Staff must be tied to a ¾ ton (or greater) vehicle which must be parked on a dry, ice-free surface parallel to the pond's shoreline. Once secured, two workers go out onto the ice surface, carrying a "reach pole", clipboard, two-way radio and an ice auger. A third staff person remains on shore with a two-way radio, maintaining visual contact with his/her coworkers on the ice, prepared to call for emergency assistance if the need arises. The Rideau Canal is ploughed using trucks and tractors with blowers and brushes. Until an ice depth of 12 inches, it is mandatory to wear floating safety suits when anyone is on the surface. Trucks are required to keep windows opened, no seat belts are to be worn and driving must be kept at 10 kph for operator safety.

Once on the ice, an auger is used to drill holes in the ice using a grid pattern - 15 metres apart. Each test hole must be mapped and recorded, along with the thickness of the ice at each location. Ice thickness must meet a minimum thickness of 8 inches for staff to access all test locations and 12 inches for the surface to be deemed 'safe' for public use.

Climate Considerations

Despite the fact that 2013-2014 was the coldest winter in 20 years, it is now well established that climate change will have dramatic impacts on The City of Toronto. Since 1948, Canadian winters have warmed an average of 3.2 degrees Celsius. The warmest winter on record for Canada was 2009-2010 followed by 2011-2012. 2012-2013 was the eighth warmest winter in 100 years; winters like 2013-2014 are predicted to be an anomaly in the future.

An overall warming trend, combined with Toronto's urban heat island effect, mean that shorter, warmer winters will continue for the foreseeable future. The number of days cold enough to bring ice levels on Grenadier Pond to a safe thickness for skating or walking on will likely decrease, making the program less cost-efficient as time goes on.

Ice monitoring and rink staffing must occur every day for the duration of the season (8 weeks) even when the ice is deemed unsafe for skating. The number of days of safe skating is unpredictable, but projected to be 7-10 days (based on historical averages).

Other Municipalities

While there are a few examples across Canada of municipalities that allow winter use of ponds, the vast majority prohibit all activity on frozen open bodies of water. The town of Richmond Hill allows people to skate on Mill Pond where parks staff monitor ice thickness daily to 8 inches but there are no guards or enforcement. Skating of this type had been allowed in Markham until last year when a tractor and operator went through the ice and the program was discontinued. In the few cases where public use is permitted, testing and monitoring is undertaken by the municipality to ensure minimum safety standards and users are advised that skating is allowed on a "use at your own risk" basis.

Ottawa – Rideau Canal

The skating program on the Rideau Canal in Ottawa is the example utilized to guide the proposed skating program on Grenadier Pond. There are, however some significant differences between it and Grenadier Pond. The Rideau Canal Skateway is a federally maintained, highly monitored ice development and maintenance program with controlled access on a regulated manmade waterway. With the exception of the Rideau Canal, skating on any other frozen body of water is prohibited in the City of Ottawa.

The Canal is open for skating generally from January to late February (weather permitting). The annual operating cost for the Skateway was approximately \$1.85 million. Preparation begins in early October by lowering the water depth and installing Skateway infrastructure. Then an Ice Safety Committee (consisting of at least one engineer, a surveyor and safety support staff) is established. Once ice begins to form, ice thickness is measured and an analysis of the type of ice to ensure the requirement of 12 inches of solid clear ice equivalent (high density ice) is formed prior to opening. The Canal Skateway does not open to the public until there is at least 12 inches of good (clear) ice.

A communication strategy is also a key component to the success of the skating program at Rideau Canal with updates posted twice daily on their website including press releases and media clips used. Enforcement is also an important component to the program.

There had not been any significant incidents on the Canal until 2014 when two ladies from Toronto ventured outside the regulated skating area and one went through the ice.

Incidents

Incidents involving death or injury related to activities on frozen bodies of water in the City of Toronto have occurred periodically with tragic results, despite best efforts to inform people of the dangers.

The most notable incident was in December 2006 when two boys, aged 11 and 15 died after falling through the ice on a storm water management pond (private property at the time) near Finch and Morningside.

Two known incidents have happened on Grenadier Pond in the past ten years. In 2003 an individual slipped and broke an ankle while skating on the ice at Grenadier Pond. Despite the clear signage prohibiting access to the ice, the individual sued the City for damages related to an activity that was clearly prohibited. The lawsuit was ultimately dismissed by a judge in 2009 without award, but not without financial impact to the City from having to defend against it. In 2007, a Global News crew was on site to film a segment about the potential dangers of using the ice at Grenadier Pond. Just prior to going on air, the crew filmed a woman breaking through the ice with her right leg up to her hip. The temperature at the time was minus 15 degrees Celsius, seemingly ideal weather conditions for ice to solidly form.

Environmentally Significant Area (ESA) and Area of Natural and Scientific Interest (ANSI) – Grenadier Pond

The report Environmentally Significant Areas (ESA's) in the City of Toronto, June 2012, prepared for City Planning (http://www1.toronto.ca/City%20Of%20Toronto/City%20Planning/Zoning%20&%20Environment/Files/pdf/ESA/esa_report_volume1_sept2012.pdf) identifies that Grenadier Pond is important for Wood Duck breeding habitat. The Wood Duck may nest in trees near water, sometimes directly over water. The ESA report, prepared in 2012 for City Planning also identifies that High Park is considered a Provincial ANSI because it supports relatively high reptile diversity that is considered provincially or regionally significant (the Midland turtle, snapping turtle and Blandings turtle species). The alteration or destruction of wetland habitat can have a severe negative impact on Ontario's remaining turtle populations and shoreline disturbance can destroy nesting areas and terrestrial habitat adjacent to water bodies.

Restricting the area of shoreline access for skaters is important to mitigate impacts to the shoreline. The restrictions would require monitoring by staff and wildlife experts and possibly temporary fencing.

Skating Opportunities

It is important to note that there are numerous opportunities for skating throughout the City. An artificial outdoor ice rink in the centre of High Park is available for public skating as is a rink in Rennie Park, just one kilometre to the west. In addition, public skating is available at 10 other outdoor artificial ice rinks located within a 5 kilometre radius of High Park (Attachment 2).

CONCLUSIONS

Given the legal considerations and potential liability risk, a skating program at Grenadier Pond will require a significant financial commitment in order to meet safety requirements. Any changes to service levels would require that a business case be submitted as part of the 2016 operating and capital budget cycles. Budget and liability risk considerations should be weighed against environmental factors and number of safe skating days if this program is to be integrated into the Parks, Forestry and Recreation skating program.

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ATTACHMENTS

Attachment 1 – Map – Designated/Former Public Skating Area at Grenadier Pond
Attachment 2 – Map – Outdoor Artificial Ice Rink Locations within 5 kilometres of High Park

Attachment 1 - Map of Designated / Former Public Skating Area at Grenadier Pond



Attachment 2 – Map - Artificial Ice Rink Locations within 5 kilometres of High Park

