



Report to: General Committee

Report Date: December 7, 2015

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**SUBJECT:** Toogood Pond Winter Maintenance Report

**PREPARED BY:** Barb Rabicki, Director, Operations Ext. 4857  
David Plant, Manager, Parks Operations Ext 4893

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**RECOMMENDATION:**

1. THAT the staff report dated December 7, 2015 entitled "Toogood Pond Winter Maintenance Report" be received
2. THAT staff recommend due to health and safety, liability and climate change impacts that Council
  - i. Approve option C and not permit skating on Toogood Pond;
  - ii. Authorize staff to provide a volunteer natural ice rink beside Toogood Pond; and
  - iii. Direct staff not to monitor ice or clear ice on Toogood Pond by the City workers or its contractors.
3. In the alternative, if Council were to support the use of Toogood Pond as a natural recreational ice surface, the following conditions shall apply:
  - i. Additional annual funding of \$155,000 for contracted services of ice engineers;
  - ii. Installation of flag system and signage;
  - iii. Ice cleared by residents.
4. THAT staff be authorized and directed to do all things necessary to give effect to this resolution

**PURPOSE:**

The purpose of this report is to report back on the request from Unionville residents to reinstate winter maintenance of Toogood Pond for recreational skating. Staff will provide options for Council's consideration that take into account health and safety of recreational skaters, employees and others, liability, and climate change impacts.

**BACKGROUND:**

Toogood Pond has been a location for recreational skating for many years in Unionville. For the majority of those years the ice was cleared originally by residents themselves with staff clearing the ice more recently. Urbanization & environmental changes related to significant climate change, as well as increased salt usage impacts ice formation on the pond. Circumstances today are not the same as 20 years ago. Public safety is paramount for the City of Markham. Concerns regarding public safety prompted many other municipalities to consider safer options for public skating.

Even in the years when City staff cleared the ice, this would occur only after road, sidewalk and parking lots were completed, as priority is winter maintenance for public safety. There were no dedicated resources to monitor and clear the ice, nor were there any staff resources with the required expertise to ensure safety. Staff previously used a rudimentary flagging system to alert the public to unstable ice conditions; most years resulted in "safe" flagging for 8-12 days usage annually. The practice was stopped in 2012-13 (year of the ice of storm) due to concerns with health and safety of our City workers. The City does not permit skating on any other natural

bodies of water. In 2010, the City received an Infrastructure grant to construct the largest outdoor ice rink in the Greater Toronto Area at the Civic Centre to ensure residents had safe outdoor recreational skating opportunities.

## **DISCUSSION:**

### **Health and Safety of Residents and Staff**

The Ontario Health and Safety Act (OHSA) requires that the Employer shall take every precaution reasonable in the circumstances for the protection of workers. It is important to note that no worker shall use or operate equipment in a manner that shall endanger the safety of the worker. Past incidents reported by staff indicated that the previous methodology of monitoring and maintaining natural pond ice did not adequately ensure the safety of City staff performing work on the ice. City staff are unable to assure with complete confidence the safety of ice on natural ponds including Toogood due to fluctuating weather conditions, constant movement of springfed water, zones of high flow and fluctuating pond depth which could result in unstable ice.

The Occupiers Liability Act (OLA) is similar to the Occupational Health and Safety Act (OHSA) with respect to primary duties. The OLA states in Subsection 3(1) that “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 of Markham has a duty to ensure that, if skating were permitted on Toogood 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, including potential drowning/death. 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; ensure a smooth ice surface free of cracks and other rough or uneven spots; 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* can expose the City to costly legal expenses to defend lawsuits and also include the risk of significant awards of damages.

The City's liability insurance broker and risk management advisor supports the decision to discontinue snow clearing services on Toogood Pond, noting that the City has ample safer skating opportunities available for residents. They also advised that:

- not only would the public be at risk, but this would also risk the safety of City staff providing winter maintenance
- it is important to understand that a plaintiff lawyer only needs to prove that the municipality was 1% negligent in order for the City to be found responsible for up to 100% of any judgement
- during colder winter seasons more resources are required for priority winter services (eg. snow and ice removal from City sidewalks. etc) and available resources and City priorities need to be assessed against recreational opportunities

### **Reported Incidents**

The Canadian Red Cross report, “Drownings and other water-related injuries in Canada, What We Have Learned: 10 Years of Pertinent Facts” summarizes injuries and deaths due to water-related activities. The report notes that “Canadians are at risk of drowning as a result of falling through ice. During the period 1991-2000, there were 218 such victims. Of these,

67% drowned during recreational activities such as playing, walking and fishing.” The report also states that “Young children are at high risk of ice drowning” and the report notes that **skating accounted for 8% of drowning during recreational activities on ice**. Furthermore the report states “Ice on reservoirs may be more hazardous than on lakes, since reservoirs accounted for 19% of all ice drowning on lakes, ponds and reservoirs. Reservoirs may also be closer to towns and more accessible for play and walking”.

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

The City of Toronto maintained a natural ice rink program on Grenadier Pond in High Park which ran for 9 weeks, weather permitting, with monitoring for ice safety & thickness provided by the Metro Toronto Police Service – Marine Unit until 1996. In 2001, 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. The costly natural ice rink program on Grenadier Pond, which averaged 7-10 days of skating annually, was discontinued in 2001. Community members continued to maintain areas of the pond for skating. Two known incidents have occurred on Grenadier Pond in the last 10 years, including an incident which resulted in costly litigation for the City.

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 leg in the water up to her hip. The temperature at the time was minus 15 degrees Celsius, seemingly ideal weather conditions for ice to solidly form.

In 2014, despite unseasonably cold temperatures, a woman broke through the ice on the Rideau Canal Skateway in Ottawa. Despite the federally maintained, highly monitored ice development and maintenance program, which includes enforcement as a key component, accidents have occurred.

Prior to the installation of the refrigerated skating surface at the Civic Centre, Markham Parks staff recall multiple incidents where large and small pieces of equipment with operators broke through the ice on Toogood Pond, including an incident when an experienced operator had to crawl out the back window of a pick up truck as icy water poured in. The depth of water in Toogood Pond varies, and is estimated up to 5 metres deep, with inflow and outflow currents, which may lead to ice instability.

Much consideration was given by Council to provide a safe, excellent outdoor skating experience to the Markham community, when the decision was made to invest in Canada’s largest outdoor artificial ice surface, at Civic Centre within 5 km of the Too Good Pond.

### **Climate Considerations**

While the 2013-2014 winters were the coldest in 20 years, climate change is starting to have significant impacts on the City of Markham. At time of report preparation in December 2015, daily temperatures over the next week are well above freezing, in the 5 to 9 degree Celsius range.

The City of Toronto staff report PE05-091815-AFS#21019, noted that “since 1948, Canadian winters have warmed and average of 3.2 degrees Celsius. The warmest winter on record for Canada was 2009-2010 followed by 2011-2012. 2012-2013 was the eight 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-effective as time goes on.”

Climate change has affected the quality of the water with higher levels of salt run-off and other containments making the water more unstable for ice making.

## **Ensuring Safe Recreational Use**

### **Ice Formation & Monitoring**

Ice strength and safety is not as simple as often believed; often ice can be white or “snow ice” which contains air bubbles and is not as solid and strong as “clear or blue ice”. Periods of extended cold weather associated with the formation of clear ice are not regularly experienced in the Toronto area. Additionally, any snow which falls on ice acts as a thermal blanket, and slows the formation of ice crystals below the surface. The weight of snow also depresses the ice surface, an important factor which necessitates rapid snow clearing after snowfalls by crews to ensure ice integrity.

Effective ice monitoring is not simply measuring ice depth, but also ice density. Samples must be regularly taken to analyze the composition including the combinations of clear and white ice, to ensure safety of both public as well as staff clearing snow.

In addition to thickness and composition of ice, it is essential to consider weight distribution of both people and equipment on ice. The highest degree of expertise is required to ensure ice safety. The National Capital Commission (NCC) in Ottawa is recognized as the industry experts, and their recommendations are considered by leading municipalities as the industry standard to be followed.

### **National Capital Commission Skateway, City of Ottawa**

Annual operating costs for the Ottawa program are \$1.85M. Preparation for skating begins in fall by **lowering the water depth in the canal to approximately 12 inches**, and installing Skateway infrastructure. Then an Ice Safety Committee (consisting of at least one engineer, a surveyor & safety support staff) is established. The City of Ottawa, located in a colder climatic zone than the Toronto area, typically has extended periods of very cold weather, favourable to ice development. The Canal Skateway, which has controlled access & egress, does not open to the public until there is **at least 12 inches of good (clear) ice**. **The maintenance of the Skateway is continuous: 24 hours a day, seven days a week**. The NCC uses a flag system to indicate conditions, and Skateway access can be controlled and monitored. A highly developed program of monitoring, enforcement and maintenance including ice surface preparation with equipment including Zamboni ensures a safe user experience; this work is performed by contractors. The Skateway has a skate patrol of up to 60 patrollers trained in first aid and CPR (cardiopulmonary resuscitation). The Skateway can be closed when ice conditions are deemed unsafe. With the

exception of the Rideau Canal, the City of Ottawa prohibits skating on any other frozen body of water.

### **City of Toronto**

The City of Toronto sought advice from the National Capital Commission advice on implementing a program for monitoring ice thickness and density to ensure public & staff safety. NCC employs the services of ice engineers, with expertise in this area. City of Toronto has been directed by Council to report back in December regarding implementation of an ice monitoring program including the services of consulting ice engineers or contractors to ensure safety. Costs of the Ice Monitoring Program are currently under development, but will include the services of contracted ice engineers; monitoring; signage and a flagging system. City staff will not be providing ice clearing, flooding, enforcement or a skating program. Residents will need to clear the ice themselves based on the flag conditions. The City of Toronto prohibits skating on all other outdoor frozen bodies of water.

### **Richmond Hill**

Town staff maintains the Mill Pond for skating. Ice surface maintenance is incorporated into routine daily winter maintenance of the swan enclosure, and bathrooms at the Mill Pond. Staff clears the surface with equipment including a Jeep with plow; tractor with broom; and tractor mounted Zamboni to cut ice the ice surface to prepare smooth ice for skating. A warming hut is provided. There is no flag system in place to provide community notification of days the pond is deemed safe, or unsafe to use.

## **Options for Consideration**

### **Option A: Ice Monitoring and Maintenance Program**

This option includes ice monitoring and analysis by contracted services and flagging for an 8 week period; signage; plus snow plowing, sweeping, and flooding provided by contractors. The average number of skateable days would be approximately 15.

Based on industry Best Practices, the following would be required in order to provide a reasonably safe ice surface on Toogood Pond:

1. The services of an outside consulting team including ice engineers to analyze and monitor the ice surface to ensure a safe thickness (12 inches or greater), composition, and ice load on a daily basis for an 8 week period.
2. Modifying a section of shoreline to ensure safe access to the maintained area and minimize impact on the natural environment.
3. Contractor to operate equipment to maintain the ice surface including plowing, sweeping and flooding. Note: this surface will not be the smooth quality similar to surfaces which are maintained using Zamboni equipment for skating; risks are inherent in this process.
4. Safety perimeter boundary, a flag system and signage. Best practices recommend that signage be posted around Toogood Pond every 75 to 100 feet to ensure that the public is warned at every possible entry point of potential dangers.

It is important to note that the City of Markham Operations staff is currently at full capacity with priority snow clearing activities after snowfalls; hence contractors would need to be hired to

support snow clearing on Toogood Pond **immediately** after snowfalls, per the National Capital Commission (NCC) recommendations.

**This option will cost: \$222,000 per year, including \$155,000 for contracted ice monitoring, and \$ 67, 000 to maintain skating surface.** It is recommended that due to potential liability to the City, the services of an outside contractor to perform ice monitoring services be employed, to ensure safety prior to staff working on the ice, and public usage. There is no staff at the City with ice engineering designation and training. The costs of ice engineers are high due to limited number of such businesses. This doesn't include any other amenities such as washroom and warming facilities.

#### **Option B: Ice Monitoring Program**

This option includes ice measuring and monitoring by contracted services; signage; and a flagging system. It is recommended that due to potential liability to the City, the services of an outside contractor to perform ice monitoring services be employed. There are no staff at the City with ice engineering designation & training. It does not include maintenance of the pond such as snow clearing, flooding or a skating program; enforcement, or staff to supervise or provide first aid. Residents will need to clear the ice themselves using care and notice to the flagging system.

**This option will cost \$155,000 to retain the contracted services of ice engineers and costs to install flagging system.**

#### **Option C: Establishment of Volunteer Community Ice Rink Program at Toogood - recommended**

City staff recognizes that residents value the recreational activity of outdoor skating. The City of Markham has built Canada's largest outdoor artificial skating surface, at Civic Centre, located 4.8 km away from Toogood Pond, to support safe and enjoyable recreational skating. Additionally, the City of Markham partners in approximately 10 community ice rinks each year, maintained by community volunteers, with support from City staff. The volunteer ice rink at Crosby Arena, located across the road from Toogood Pond, at Main & Carleton, offers outdoor skating.

City staff has also undertaken minor site leveling of the area adjacent to Toogood Pond to facilitate establishment of a community volunteer ice rink, should community members wish this option within the park setting. Separate rinks can be built to accommodate both hockey and recreational skating. Additionally, during the recent site work, several residents inquired with staff about the work, with very positive feedback received from residents. Future work for this area may include a gazebo, which will provide year round use at Toogood Pond, including a place to sit and lace up skates, watch skating, or provide shade during the summer.

**This option will cost \$1,500 in annual Operating Expense.** This proposal anticipates the use of the existing water chamber, however if water pressure is not sufficient, a water chamber may be required in close proximity, at a cost of approximately \$10K. Funding to support this program will be earmarked within the existing 2016 Community Volunteer Ice Rink Program for this initiative.

#### **Conclusion:**

The safest manner to undertake skating on Toogood Pond is extremely costly for such a limited number of days. The City currently has a highly successful volunteer community ice program in many neighbourhoods in the City providing opportunities for active and healthy living in a safe



manner. The City supports active living through its excellent recreational programs that include indoor rinks, the Civic Centre Artificial Rink and the well loved neighbourhood based community ice rink program.

Staff recommends that the volunteer community ice rink option be advanced based on health and safety, liability and climate change impacts. If Council chooses to permit skating on Toogood Pond it is recommended that funding be allocated in the budget for monitoring the ice conditions with a flagging system and residents clear the ice on their own. It should also be noted that permitting skating on Toogood Pond may potentially open up requests for maintaining natural ice surfaces for other locations within the City.

### **FINANCIAL CONSIDERATIONS AND TEMPLATE:**

<b>Options for Considerations</b>	<b>Operating Cost</b>	<b>Operating Cost Per Useable Day</b>
Option A – Ice Monitoring and Maintenance Program (includes \$155.3K contracted ice monitoring) 15 “Useable” days estimated	\$222,000	\$14,800
Option B – Ice Monitoring Program 15 “Useable” days estimated	\$155,000	\$10,300
Option C – Volunteer Ice Rink 30 “Useable” days estimated	\$1,500	\$50.00

Given the timing of this report, it is recommended that Council’s recommendation, if any, for an option be implemented for the 2016-2017 winter season to be funded from the volunteer Ice Rink program in the 2016 Operating Budget. The volunteer rink however could be done this year with community interest.

### **HUMAN RESOURCES CONSIDERATIONS:**

Contracted services

### **ALIGNMENT WITH STRATEGIC PRIORITIES:**

Staff recommend Option C - Establishment of Volunteer Ice Rink at Toogood Pond as best alignment with the Corporation’s strategic priorities including Financial Performance, Operational Excellence, Staff Engagement and Customer Satisfaction. Establishing a volunteer community ice rink program at Toogood Pond will allow an outdoor skating experience within the park setting, while promoting public and staff safety. Additionally, skating on a community ice rink situated on land, will allow for much extended seasonal use compared to frozen ice surfaces on ponds.

### **BUSINESS UNITS CONSULTED AND AFFECTED:**

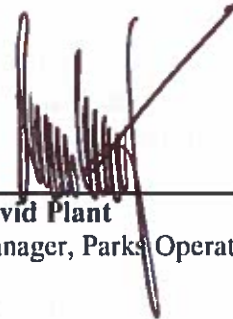
Legal Department, Risk Management, and Occupational Health and Safety have been consulted in developing staff recommendation to cease winter maintenance on Toogood Pond, due to high potential for safety risks, and liability to the Corporation.

Finance has been consulted regarding cost implications.


**RECOMMENDED BY:**



**Barb Rabicki**  
Director, Operations



**David Plant**  
Manager, Parks Operations



**Brenda Librecz**  
Commissioner,  
Community & Fire Services

Attach: Public Information Sheet – dated January 29, 2015





## Ice Safety on Toogood Pond

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Public and staff safety are of the highest priority for the City of Markham. As a result, we have had to make the difficult decision to discontinue winter servicing of Toogood Pond in Unionville for the purpose of public skating.

We understand the legacy and tradition of ice skating on Toogood Pond, and the importance of offering outdoor winter activities. However, it is Markham's responsibility to support healthy and safe options for residents and visitors. Toogood Pond is no longer one of these options.

The City recently reviewed snow clearing activities and it was determined that staff are unable to ensure with complete confidence the stability and safety of the ice. This presents potential risk to the public and City staff, and liability considerations including being in compliance with our obligations under the *Ontario Occupational Health and Safety Act*.

The ice instability is due to a number of factors, including:

- Fluctuating weather conditions;
- Constant movement of spring-fed water, particularly in high-volume areas of the pond;
- Changes in water depth throughout the pond; and
- Changing water quality and composition - the water contains more runoff materials such as salt, pesticides and silt that contribute to ice instability.

Signs will be installed at common access points to the pond to warn residents of the risks. The City strongly recommends that residents not use Toogood Pond and instead use the many alternative family-friendly and safe ice surfaces across the City.

The Civic Centre ice rink, the largest artificial ice surface in the GTA, is an excellent safe alternative less than 4km from Main Street Unionville. It has the added convenience of heated change rooms, washrooms and skate rental onsite.

Anyone interested in skating on an old-fashioned outdoor ice rink can try Cedarena, which is nestled among cedar trees on the bank of the Rouge River in Markham.

There are also 14 neighbourhood-based Volunteer Outdoor Ice Rinks in operation this season across the City. If you're interested in establishing one in the vicinity of Toogood Pond, Markham would be pleased to support your efforts.

For those who prefer indoor skating, Markham also offers public skating at eight of its Community Centres, including Crosby Arena right on Main Street Unionville.

Visit [markham.ca](http://markham.ca) for a complete list of ice rinks and to learn more about the Volunteer Outdoor Ice Rink program.

**General inquiries:**

Markham Contact Centre at [customerservice@markham.ca](mailto:customerservice@markham.ca) or 905.477.5530

**Volunteer Outdoor Ice Rink Program:**

Nory Takata at [ntakata@markham.ca](mailto:ntakata@markham.ca) or 905.477.7000 ext. 3226