



STAFF REPORT ACTION REQUIRED

Alternatives to Four-sided Swimming Pool Enclosures

Date:	April 23, 2008
To:	Licensing and Standards Committee
From:	Lenna Bradburn, Executive Director, Municipal Licensing and Standards
Wards:	All
Reference Number:	6823

SUMMARY

Staff assessed a number of alternatives to four-sided pool enclosures as part of its direction from Council to look at self-closing, self-latching devices. Although the safety measures adopted by different jurisdictions varies widely, in general, staff still believes that four-sided fencing offers the greatest level of protection to children less than six years old. This view is not only supported by the assessment conducted by City staff, but also by a number of academic reviews and studies, as well as other publications from various governments.

Any standard adopted into the bylaw needs to be enforceable in order to prove successful. For this reason, staff discourages the adoption of any standard that may make inspections more difficult to conduct. Furthermore, staff recommends that, when the current four-sided standards are not practicable for the accessibility or health and safety of an occupant who is disabled, an exemption process be made available.

Further, staff recommends that the four-sided standard be applied to any existing fence that is fully or substantially replaced or that is in such a state of disrepair that it is not practical to repair it, and that window devices on windows facing a pool area only be required for the ground floor. Finally, staff recommends the implementation of a public awareness/education campaign with respect to the new standards and pool safety in general.

This report was prepared in consultation with Toronto Building, Legal Services, Toronto Public Health, Emergency Medical Services and Toronto Fire Services. In addition, staff consulted with members and representatives of the swimming pool and hot tub, landscaping, and fencing industries, as well as a number of safety advocate groups.

RECOMMENDATIONS

The Executive Director of Municipal Licensing and Standards recommends that:

1. The current provisions in Toronto Municipal Code Chapter 447, Fences with respect to four-sided pool enclosures not be amended to include any alternative safety devices;
2. Individuals be able to request an exemption from the four-sided pool enclosure provision when it would not be practicable, because of a disability, as defined in the *Ontarians with Disabilities Act*, of an occupant of the building, to provide access in accordance with the requirements of the bylaw;
3. When an exemption is granted, conditions considered appropriate by Council to prevent a young child gaining access to the pool area unsupervised, be imposed;
4. When the need for an exemption ceases to exist, the pool enclosure be reinstated to comply fully with the provisions of the Chapter;
5. Subsection 447-3C(3)(b) of Toronto Municipal Code Chapter 447, Fences be amended by adding the word “ground” before the word “floor” so that the revised provision reads: “If the wall of any building, or portion thereof, forms part of the pool enclosure: ... (b) no window in the wall which is less than 1.5 metres above **ground** floor level shall be capable of being opened more than 100 millimetres unless a guard is permanently installed on the window to prevent the passage of a spherical object having a diameter of more than 100 millimetres through the window”;
6. Subsection 447-3C(3.1) of Toronto Municipal Code Chapter 447, Fences be amended by deleting the word “only” and the period at the end of the clause and immediately following adding, “and any existing fence if a substantial portion of it is demolished or removed or if it is in such a state of disrepair that it is not practical to repair it,” so that the full subsection reads: “Subsection 447-3C(3)(a) applies to pool enclosures for which a pool enclosure permit was issued more than 30 calendar days after the enactment of that Subsection, and any existing fence if a substantial portion of it is demolished or removed or if it is in such a state of disrepair that it is not practical to repair it”;
7. Municipal Licensing and Standards, in conjunction with Toronto Building and Toronto Public Health develop an awareness and education campaign respecting the pool enclosure standards and pool safety;
8. This report be forwarded to the Board of Health for information; and,
9. Staff be directed to take any necessary actions to implement and otherwise put into effect the above recommendations.

IMPLEMENTATION POINTS

Toronto Building issues permits for pool enclosures, as per subsection 447-3B(1) of Toronto Municipal Code Chapter 447, Fences. Municipal Licensing and Standards inspects the enclosures and enforces the standards. Both Divisions will ensure that the issuing and inspection protocols reflect any changes to Municipal Code Chapter 447, Fences, as adopted by City Council.

An exemption process, as per recommendation no. 2, would follow the procedure currently in place for fence exemptions and entail the submission of an application and corresponding fee. Staff would consequently prepare a report on the matter to Community Council for its consideration. Such applications are expected to be few in number and therefore not have any material impact on resources.

Educational materials, as per recommendation no. 3, can be developed in-house and diffused through existing channels, such as customer service counters (during the permit issuing process), Municipal Standards Officers (during site inspections), Toronto Public Health through existing injury prevention programmes, and the City's web site.

It should be noted that the inclusion in the bylaw of any of the safety devices discussed in this report as alternatives to four-sided fencing would require a review by Toronto Building of the specific performance standards that such devices would need to satisfy. This would require a more in-depth assessment of pool enclosure permits and therefore substantially increase both the resources and time required to process a permit. Currently, most permits are same-day over-the-counter transactions.

FINANCIAL IMPACT

There are no financial implications as a result of the adoption of the recommendations of this report.

DECISION HISTORY

This report is in response to a motion adopted by Toronto City Council at its meeting of November 19 and 20, 2007, directing the Executive Director of Municipal Licensing and Standards to review and report to the Licensing and Standards Committee on the use of self-closing, self-latching doors as an alternative to four-sided fencing where a wall of a building otherwise forms part of the swimming pool enclosure.

In the interim, Council approved the requirement for four-sided enclosures for all outdoor swimming pools on private land. This requirement came into effect on December 20, 2007.

ISSUE BACKGROUND

The intent behind pool enclosure regulations is to prevent young children from gaining unintended access to unsupervised pool areas.

Health Canada acknowledges that “[e]ach year, many children drown in backyard swimming pools and in small kiddie pools.” They also point out that children are in particular danger because they like to play in water, they move quickly and they can drown in only a few centimetres of water. With respect to why children drown in swimming pools, Health Canada points to three main physical causes:

1. Sometimes the pool is not fenced in all the way around.
2. Sometimes the gate to the backyard is not shut all the way or locked.
3. Sometimes a young child gets to the pool through a patio door or garage door that opens into the backyard.

Among others, Health Canada suggests the following safety tips:

- Having a fence and a gate that will prevent children from accessing the pool;
- Keeping gates locked at all times;
- Always having an adult watching children in and around the pool;
- Sending children to swimming and water safety lessons;
- Having children under the age of three and children who cannot swim wear a life jacket or PFD (personal floatation device);
- Making sure lifesaving equipment and a first aid kit are handy; and
- Taking a course on pool safety, first aid and lifesaving skills (such as CPR).

It is the first two points in particular over which the City has legislative jurisdiction. Swimming pool enclosures are currently regulated under Toronto Municipal Chapter 447, Fences. Prior to amalgamation, each of the former municipalities had its own bylaws to regulate swimming pool enclosures.

COMMENTS

There is a large body of work that shows that the unintentional drowning of young children (generally defined as those under six years of age) is a significant social issue with high human and economic costs. This same body of work also generally agrees that there is no single measure that can fully prevent these types of incidents. Health Canada’s safety tips are a clear reflection of this principle.

Defining the scope of the problem

An estimated 58 children aged 14 and under drown every year in Canada, while another 140 are hospitalized for near-drowning. Nearly half of these drowning incidents occur in swimming pools and, of these, about six out of ten involved children less than four years old and another quarter involve children aged five to nine (Source: Safe Kids Canada, Child & Youth Unintentional Injury: 1994-2003 10 Years in Review).

It is important to note that near-drowning victims can sustain serious life-long injuries as a result of the oxygen deprivation suffered and the internal exposure to pool chemicals.

The most recent data on pool drownings and submersions for Toronto residents show that there were 13 deaths in total across all age groups between 2000 and 2004 (Source: Vital Statistics Data, Provincial Health Planning Database, Health Planning Branch, Ontario Ministry of Health & Long-Term Care). Between 2002 and 2006, there were 35 hospitalizations of which nine (or 26 per cent) involved children aged six and under (Source: In-Patient Discharges Data, Provincial Health Planning Database, Health Planning Branch, Ontario Ministry of Health & Long-Term Care). During the same five-year period, there were 48 emergency room visits of which ten (or 21 per cent) involved children age six and under (Source: National Ambulatory Care Reporting System data, Provincial Health Planning Database, Health Planning Branch, Ontario Ministry of Health & Long-Term Care). Drowning and submersion refer to unintentional incidents that occur while in a swimming pool or following a fall into a swimming pool.

The true incidence of near drowning injuries in pools is likely greater than that reflected in mortality, hospitalization and emergency room data. Victims may not die immediately from the drowning, but from complications afterwards, such as pneumonia. Therefore, the actual cause of death would not be recorded on the death certificate as a drowning. As well, less serious near drowning incidents are undocumented as they may be treated at home or at outpatient care facilities (for example, family doctors). The data also does not allow one to ascertain the proportion of incidents that were unsupervised and hence whether they might have been prevented by four-sided fencing or other alternatives.

Of course, any death and any injury is one death and one injury too many. Still, safety measures aimed at preventing these deaths and injuries should be practical and take into account the impact on pool owners, including their children; their neighbours, including their children; and, pool, fencing and landscaping businesses. Any measures implemented in the form of a bylaw must also be legally and operationally enforceable.

Looking at other jurisdictions

In Ontario, most municipalities require that a residential outdoor swimming pool be fully enclosed by either a four-sided enclosure with a self-closing, self-latching gate or a three-sided fence with the fourth side comprised of the building wall and the access doorway through this wall being secure. A summary of these municipal regulations is provided in

Appendix A. Of course, homeowners would be free to install any other safety measures above and beyond those required by the bylaw.

In October 2007, the Quebec National Assembly adopted a new law establishing a single pool safety standard for pools across the province. The specific standards are to be introduced through regulation. Although this has yet to take place, the working group established by its Ministry of Municipal Affairs and Regions has specifically recommended four-sided fencing with no alternatives (Source: Rapport sur la sécurité des piscines résidentielles, January 2007).

All of the American jurisdictions examined did not exclusively require four-sided swimming pool fencing. They allow a variety of safety measures.

In 2004, new national pool safety regulations came into effect in France. These regulations apply to outdoor in-ground swimming pools only and allow for fencing, pool shelters, pool covers and alarms. All devices must meet established standards.

Auckland, New Zealand allows three-sided fencing with the building making up the fourth side. It does, however, require self-closing, self-latching devices on all access doors to the pool area.

In Western Australia, all swimming pools built after November 5, 2001 must be surrounded by a suitable barrier. This barrier may include boundary fences and gates. It may also include the wall from a building, but cannot include a door, unless it is permanently sealed with a device other than a key and locking mechanism. Barriers can only include windows that restrict access in accordance with standards.

The toughest swimming pool enclosure regulations reviewed by staff were those of Queensland, Australia. The fencing of residential swimming pools was first mandated in 1991. Regulations were made more stringent in 1998 and again in 2003 with the introduction of compulsory four-sided fencing for all outdoor residential pools.

In its background statement, the Department of Local Government and Planning states that:

...it is fully committed to ensuring residential swimming pools are safe places for fun and relaxation. Therefore the Government makes no excuses for making the pool fencing legislation as strong as it can be.

The legislation was introduced to reduce the risk of fatality and injury to young children by requiring pool owners to provide fencing around swimming pools. It must be remembered that these children may be resident on the property, or on the property without permission.

All residential outdoor swimming pools in Queensland now require a fence, irrespective of when the pool was constructed. Existing fences need to comply with the legislation in effect at the time. If a fence is replaced, or if it is in such a state of disrepair that it cannot be practicably repaired, or if it is substantially demolished for any reason, it must be replaced with a new fence that meets the current four-sided standard.

Queensland does provide for exemptions, but only in cases where meeting the requirements would not be practicable, because of a disability of the occupant of the building, to limit access in accordance with the standards. If the need for the exemption ceases to exist, the pool fence has to be re-mediated to comply. In cases when exemptions are granted, however, local governments may impose other conditions they consider appropriate to prevent a young child from accessing the pool area.

It is interesting to note that both the Government of Queensland, Australia and the local Government of Auckland, New Zealand have emphasised follow-up inspections and timely enforcement as an integral part of a successful pool safety programme. Studies in Australia have shown that when enforcement is active, compliance with the standards is also highest.

Evaluating the four-sided fencing and the alternatives

Evaluation of pool safety measures is difficult. There are few studies that compare the effectiveness of the various devices and alternatives available in the marketplace. In addition, it is almost certain that different measures work better in conjunction with others, so that any evaluation of them as distinctly separate needs to be considered in this context.

In evaluating the main options available staff identified five parameters related to the potential effectiveness of each device (that is, their effectiveness under normal circumstances). These parameters were weighed in terms of their perceived importance by staff. Each parameter, along with their weighted importance is provided in the following table:

<u>Parameter</u>	<u>Weight</u>
Effectiveness of the device in preventing young children from accessing the pool area.	7
Effectiveness of the device in preventing young children from gaining access to the water.	6
Degree to which device is “passive” (that is, does not require engagement by owner).	5
Ease with which a device can be inspected by City officers.	4
Cost effectiveness to consumer.	3

A rationale for the parameters selected and their weighted importance is provided in Appendix B. Each parameter was graded on a scale of one to four, where each grade means the following:

<u>Grade</u>	<u>Meaning</u>
4	High / always / passive
3	Medium / sometimes / generally passive
2	Low / unlikely / generally active
1	None / never / active

Each grade given was multiplied by its corresponding weight. Weighted scores were added to obtain a total mark. The maximum potential total score is 100. A summary of the scores for each option is provided in Appendix C.

Each option is briefly described below and a rationale for its grades is also provided.

1. Four-sided fencing

Thompson and Rivara reviewed literature to determine if pool fencing prevents drowning in children in 1997. They updated their review in 2006. They concluded that four-sided fencing which completely encircles the pool and isolates it from the house can prevent about three quarters of all child drownings in residential swimming pools. In a separate review, the Government of Queensland, Australia reports that 13 per cent of the children that drowned in residential swimming pools did so because they gained access through defective house doors (in three-sided fencing permitted for pools approved prior to the new legislation).

Fencing is a passive measure and as such is generally more effective than other active measures (that is, those that rely on human behaviour to work). The efficacy of passive measures over active ones has been demonstrated in numerous studies and is now generally recognised. Thus, fencing, and specifically fencing that isolates the swimming pool from the home, is widely acknowledged as the most effective means of preventing access to the pool area. For this reason four-sided fencing was given a score of four for this parameter.

As with any physical safety device, fencing is only effective if it is properly maintained.

In terms of cost-effectiveness, fencing can vary widely but it is generally economical. Although it may not be usually as expensive as pool covers, it is likely more expensive than alarms or magnetic doors.

Four-sided fencing does not require any new permit issuing procedures beyond those in place. Inspection and enforcement activities are well within the authority of the City to ensure compliance.

2. Child-proof (removable) fencing

Child-proof fencing is used to isolate the pool from the rest of the backyard. It is removable fencing with aluminium posts anchored to the ground and a self-latching gate. The fence panels themselves are made of a see-through PVC-coated mesh that allows anyone from outside the enclosure to monitor the pool. A popular product in the marketplace claims a horizontal force load strength of greater than 75 pounds. For the average swimming pool, it takes less than ten minutes to completely remove the barrier.

Once set up, child-proof fencing could be considered a passive device. It also prevents the child from accessing the immediate pool area. However, when it is down it could be considered active in that it requires the owner to set it up again. For this reason staff gave it a score of two for this parameter.

Adoption of this device would require new permit issuing procedures to evaluate the adequacy of the product proposed. Because it is not currently a regulated requirement, swimming pool owners may use any product they desire as long as their enclosures meet the requirements of the bylaw. If such fencing becomes an alternative requirement then the City must provide the standard by which such products will be deemed adequate.

3. Magnetic gate and door locks

These mechanisms would usually be used with enclosure gates but could also be used on doors leading from the building to the pool area. Although the systems are hooked up to the house power supply, a back-up power supply can be installed and would be required if it were adopted as an alternative standard.

Magnetic locks are generally a passive device once they are engaged. It is assumed that most models would be engaged by default. For this reason staff gave this device a score of three for this parameter.

If the mechanisms are used for enclosure gates and all of the hardware can be accessed from the backyard, then City officers would be able to inspect the device. If an access code is required to unlock the gate, however, assistance from the owner may be required. If, on the other hand, mechanisms are placed indoors staff would not be able to conduct future inspections without consent from the owner, a court order, or a warrant.

Generally speaking, magnetic gate and door locks are cost-effective for most swimming pool owners and are probably among the most cost-effective of the measures considered.

Adoption of this device would require new permit issuing procedures to evaluate the different systems and their back-up power supplies. The City would need to establish the performance standards for all approved devices.

4. Door alarms

Alarms are generally used on doors leading from the building to the pool area. They alert of a breach, but not until several seconds after the door has been opened. This delay could potentially provide enough time for a child to reach the swimming pool. For this reason, staff only gave this device a score of two for the first two parameters.

Some models of alarms do not require active engagement, as they automatically reset under all conditions. If adopted, this feature would be a requirement. Many models are powered by batteries, like smoke detectors, which increases the risk of the device being left inoperative if the batteries wear out and are not replaced. For this reason staff gave it a score of three for its degree of passiveness.

Alarm systems are generally cost-effective measures for most consumers, especially when comparing them to some of the other options considered in this report.

Alarms installed on doors leading from the building to the pool area are generally installed inside the dwelling. Thus, their inspection by City officers would require access to the dwelling unit, which in turn requires explicit consent from the occupant, a court order, or a warrant.

As with magnetic lock systems, the adoption of this device would require new permit issuing procedures to evaluate the different systems. The City would need to establish the performance standards for all approved devices

5. Pool covers

Pool covers are made of a durable fabric that is unfurled over the swimming pool along a track. The fabric is kept taut over the pool and is able to easily support the weight of a child without much give. Since the cover is at or below ground level, it does not make it possible for a child to access the pool by trying to slip in underneath. Thus, although the cover does not prevent the child from accessing the pool area itself, it does prevent access to the swimming pool and was therefore given only a score of one for this parameter.

Pool covers come in both manual and automatic models, with the later often being twice as expensive as the former. In general terms pool covers are the most expensive of the options reviewed. Manual models can generally be closed in less than 90 seconds. Automatic models, which use a hydraulic system, work at a rate of about one foot per second. The power supply for the automatic models can be

placed safely away from the pool itself. A back-up power supply would be required if this kind of system were approved as an alternative option.

One of the major drawbacks to this type of device is that it is an active measure. It needs to be actively engaged by someone or it is entirely ineffective. For this reason staff gave it only a score of 1 in terms of its degree of passiveness.

The engagement mechanism for a pool cover is generally found outside. It is sometimes housed and kept under lock and key. Thus, access may be restricted and its inspection may require cooperation from the owner.

Adoption of these devices by the City would require the establishment of performance standards, as well as new procedures for permit issuing to evaluate systems.

Although staff assessed each alternative measure on its individual merits, it should be noted that two or more measures could be used jointly to increase the overall safety factor. At the same time, however, because most alternatives are active measures they are likely more prone to one or more of them not being engaged when used in this joint manner.

All of the safety advocate groups consulted agreed that four-sided fencing is the most effective engineered means of preventing unintended drownings. All of the industry representatives consulted maintained that the other devices proposed provide effective alternatives to four-sided fencing.

Although there is the possibility that the four-sided fencing requirement could have an initial dampening effect on the pool industry, staff believe that such an effect would be largely alleviated over time, once prospective pool owners and pool, fence, and landscaping professionals begin to better determine how to integrate the new standards into their designs.

Enforcement

The value of any bylaw is largely predicated on the ability of the relevant authority to enforce the bylaw's provisions. A bylaw that cannot be effectively enforced serves as little more than a statement of preference as to what should be done. In addition, higher rates of compliance have been directly linked to more active enforcement programmes. For this reason, staff believes that any standard incorporated into the pool enclosure provisions of Toronto Municipal Code Chapter 447, Fences should take into account operational requirements.

The current pool enclosure permit issuing process includes a mandatory inspection to ensure compliance with the bylaw. Municipal Standards Officers however, do not have the authority to enter dwellings without express permission from the occupant, a court

order, or a warrant. Under the current requirements of Chapter 447, this is not a problem because all pool enclosure components are located outside. If new standards permitted devices that are located fully or partly inside the dwelling, then staff would be limited in their ability to inspect.

As part of the initial permit-issuing process, City staff could require that any safety equipment be inspected. If alternatives other than four-sided fencing were adopted into the bylaw, residents would have the choice of installing a device that is fully outside and therefore does not require an Officer to enter the dwelling or they could select a device that is fully or partially located inside the dwelling and grant permission for an Officer to enter to inspect. In the latter case, failure to allow inspection of the devices would result in the permit not being issued. Without a pool enclosure permit, the owner would not be permitted to fill the swimming pool. Access for subsequent inspections, usually arising as a result of a complaint, would still be contingent on the occupant granting permission to enter the dwelling. Again, if entry is refused, no inspection could take place without a court order or warrant.

An alternative, in lieu of a City-administered inspection, might entail requiring that the occupant provide a letter from a professional engineer certifying that the device is working as originally intended. This requirement would add another layer of administration from the City's perspective and could add substantial cost to the owner or occupant of the property.

Thus, from an administrative and enforcement standpoint, any option that does not permit effective enforcement would not be recommended. At the same time, any option that adds cost and complexity to the permit-issuing and inspection functions would be considered less desirable and would have to be weighed against their benefits.

Exemptions

Staff believe that safety should be a priority over many other concerns, including aesthetics, convenience and cost. These other concerns do have a role to play in the analysis, but that role should be subservient to the safety objectives. This being said, there may be circumstances that warrant compromises. One such circumstance has to do with the accessibility of occupants with disabilities.

It is therefore proposed that an exemption process, like the one implemented in Queensland, Australia, be made available to individuals that, for their own accessibility or other health and safety related reasons, cannot practically comply with the four-sided requirements.

Where an exemption is granted, Community Council would be able to impose other measures, as it considers appropriate, to prevent young children from gaining unintended access to the pool area unsupervised. Among these conditions would be that once the

reason for an exemption ceases to exist the pool enclosure be made compliant with the bylaw.

Conclusion

Based on the assessment carried out by staff, a number of academic reviews and studies, as well as government publications with respect to pool fencing, staff believe that four-sided pool fencing is the single most effective safety measure with respect to preventing young children from unintentionally accessing swimming pool areas. This conclusion, however, is predicated on the assumption that fencing and gates are maintained and used properly. Additionally, fencing (or any other safety measure) alone, without prudent caregiver supervision, cannot guarantee the safety of young children. Conversely, and in refutation of the argument often made by opponents of fencing legislation, Thompson and Rivara cite a study from Queensland, Australia that provides evidence that caregiver factors may also be inadequate to prevent toddler drowning.

As a single physical measure, four-sided fencing is highly effective and lends itself well to inspection by City staff, a key component in ensuring compliance. It is also generally cost-effective for most swimming pool owners. On the other hand, it is likely not the most aesthetically attractive option for many swimming pool owners and it may also require design compromises from property owners on some smaller lots. These are some of the costs that must be weighed against the additional safety that is likely obtained from four-sided fencing.

Finally, the Ontario Ministry of Health and Long-Term Care maintains that the most successful injury prevention initiatives use a combination of engineering strategies, that modify products or the environment to provide automatic protection against injury; enforcement strategies, that ensure there is ongoing compliance with established standards; and, educational strategies, that persuade people to alter their behaviour to reduce risk.

Other amendments

In its report, dated October 18, 2007, the Executive Director recommended that:

If the wall of any building, or portion thereof, forms part of the pool enclosure, no window in the wall which is less than 1.5 metres above floor level shall be capable of being opened more than 100 millimetres unless a guard is permanently installed on the window to prevent the passage of a spherical object having a diameter of more than 100 millimetres through the window.

This recommendation effectively provides for any window facing the pool, irrespective of what floor it is on, to not open more than 100 millimetres. Prior to the adoption of the

recommendation, however, the bylaw only required such a restriction on windows on the ground floor, since these are the only windows that can realistically be used as an access point to the pool area. The omission of the word “ground” before the word “floor” in the October 2007 recommendation was a transcription error and, as a result, staff are now recommending that it be inserted in the provision.

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ATTACHMENTS

- Appendix A: Regulations in Other Jurisdictions in Ontario
- Appendix B: Rationale for Safety Parameters and Weighted Importance
- Appendix C: Summary of Scores for Swimming Pool Enclosure Safety Options

Appendix A

Regulations in Other Jurisdictions in Ontario

Municipality and corresponding by-law	No access doors from building leading to pool area allowed	All access doors from building leading to pool area restricted	Only doors not leading into a dwelling restricted	No restriction on doors from building leading to pool area	Height restriction for devices on access doors from building leading to pool area
Toronto (Ch. 447)	✓				n/a
Ottawa (2001-259)		✓			135 cm
Mississauga (115-04)		✓			153 cm
Hamilton (01-264)		✓			183 cm
Brampton (95-92)			✓		120 cm
London (PS-5)				✓	n/a
Markham (59-75)		✓			168 cm
Oshawa (79-2006)		✓			150 cm
Oakville (2006-071)		✓			183 cm
Richmond Hill (Ch. 973)		✓			150 cm
Vaughan (80-90)		✓			122 cm
Bellville (2006-65)			✓		152 cm
South Huron (24-2004)				✓	n/a
Woolwich (52-2007)				✓	n/a

Appendix B

Rationale for Safety Parameters and Weighted Importance

In coming to a decision as to which factors to include as assessment parameters, staff referred back to its objective of preventing young children from gaining unintended access to unsupervised pool areas. Staff additionally relied on a number of academic studies and government publications for guidance. The following table provides a brief rationale for the parameters selected and for their assigned score weight.

Parameter:	Effectiveness of the device in preventing young children from accessing the pool area	Weight:	7 (or 28%)
This parameter relates directly to the intent of swimming pool enclosure regulations (i.e., to prevent young children from gaining unintended access to unsupervised pool areas). If a child cannot gain access to the pool area he or she cannot jump in or fall into the swimming pool. For this reason this parameter is regarded as the most important and assigned a corresponding weight.			
Parameter:	Effectiveness of the device in preventing young children from gaining access to the water	Weight:	6 (or 24%)
This parameter is similar to the one above but implies one less degree of separation from the immediate danger of the swimming pool. For this reason it is not weighed as heavily as the parameter above. Despite this, any device that can effectively prevent a child from falling or jumping into the swimming pool is still directly preventing injury and is therefore weighed accordingly.			
Parameter:	Degree to which device is “passive” (i.e., does not require engagement by owner)	Weight:	5 (or 20%)
An active measure requires a person to take some sort of action to reduce the potential for injury. A passive measure, on the other hand, generally requires no action on the part of an individual. According to the Ontario Ministry of Health and Long-Term Care, “passive measures are considered to be the most effective strategies for preventing injury because they forfeit the need to rely on human behaviour for protection.” Therefore, staff believe that an important indicator of a device’s effectiveness is whether it is a passive or active measure.			

Parameter:	Ease with which a device can be inspected by City inspectors	Weight:	4 (or 16%)
<p>The ability of staff to inspect safety devices, for purposes of both issuing the pool enclosure permit and carrying subsequent inspections as required, is key in ensuring compliance with the established rules. Municipal Standards Officers do not generally have the authority to enter dwellings to carry out inspections. As such, any device that is fully or partially located inside a dwelling offers limited opportunity for staff to inspect, potentially making the established standard very difficult to enforce. Staff believe that an effective standard is one that can be effectively enforced, and that the assigned weight reflects this.</p>			

Parameter:	Cost effectiveness to consumer	Weight:	3 (or 12%)
<p>The cost effectiveness for consumers of safety measures has an indirect impact on the overall effectiveness of the measure. It is less onerous to comply with established regulations if the approved devices are less expensive to install and maintain. For this reason cost effectiveness is still included as a parameter, although with a lesser weight than other parameters.</p>			

There are other factors that are discussed in the report but that are not included in the list of safety parameters considered because they have little or no evident impact on the safety effectiveness of the device considered. Technical implementation issues are some such factors. Although different devices may imply the need for additional City resources and expertise to implement the regulations, this additional complexity does not have an immediately evident impact on the safety effectiveness of the options being considered. Similarly, other factors, such as the aesthetic design factors associated with the various devices are also not included as a parameter because although they may certainly impact on a property owner's decision of how or whether to install a pool, they do not have an impact on the safety effectiveness of the options being considered.

Appendix C

Summary of Scores for Swimming Pool Enclosure Safety Options

Safety Option	Weight					TOTAL SCORE
	(7)	(6)	(5)	(4)	(3)	
	Prevent accessing pool area	Prevent gaining access to water	Degree to which device is passive	Ease of inspection by City inspectors	Cost effectiveness to consumer	
Four-sided swimming pool enclosure	4	4	4	4	3	97
Child-proof (removable) fencing	4	4	2	4	3	87
Magnetic gate and door locks	3	3	3	2	4	74
Alarms for doors leading to pool area	2	2	3	1	4	57
Swimming pool covers (automatic and manual)	1	4	1	3	2	54

Grade Legend:

- 4 High / always / passive
- 3 Medium / sometimes / generally passive
- 2 Low / unlikely / generally active
- 1 None / never / active