



# City of Guelph Outside Water Use By-law

## Swimming Pools and Outdoor Aquatic Recreation

This fact sheet deals with:

- residential outdoor swimming pools (both above and below ground);
- residential hot tubs and spas; and,
- other private outdoor pools, hot tubs and spas (at hotels, clubs, etc.);

Aquatic play by children at home (“kiddie pools,” sprinkler play, etc.) is also not considered here, as this is widely understood to be a trivial consumer of water and it is important to the fabric of family and community life. As such, provisions for this water use are not anticipated to change under the scope of the Outdoor Water Use By-law Review. Indoor pools of all kinds are also not considered because they are not an outdoor use, although many of the best practices for saving water would also be applicable there.

### Extent of End Use in City of Guelph

Research using aerial photos conducted by City staff in 2010 resulted in a count of at least 1,482 residential pools of all kinds across Guelph, or about six per cent of all single family homes. In addition, there is at least one outdoor pool attached to a hotel in Guelph and additional ones may be found at private clubs and other commercial facilities.

There are no readily accessible statistics on the ratio of different types of pools in Guelph. However, as a point of reference, in the United States, 55 per cent of pools are residential in-ground, 42 per cent are residential above ground and the remaining three per cent are commercial (Horner, 2009).

There is no information to quantify the volumes of water consumed by pools in cities in Ontario. However, a study by Maddaus and Mayer (2001) compared water use of swimming pools and irrigated landscape areas using information gathered from 1,129 homes in 14 locations in the United States and Canada. It is found that for the 194 homes with swimming pools, the addition of the pool increased demand between 22 to 25 per cent.

However, using water use estimates for a typical home in Sacramento, California and Tampa, Florida, it was determined that swimming pools and irrigated lawn area use about the same amount of water on a square footage basis. In other words, if a homeowner in these regions were to remove irrigated turf grass and install a swimming pool, the water use for each square foot of grass replaced by pool water surface area would be about the same. It is not known whether these results would be the same in Guelph given the very different climatic conditions.

Prevalence of hot tubs and spas in Guelph is unknown. However, it is expected that total water demand from this end use will be relatively trivial. This is because of their small capacity, the fact that they are typically fully covered and well insulated, and they have chemically intensive water treatment systems. As such, losses to evaporation and cleaning will be relatively minor.

## Best Management Practices for Efficient Use

Water efficiency of outdoor swimming pool can be greatly enhanced in a number of ways. Water use is affected by a variety of factors including:

- size of the pool (surface area and depth);
- amount of evaporation (related to local climate);
- frequency of backwashing;
- leakage, splashing, and deck cleaning;
- use of a pool cover;
- water temperature (warmer water evaporates faster);
- presence of a fountain or waterfall;
- pH and chemical content of pool water; and,
- individual maintenance habits, such as overfilling (Horner, 2009).

While pools strike many people as using massive quantities of water, it is important to remember that outdoor pools are regularly recharged by rainfall. They are also drained very infrequently.

The two most significant sources of water loss are evaporation and filters/backwashing.

With respect to evaporation, use of a pool cover eliminates almost this entire source of loss - over 90 per cent according to some Australian sources. As such, pool covers are considered the single most effective efficiency measure. According to the US Department of Energy, covering a pool when not in use reduces the amount of make-up water required by 30 to 50 per cent. Because insulated covers also reduce heat loss, this technique is also an important energy efficiency measure. Finally, they reduce chemical consumption by 35 to 60 per cent.

### Typical Pool Cover

Options include “bubble” solar covers, insulated vinyl and liquid chemical evaporation inhibitors.

Any use of a pool cover must be accompanied by suitable fencing, supervision and other measures to reduce risk of drowning to children, pets and others who might become trapped under it.



Source: Wikipedia

Wind is another factor influencing evaporation. Homeowners can be advised to design and install landscape features such as trees or fences in such a way that they buffer pools.

With respect to maintenance and filtration, the filters in pools are periodically backwashed to the sewer system to remove collected materials. When purchasing a new filter, homeowners

can be advised to look for the most efficient models. For example, sand filters are the simplest to use, but typically consume more water than DE (Diatomaceous Earth) ones or other options.

For homeowners that have already purchased their filters, they can reduce the frequency of cycles. Backwashing too frequently wastes water, while not backwashing often enough wastes energy by forcing pumps to work harder. Pool suppliers and maintenance professionals can provide advice on this based on the pool size, filter type, time of year, etc.

A final source of losses is leaks. According to some Australian sources, about one in every 20 pools has a leak. Homeowners should inspect pools regularly for cracks and other indicators including:

- rapid drops in water levels;
- unusual water consumption according to the household meter;
- unusually rapid algae formation soon after chemical treatment;
- loose tiles or pool deck cracking;
- gaps and cracks in the pool shell;
- ground settling around the pool structure; and,
- constantly damp soil around the pool or house.

Other ways to save water with pools include:

- waiting for rain (if forecast) to fill the pool naturally;
- lowering the pool level slightly to reduce splashing;
- reducing temperatures of heated pools to decrease evaporation (and save energy);
- using a broom rather than hose to clean around the pool;
- using water efficient and drought tolerate plants for landscaping around pools; and,
- replacing showers in pool areas with low flow fixtures.

### Contribution to Overall Outdoor Water Use

Indicator	Impact
Portion of customers that practice the end use	Low
Average volume of water used each time the end use is practiced	Large
Average frequency with which customers practice the end use	Infrequent
Contribution of end use to overall outdoor consumption	Medium