



# Executive Summary

Expansions to our water and wastewater infrastructure will continue to increase as the City's population and employment continues to grow. However, expanding water and wastewater facilities is costly. An alternative is to use the existing water and wastewater infrastructure more efficiently. To achieve this, the City of Toronto has prepared a comprehensive Water Efficiency Plan. The plan, which will be implemented on a City-wide basis, contains a detailed implementation schedule with a set of sector specific water efficiency measures to help reduce water use, water loss, and reduce wastewater flows in the most cost-effective way.

## The Demand for Water

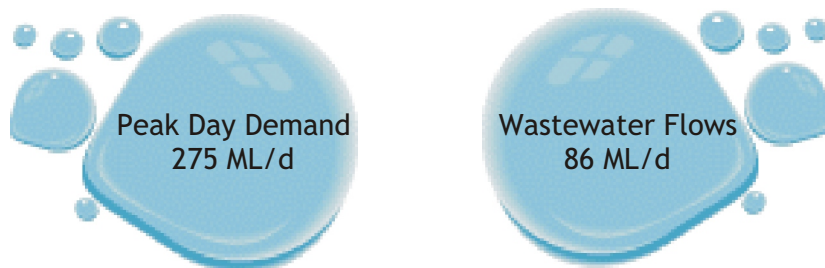
Today, the City of Toronto supplies approximately 1,230 Mega Litres per day (ML/d) of potable drinking water to its population of 2.59 million persons. It is anticipated that expansions to the water and wastewater infrastructure will be required to service the increased water demands associated with projected population and employment growth.

However, population and employment are not the only factors affecting the demand for water. Changes in weather can significantly influence demands. For instance, during hot and dry summer periods the City usually experiences its highest daily water demand - the peak day demand. During this period of heavy outdoor water use, i.e., landscape irrigation, the City's water supply system must produce and distribute enough water to satisfy these extreme and short-term demands. Other factors that influence demand, but to a lesser degree, include: demographics, housing stock, employment, the size and make-up of the industrial, commercial, and institutional (ICI) sector, technology, public attitudes, regulations and policies, and water rates.



## The Need for Water Efficiency

In 1993 the former Metro Council adopted a target of a 15% reduction in water demands by 2011 to reduce capital works in both the water supply/distribution and the wastewater collection /treatment systems. The Water Efficiency Plan is required to help achieve the following reduction targets:



In support of the development of the Water Efficiency Plan, a wide variety of water efficiency measures have been reviewed and assessed. An initial list of over 70 potential measures was reduced to 21 measures, as some were combined, others were not applicable to Toronto's population or climate, and others were simply beyond the scope of the Plan. The 21 remaining measures were screened for their technical feasibility, social acceptability, and applicability within Toronto. After grouping similar measures and applying the screening criteria, the following seven water efficiency measures were short-listed:

- System Leak Detection
- Computer Controlled Irrigation
- Watering Restrictions
- Toilet Replacement
- Clothes Washer Replacement
- Outdoor Water Audits
- Indoor Water Audits

Each of the short-listed measures were applied to one or more of four water use categories: municipal, single-family residential, multi-unit residential, and industrial, commercial and institutional (ICI). For example, the toilet replacement measure is found in the single-family residential, multi-unit residential and ICI categories.

## The Costs and Savings

A maximum water saving was calculated on the basis of a 100% participation rate. This assumes for example, that 100% of the eligible fixtures would be replaced, or, 100% of eligible sites would implement the water efficient measure. However, it is unlikely that 100% of the marketplace will participate, therefore a target water saving was calculated using an expected participation rate. The expected participation rates were identified by examining such factors as projected population and employment growth, historical water demands, and the results from recent pilot programs. Since target water savings are dependent on participation rates, financial incentives are being offered to encourage uptake.

The total cost to implement the WEP over the implementation period is approximately \$74.3 million. This compares favourably to the cost of providing an equivalent capacity by expanding the water and wastewater infrastructure, estimated at \$220 million. Therefore, the Plan's overall benefit to cost ratio is 0.34, or in other words, the cost to implement the WEP is approximately one-third of the cost of expanding Toronto's water and wastewater infrastructure.

The Water Efficiency Plan outlines a detailed implementation schedule on a measure-by-measure basis to the year 2011. The Plan also recognizes that key elements to the success of the program include:

- Public education and promotion;
- Appropriate allocation of staff resources; and
- Monitoring to track the Plan's effectiveness.

## The Added Features

The Water Efficiency Plan goes beyond just reductions in water demand. It includes many other benefits such as:

- Avoided energy and chemical costs associated with the supply and treatment of water;
- Reduced carbon dioxide emissions; and
- Opportunities for customers to reduce water demands and save on their water bill.

The Water Efficiency Plan offers flexibility and, unlike construction of infrastructure, can be revisited and modified as necessary throughout its implementation. For example, new water efficiency technologies may be developed and introduced into the Plan at a later time. As well, the program schedule or incentive amounts may have to be periodically adjusted based on observed participation rates. Water saved as part of the WEP will help to reduce the need for both water supply and wastewater treatment infrastructure expansion. The greater the amount of water saved, the more capital works projects can be reduced, and the greater the economic value to the City.