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## Full price costing is vital to restore and maintain our infrastructure

### Credits

[Sam Morra, Executive Director,](#)  
[Ontario Sewer and Watermain Construction Association](#)

Much of our core infrastructure of sewers, watermains, roads, bridges, electrical power and transit are coming to the end of their life cycle. Ontario is on the verge of a new era of renewed confidence in the safety of its drinking water, the timely reconstruction of aging facilities and an understanding and acceptance by all that the financial sustainability of our water and sewage systems is paramount.

Currently, estimates put the value of Ontario's municipal water and sewage infrastructure at over \$60 billion. About \$40 billion of that total represents the underground pipe and precast. Although there was significant money spent in the past, today, our systems are simply deteriorating faster than they are being replaced.

Infrastructure disrepair manifests itself in the form of encrusted and leaking watermains which not only impair the ability of chloride to properly disinfect the water but also cost about \$150 million every year in lost drinking water. In addition, old combined storm and sanitary sewer systems end up flooding basements, polluting our rivers and lakes and closing beaches.

There are many reasons for infrastructure neglect but by far the most apparent is the long-standing practice of undercharging for water and sewage services. While they are a municipal responsibility in Ontario, provincial and federal subsidies played a significant role in building the systems. Unfortunately, municipalities have used these subsidies to create artificially low water rates instead of setting up dedicated reserve accounts to pay for rectifying the rampant deficiencies we are seeing today.

Unfortunately, in the past 30 years, the status quo of cheap water had become entrenched here in Ontario and across the nation.

Even as we raised alarm bells, events were in motion that would rivet national attention on the small southwestern Ontario town of Walkerton in the spring of 2000, which became a tragedy that none of us could have for seen.

In addition to full cost pricing, OSWCA's nine-step plan advocated transitional assistance for municipalities, the establishment of dedicated water and sewage reserve accounts, and a number of their provisions to enhance accountability.

When action shifted to Queen's Park for a legislative battle that resulted in the passage of Bill 175, OSCWA was front and center in proposing amendments to the initial bill. We formed a coalition with the Ontario Concrete Pipe Association, Consulting Engineers of Ontario, Pollution Probe, Universal Workers Local 183, Council of Ontario Construction Associations and the Lake Ontario Waterkeeper.

Bill 175, the Sustainable Water and Sewage Systems Act, increases municipal accountability and transparency by mandating all municipalities to conduct condition assessment studies and report to the provincial government on their infrastructure required to provide water and sewage services.

It also requires municipalities to disclose and recover the full costs of providing these services. Just as important, municipalities must set up dedicated reserve accounts in order to build up the funds needed to deal with on-going maintenance, repair and the eventual replacement of their water and sewage infrastructure.

Because it enshrines the principle of full cost pricing and full cost recovery in legislation for the first time ever, Bill 175 represents a real breakthrough for the long-term sustainability of Ontario's

water and sewage systems.

We see three major regulations that still need to be developed:

\*First, we believe the province should set a deadline for municipal compliance with the full cost pricing policy, phasing in the concept over a five to eight year period.

\*Second, the province needs to clearly define full cost pricing, so consumers and municipalities will exactly what they are paying for and keep consumer buy-in high by ensuring that everyone is on a level playing field; and,

\*Third, the regulations must make water metering mandatory across the province. Metering is the most effective way to track leakage and consumption while allowing consumers to see how much water they are using relative to its cost.

Even before the Walkerton tragedy, our research was showing a very high consumer buy-in to full cost pricing. In June 2000 we found that over 90 percent of the public were in favor of a law requiring municipalities to create dedicated water and sewage reserve funds - with 65% saying it was "very necessary". Over 80 percent were also willing to pay more on their water bill.

Our sense is that polling results today would show even stronger support for the notion that we have to pay more to safeguard our drinking water. Tragedies in Walkerton, Ontario, and North Battleford, Saskatchewan, plus the almost daily media coverage on broken water mains and new drinking water hazards across the country, are finally driving home the drastic need for change.

Moving the Sustainable Water and Sewage Systems Act forward promptly and decisively will be a crucial test for the new Ontario Liberal government. Stakeholders will be watching for signals. In the absence of any indication from the new government to the contrary, we have every reason to believe it is full speed ahead. The first indication is the lightning quick move it made to lift the artificial cap on the price of residential electricity. If this move is in any way indicative of the Liberal philosophy on full cost pricing, then the argument for applying a similar approach to water and sewage rates becomes that much stronger.

In 2002, the feds announced the Canadian Strategic Infrastructure Fund to target larger projects over \$50M in value across the country. In Ontario, the city of Kingston, for example, was a beneficiary of this program for their sewage forcemain and related works across the Cataraqui River.

We anticipate a surge in water and sewage projects as a result of Bill 175's implementation over the next several years; many will be located in highly urbanized older areas where there are a growing number of utilities found in our crowded municipal rights of ways. OSWCA has been a leader regarding utility issues and more specifically, the use of Subsurface Utility Engineering (SUE). It is a win win investment for municipalities contemplating underground construction work.

SUE is a method for recording and presenting information on buried underground utilities, combining traditional civil engineering utility data collection and depiction methods with new computer and optic technologies that have evolved over the past two decades. In early 2003, the American Society of Civil Engineers published a Standard for SUE, referenced as CI/ASCE 38-02.

SUE is used primarily by municipalities and road authorities in planning and design to determine appropriate locations for new water, sewage and road infrastructure by pinpointing the existing underground utilities expected to be encountered in subsurface construction projects.

Utility locates on the other hand, are responses by the owners of underground utility services that may be present at a proposed excavation site. The utility owners provide on site markings, sketches and other sources of information that attempt to identify the location of the buried utility works.

While it is beneficial and desirable for the excavator to be informed of the horizontal and vertical location of utility works as well as the composition and the type of structure involved, most Ontario based utilities only provide limited information on the horizontal location of the anticipated utility and provide little or no information on diameter, depth, composition or the type of structure to be encountered.

In the US, at least 40 state departments of transport are using SUE to sort through the subsurface congestion under their highways. An example of savings from the use of SUE was in a recent Maryland highway project that involved a road widening. Data gathered through SUE showed that about a mile of telephone, water and sewer lines were in conflict with the proposed road project. With SUE data in hand, designers were able to make slight changes to the construction design that avoided the relocation of but 400 ft of the underground utilities, saving an estimated \$1.3 (US) million dollars. The cost of using SUE on the project was about \$56,000, a return on investment of about 2,300 percent.

In Toronto, the recent use of SUE on a watermain project a few kilometers from a fatal explosion site apparently revealed a 50mm gas main that was not shown by the gas company on drawings circulated by the city. The repercussions could have been significant.

The US Federal Highway Administration commissioned Purdue University to study the effectiveness of SUE as a means of reducing costs and delays on highway projects. The investigation included 71 separate projects across four states, having a total value of more than \$1 billion. The study concluded an average of \$4.62 was saved in construction costs for every \$1.00 spent on SUE. Those savings are for the construction costs only and do not include the dollar savings and reduced damages for local utility services and any unrecoverable losses for contractors.

The OSWCA has been communicating with municipalities, and various provincial and federal government agencies, including the Ministry of Labor, the Ministry of Energy, and the Technical Standards and Safety Authority, about the importance of reliable utility mapping and locate information and the advantages and savings associated with the use of SUE.

In conclusion, strong leadership and advocacy have brought Ontario to the brink of a new era in the way it uses, maintains and pays for its water and sewage infrastructure.

Adapted from a speech given at the Ontario Concrete Pipe Association Sustainable Infrastructure Symposium.

## Credits

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### Publication(s)

Environmental Science & Engineering  
January 2004

## Read Another Article

### Subsurface Utility Engineering Services Gaining Momentum in Ontario



An accurate survey of surface features is an integral part of almost every construction project. These are features that can easily be seen with the naked eye. Why then are features that can't be seen ignored when they can cause cost overruns, delays, and safety concerns? With exception of picking up any valves and pedestals that give us only a rough idea as to their location, the position of utilities such as gas lines, telephone ducts, hydro cables, and watermains are usually ignored. Instead common practice is to rely on old maps and as-built drawings that may or may not reflect the true conditions that exist underground.

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