

by Bruce Hollands

More efficient service delivery is needed not only to help sustain municipalities

Reducing waste and inefficiency in water distribution

economically and environmentally, but stem the tide of ever-increasing local taxes.

For instance, user-pay approaches — where consumers are charged for services based on use — have proven cost-effective in providing local services. Residents who pay for the quantity of garbage they generate will produce less waste. Similarly, recording the volume of water used by customers helps reduce water consumption.

Metering programs encourage water efficiency, environmental stewardship and help defer or eliminate major capital expenditures for water plant expansion. They also reduce peak demand in summer, provide data to trace losses in transmission, and help create a cost-recovery system which is more accountable to taxpayers. A 2001 Environment Canada study confirmed that non-metered or flat rate water customers in Canada used 475 litres of water per capita per day (lpcd), while metered customers used only 272 lpcd, or 43% less.

According to industry experts, combined losses from non-metered customers and from leaky pipes (which averages between 20 and 50 per cent in most water distribution systems), costs taxpayers between \$1.8 billion and \$3 billion a year. This is equivalent to the water production of 9 to 15 water treatment plants, each capable of supplying a city the size of Winnipeg.

And there is no end in sight to the waste: as our water distribution systems age, leak rates increase, while higher energy costs and ever stricter water quality standards continue to drive water

pumping and treatment costs even higher.

Recently, the Township of Russell in Ontario had to find a new water source, due to water quality problems stemming from land use around its wells, particularly from farming. However, the cost of a new water treatment

plant, estimated at \$60 to \$80 million, was prohibitive. Instead, Mayor Ken Hill and members of council chose to construct a 27-kilometre water main connecting Russell to the City of Ottawa's municipal water supply at a cost of \$20 million. Under the 30-year agreement, Russell will maintain the pipeline and its residents will pay the same rate for water as Ottawa customers do.

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to replace older pipes with hydraulically efficient plastic pipes could achieve greenhouse gas emission reductions amounting to 5% of Canada's 'obligations' under the Kyoto Protocol.

Vinyl pipe has gained significant popularity worldwide not only because of its competitive price, but also because of its longevity. A study presented in Milan, Italy at a worldwide pipe symposium reported that vinyl pipe installed 70 years ago in Germany could easily see its 170th anniversary. Longer-life, lower-maintenance infrastructure assets like PVC save taxpayer dollars by making water systems more efficient. Calgary and Edmonton are saving an estimated \$5 million a year in avoided water main repair costs because of their extensive use of PVC pipe.

This new solution to an old problem could not come at a better time – 700 water main breaks occur every day in North America, costing utilities and local economies an estimated \$4 billion annually. This means that Russell will likely save \$20 to \$40 million in 2008 dollars over the next 100 years because it will not have to replace its water main during this period. It will also save millions more owing to lower

maintenance and operating costs.

If Canadians are to keep local taxes in check and waste less water, more municipalities must adopt efficient water practices and use longer-life, lower maintenance technologies in their water distribution systems.■

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like “best value” enabled the Township to improve the quality and value it received, while lowering costs. Projects in which tenders are not as competitively structured can end up costing millions more.

The pipe material finally chosen was polyvinyl chloride (PVC), which is corrosion proof, leak resistant and whose ultra smooth surface means that less energy is required to pump water from source to tap. According to Dr. Bryan Karney, professor of civil engineering at the University of Toronto, a national program