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Leaky pipes lose energy, water

Residents across the province are spending \$700 million a year for water that does not reach their taps, a new study reports.

Aging water systems have led to cracked, leaking pipes, **University of Toronto** associate civil engineering professor **Tamer El-Diraby** asserts in the study “Incorporating Sustainability in Infrastructure ROI.”

The report estimates that municipalities lose between 10 and 50 per cent of their piped water through leaking pipes. Toronto Water general manager **Lou Di Gironimo** told NRU that the city loses between 9 and 10 per cent due to leaks, adding that other “unaccounted for water” that doesn’t pass through a meter, such as water used by firefighters battling blazes, raises that percentage somewhat.

Di Gironimo noted that Toronto fares better than other large cities with similarly aging infrastructure and though the city experiences a higher rate of watermain breaks per 100 kilometres of pipes, they are generally smaller or repaired relatively quickly.

The province is facing a major infrastructure deficit in water and wastewater systems, says **Andy Manahan**, executive director of the **Residential and Civil Construction Alliance of Ontario**, which funded the study. Manahan noted that though pipe repairs are not as high profile as other infrastructure projects, such as major transit developments, directing funds towards the required repairs would bring about a host of benefits.

“These are little projects in the scale of things, compared to a project like a nuclear plant, but all of these collectively across the GTA provide great jobs, improve the liveability and health of our society and reduce energy requirements,” Manahan told NRU.

In fact, the report states that 30 per cent of the energy used to pump water through municipal systems is wasted due to leakage. With a new gas-fired power plant proposed for **York Region**, expansion of the Darlington nuclear plant and other energy projects moving forward to address increased demand, addressing such a waste of energy makes sense, Manahan said.

“As long as you waste water, you waste energy and if the energy is as expensive as we see it right now, much more money will go down the drain,” El-Diraby added.

Manahan said the recent allocation of federal infrastructure stimulus funds is encouraging, but criticized the program's March 31, 2011 end date, noting that many infrastructure projects take longer than two years to complete.

While Toronto only applied for stimulus funds to cover the purchase of 204 low-floor streetcars, other municipalities requested funding for water and wastewater infrastructure. **Peel Region** received \$90 million in federal infrastructure funding, with a significant portion of those funds dedicated to water and wastewater improvements.

However, for El-Diraby another major issue that needs to be addressed is a cultural shift in attitudes toward such infrastructure.

"[Municipalities] build infrastructure and then they forget about it. They don't collect data about it. They don't maintain it as effectively as they should."

Di Gironimo conceded that the city's water and wastewater system currently has a backlog of repairs and renewal that will cost an estimated \$1.8 billion. However, with water rate increases of 9 per cent each year for the past four years, and more planned in future years, that backlog is set to decrease. The city needs to spend approximately \$256 million each year on its water infrastructure to begin to reduce the backlog and this year's spending on repairs is expected to reach \$280 million. Di Gironimo said progress is slowly being made, adding that 2009 will be the first year that the backlog won't increase.

"It would take a lot of money and a lot of time, but not addressing the problem now and not addressing it effectively will take longer and a more severe amount of money," El-Diraby said. "It's a big problem and will get bigger if we don't address it."

"We're putting more and more money towards infrastructure renewal," Di Gironimo said.

The city will also begin a six-year, \$220-million initiative this year to replace old water meters with new ones, which can be read wirelessly and will eventually lead to a more effective monitoring system to try and catch leaks earlier.

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• Tamer El-Diraby

One example of the city's aging pipe network was the recent discovery of cracks and damage to one of the most important sewer pipes in the city—the 4.8-kilometre Coxwell sanitary trunk sewer. The 50-year-old pipeline, which runs from O'Connor Drive to the Ashbridges Bay Treatment Plant, was found to have significant deterioration around Coxwell Avenue and O'Connor Drive. In January city council authorized the allocation of \$30 million for emergency repairs.

Di Gironimo said geotechnical studies on the pipes and surrounding underground area are currently underway, but no timeline for the repairs has been set.