

# REALISTIC RENOVATION

Sustainable design philosophy allowed Oakville WPP to retrofit and repurpose existing infrastructure

By Theresa Rogers

We had to figure out how to make the most of what we had within the existing plant footprint.

—ELIA EDWARDS

IT'S AN AGE-OLD DILEMMA: YOUR HOUSE IS 100 YEARS OLD AND IS NO LONGER meeting the needs of your growing family. It's small. It's old. The floors creak. Do you renovate it, saving money and resources by upgrading only what is needed? Or do you demolish it and start fresh?

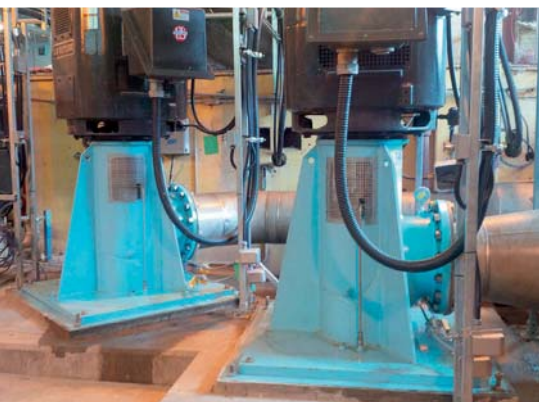
At the Oakville Water Purification Plant (WPP), the Region of Halton, facility owner, decided to renovate. Major upgrades to the 100-year-old facility have been undertaken in two phases over the last decade.

The project began because changing regulations necessitated a higher level of treatment from the water plant. Elia Edwards, Project Director, Associated Engineering (AE), recalls that the AE proposal suggested ways to reuse the existing infrastructure to satisfy the increased treatment and additional production capacity requirements. "It's really a story of maximizing the value of the existing infrastructure," he says. "We had to figure out how to make the most of what we had within the existing plant footprint."



## FACTS

- ➔ The approach maximized opportunities to retrofit and repurpose much of the existing 100-year-old infrastructure.
- ➔ The original treatment system produced 109 million litres of drinking water per day. The new design facilitates future production capacity increases up to 130 million litres to keep up with the region's growth for the next 20 years without the need for any additional infrastructure.
- ➔ The plant remained operational during the 30-month construction period.



Constrained by surrounding residences and the nearby waterfront, the upgrades had to be constructed within the existing site and building footprint, while minimizing impact to the community. Drinking water supply needed to be maintained throughout the project.

Phase 1 and 2 upgrades began in 2002 and 2008, respectively. Phase 1 included improvements to the pre-treatment, taste and odour control, disinfection, chemicals and process residual treatment systems. Phase 2 included improvements to the pump stations and filtration system, as well as architectural upgrades to the facility.

Edwards recalls that the AE proposal for the Phase 1 assignment shared a vision of how to best upgrade the Oakville WPP so that it could serve the region well into the 2030s. "We were fortunate that we were awarded the Phase 2 upgrades, but they were laid out in a way that there was a good progression to allow the region to move forward with an overall vision. That's something that I know we as a company, and we as an industry, wish happened more often. Often, one consultant will win the first phase of a major capital upgrade assignment only to have the next phase awarded to another consultant that revisits and often alters the original vision. Because of the firm's success on both phases of the upgrade assignments at the Oakville WPP, the original vision established collaboratively in the early 2000s has now been realized in 2015."

No project is without challenges. Austin Kanagasuriam, Phase 2 Project Manager, credits the region's plant operations staff for keeping

systems and processes running while the plant was in upheaval. He says Associated Engineering brings the unique set of skills required for retrofit design and construction work to the table. "If you think about renovating your house and you're living there while you're working on it, how do you keep the kitchen functioning while you're working on it? Where are you going to sleep when you've got scaffolding over your head? It's really about figuring out all of these details ahead of time and that requires a unique skill set."

Proactive communication with the public also assisted with buy-in. "Project managers on both upgrade assignments paid particular attention to the community and considered the long-term impact of this facility on the local neighbourhood," says Kanagasuriam. "I think that assisted with gaining support from the local neighbourhood, which ultimately assisted with the successful delivery of both upgrade assignments at the Oakville WPP."