



Water

Drinking Water

Client
Loyalist Township

Location
Amherstview, Ontario, Canada

Fairfield Water Treatment Plant

Project Highlights

- Water treatment plant design and startup operations services
- Microfiltration with granular activated carbon post adsorbers for Lake Ontario intake
- Plant designed below grade with park on roof to minimize visual impact

Project Description

In the early 1990s, the Amherstville community deemed a conventional treatment plant proposal too expensive. Then a study in early 1997 identified an affordable option for an ultrafiltration plant at an existing pumping station site on Lake Ontario. Designed by CH2M HILL Toronto in 1998 and commissioned in summer 2000, the Fairfield Water Treatment Plant is a state-of-the-art facility designed to accommodate the 20-year water demand of 2.1 mgd for four communities near Kingston, Ontario.

Currently owned and operated by Loyalist Township, the plant serves about 7,000 people. However, the plant was designed and built to eventually provide a capacity of 4.2 mgd. The facility also includes 260,000 gallons of water storage, doubling the former storage capacity in Amherstview.

Based on Zenon's ZeeWeed® ultrafiltration process, the Fairfield plant uses a combination of ultrafiltration and post-membrane activated carbon filters. These processes reduce seasonal taste variations and odor events.

Additional features include a dedicated membrane room, which isolates humidity from the rest of the plant, and a centrifugal blower room, which isolates noise. The new facility is located aesthetically on the site of a former pump station facility. Within the existing community, the design included a neighborhood park with a beautiful view of Lake Ontario on the roof of the facility. To accommodate the rooftop park, no penetrations for mechanical services, including vents, exist on the rooftop.

CH2M HILL performed pilot testing, a feasibility study, environmental assessment, pre-design, design, and construction services for the facility. CH2M HILL also provided startup services, programming, and training, including writing an operations manual and providing 1 year of support.