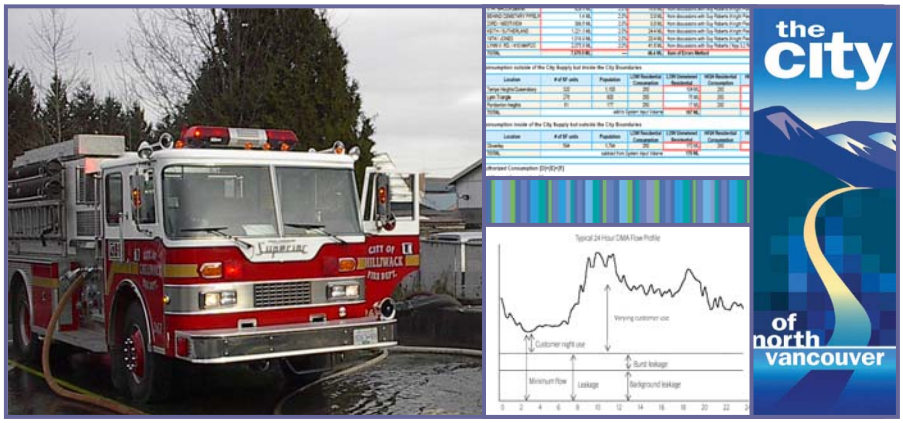
City of North Vancouver – Water Loss Reduction Program



The City of North Vancouver is implementing a two-phase comprehensive asset management program for its water distribution system; the first phase was a condition assessment program and the second phase is a water loss reduction program. Earth Tech was retained to undertake this study. The key aims of the Water Loss Reduction Program are to provide a better picture of the City's water usage, levels of water loss and identify cost effective strategies for reducing water loss.

Earth Tech's methodology is founded on well documented Best Practice sources including InfraGuide, American Water Works Association (AWWA) and the International Water Association (IWA) and included the following activities:

- Estimated the water losses from the "top-down" approach of the IWA standard water balance. Due to the lack of universal metering, the City's residential consumption had to be estimated in order to provide an accurate estimate for real water losses (i.e. the annual volumes lost from the distribution system through all types of leaks and bursts on mains and service connections).
- Calculated real water loss performance measures such as the Infrastructure Leakage Index.
- Determined both the recoverable and Economic Level of Leakage (ELL). The ELL is the "sweet spot" that the City is aiming for, where water losses are reduced to the level where the cost of leak detection and reduction is not higher than the value of water saved.
- Evaluated water loss reduction strategies for the City based on factors such as the cost to implement, the benefit gained and ease of implementation.

Project Details

Client: City of North Vancouver

Location: Lower Mainland, BC

Reference Information

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Problem

Assess the level of real water losses in the City's water distribution system.

Challenges

Estimating residential consumption due to the lack of universal metering.

Total consumption had declined significantly over the last few years, requiring a rethink of residential consumption estimates.

Solution

Reconciled a variety of estimates for residential consumption and analysed year to year trends. Undertook historic night flow monitoring of system inflows to provide an alternative "bottom-up" estimate for real losses.

Benefits

A cross-check of real loss estimates from the water balance approach against results from night flow monitoring.