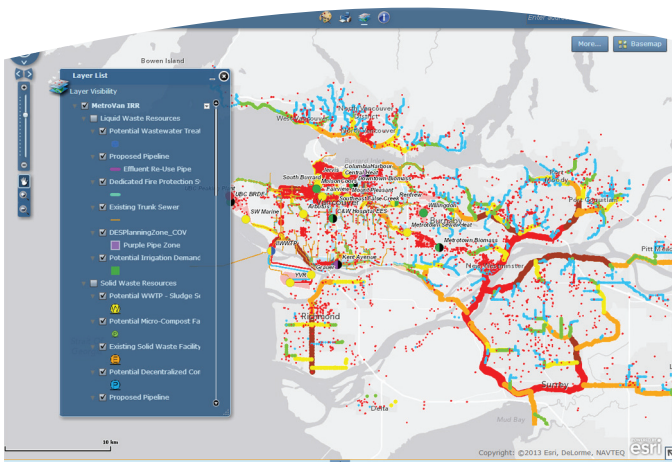




Award of Excellence Heat Seeking Sewer Model



Consultants

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Owner

Metro Vancouver

Category

Soft Engineering

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A significant amount of renewable heat flows through Metro Vancouver's sanitary sewers each day as warm sewage. This excess energy can be recovered and used to heat buildings and is an economical means of displacing natural gas and reducing greenhouse gas emissions. Because of increasing interest in recovering sewage heat for space heating and cooling, Metro Vancouver retained Kerr Wood Leidal Associates to examine the viability and implications of implementing sewage heat recovery projects.

The question was: How much heat can you safely recover without endangering sewage treatment processes, both now and in the future? To answer this question, KWL developed the Heat-Seeking Sewer Model to calculate the sewage flow rate and associated sewage temperature at nodes within the sanitary sewer network. The sewage heat capacity throughout the system is calculated by tracking the flows and temperatures of each sewage component separately. Until the Model was developed, no model existed that could calculate these discrete changes for a large sewage network with multiple sewage heat recovery projects, and no model could provide a GIS interface and mapping capabilities.

The Model results show that there is plenty of heat in the sewer system to heat homes. Up to 100 MW of recoverable heat is available across the region, enough to heat about 650 to 1,000 high-rise buildings. Although this Model was applied to Metro Vancouver, it can be deployed in any sewer collection system, enabling widespread implementation of sewage heat recovery projects and effective management of the underlying sewage systems.