

GIS-Based Wastewater Data Analysis Tool for York, Canada

REGIONAL MUNICIPALITY OF YORK

PROJECT SUMMARY

The Regional Municipality of York Canada required a means to manage large data files that its staff was collecting and monitoring. Riverside Technology, inc. provided consulting and software development services that assisted the Regional Municipality of York to meet its goals of organizing and analyzing the data.

LOCATION

Ontario, Canada

PERIOD

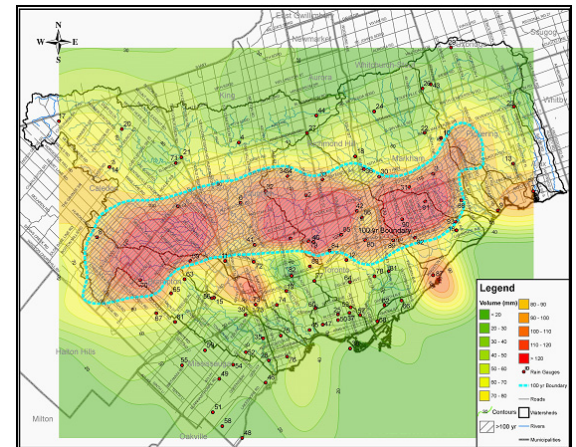
2007 – 2008

PROJECT DETAILS

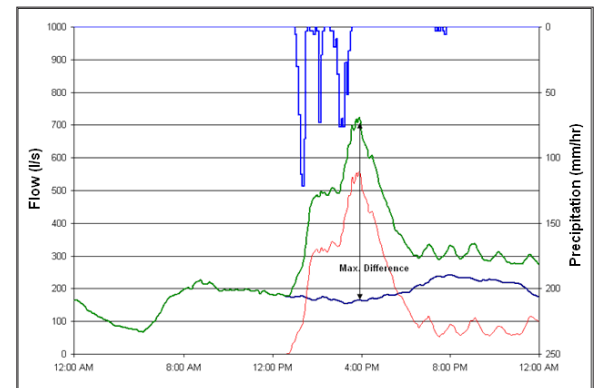
The Regional Municipality of York is one of six Regional Governments in Ontario, Canada. It covers 1,776 square kilometers and has a population of about one million. The York Region has been collecting extensive sanitary sewer flow data at pumping stations and at various permanent and temporary flow monitoring stations. The number of flow gaging stations, duration of operation, and small time steps of data collection resulted in very large data files.

The Region identified the need to organize the monitored data and conduct specific analysis to generate useful management information. The Wastewater Data Management Project was aimed at achieving these goals by developing tools to:

- Screen flow measurements for errors.
- Utilize available gaged precipitation and temperature data to analyze rain and snowmelt event conditions generating wet-weather flows in the Region.
- Calculate dry-weather flow estimates for specific areas.
- Calculate dry-weather flow peaking factors.
- Determine dry-weather flow ground water infiltration rates.
- Determine rainfall coverage using a network of rain gages.
- Conduct Infiltration and Inflow (I/I) separation.
- Assess I/I rates under critical storm conditions such as specific return period events.
- Determine I/I rates within specific drainage areas and isolate potential sources.
- Use water demand analysis to estimate Ground Water Infiltration (GWI).



Runoff map of a storm event



Infiltration-Inflow Separation Analysis

Riverside Technology, inc. (Riverside) provided hydrologic consulting by reviewing and revising specifications, and by providing conceptual design for the tools. Riverside also provided GIS development for implementing the tools as an ArcGIS Desktop extension to the ArcMap application. The development platform was .net, using ArcObjects, and the development environment was Visual Studio using C# programming language.

RELATED PROJECTS

Croke Canal GIS-Based Canal Management

Advanced Hydrological Prediction Services Program

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