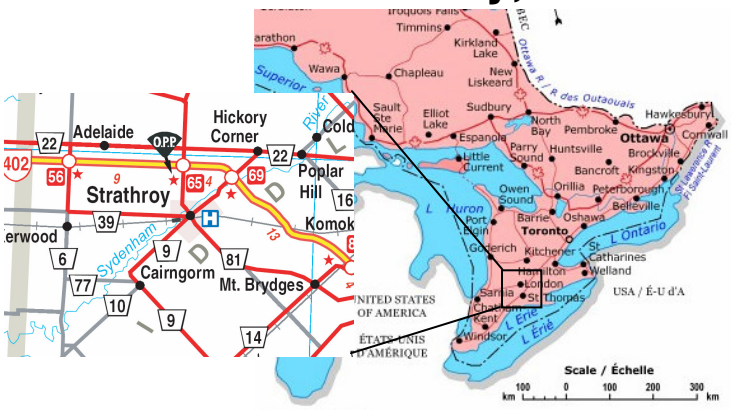
WATERLOO NUMERICAL MODELLING CORP.

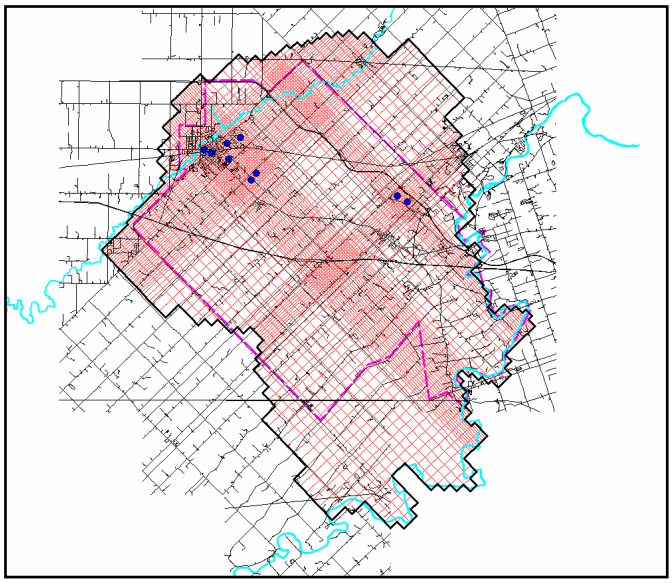
Groundwater Resource Assessment

Strathroy, Ontario

Overview

This study was part of the Ontario Ministry of Environment (MOE) funded groundwater management studies conducted in 2000-2001. The objectives of the project was to delineate wellhead protection areas for Strathroy's municipal wells and to assess if the municipal wells were under the direct influence of surface water (GUDI).





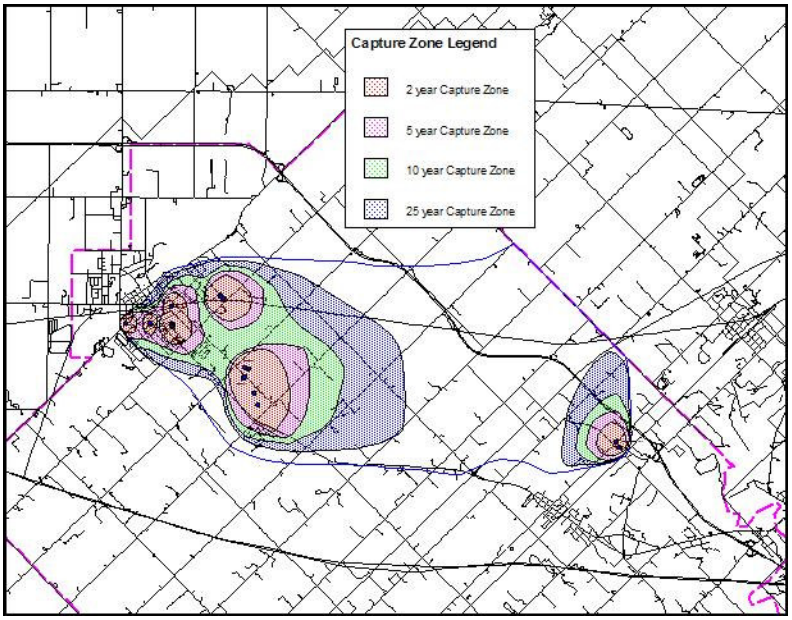
Groundwater Flow Modelling

The hydrogeologic setting of the study area consists of a shallow aquifer system that is recharged through infiltrating precipitation and water from the Sydenham and Thames Rivers. Also, the aquifer discharges to smaller streams within the study area, which eventually flow into the Sydenham and Thames Rivers.

A groundwater flow model (MODFLOW and MODPATH) was developed that encompassed the town of Strathroy. Wellhead protection areas were delineated using present day pumping and future potential pumping. The future scenario included both future predicted pumping rates from existing well fields and well fields may be developed in the future.

Project Results

All potential contributors of groundwater contamination were mapped inside the wellhead protection areas. Manure spreading practices were found to be partially responsible for elevated nitrate levels at one well field. The recommended remedial measures included treatment at the well field, well shut-down, purchase of the property by the Town, or incentives for operator to relocate spreading activities. Two well fields were potentially found to be under the direct influence of surface water features requiring additional planning and treatment at those wells.



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