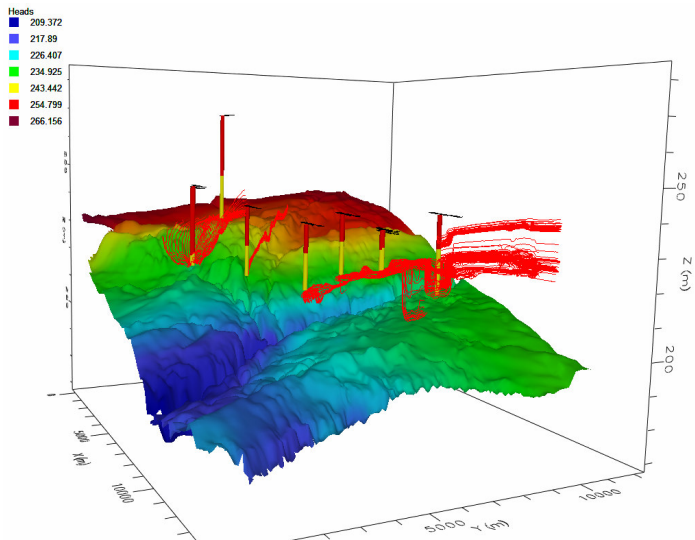
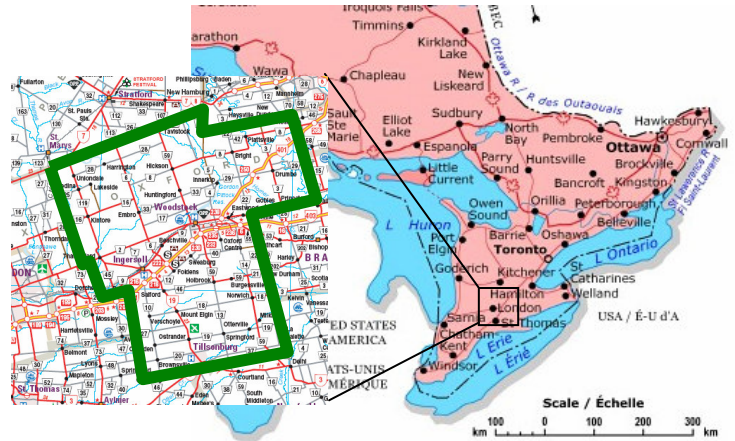


## Oxford County Groundwater Management Study

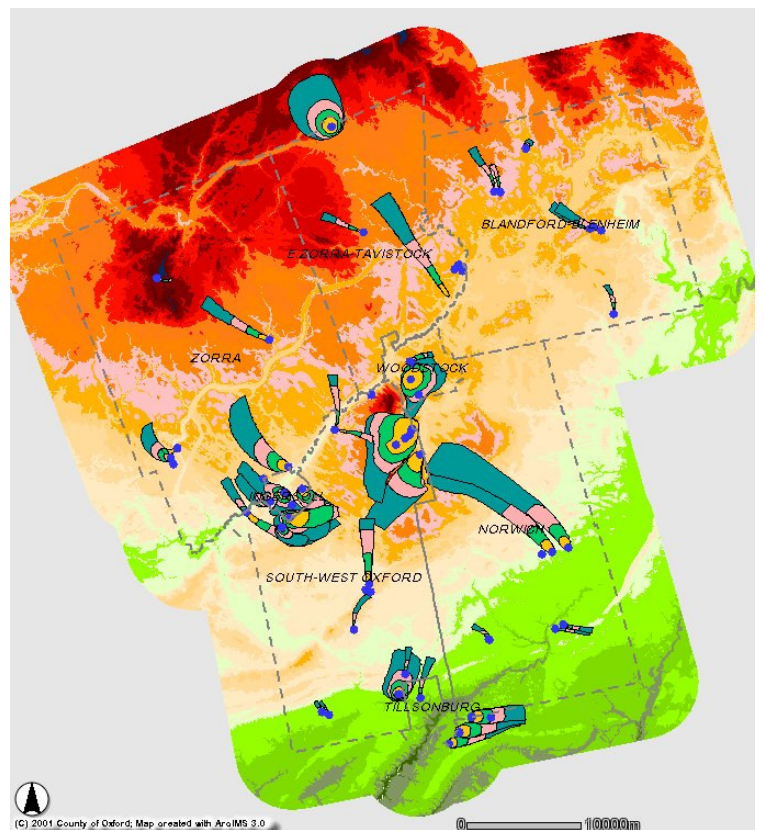
### Overview

This study was part of the MOE funded groundwater management studies conducted in 2000-2001. The objective of the project was to delineate wellhead protection areas (WHPA) for the municipal wells in Oxford County. MODFLOW and MODPATH were used for developing the 20 groundwater flow models and over 80 WHPA's.



### Groundwater Flow Modelling

The hydrogeologic setting of the County was quite varied, ranging from a combination of confined and unconfined systems in either overburden and bedrock. The models that were developed accounted for the lateral and vertical heterogeneities in the overburden layers along with a homogeneous bedrock layer.



### Project Results

The groundwater flow models were used to delineate time of travel (2, 5, 10, and 25 year) WHPA's for all municipal wells in the county. These WHPA's from the model were further analyzed in a GIS to account for model uncertainty (hydraulic gradient, and direction of groundwater flow). The WHPA's were rotated 5 degrees in either direction and then increased in size by 20%.

All delineated WHPA's were delivered to the County of Oxford in their approved ARCVIEW format for incorporation into their official planning documents. The County has implemented planning restraints within the WHPA's to prevent possible contamination of the municipal wells and subsequent costly remedial measures.