



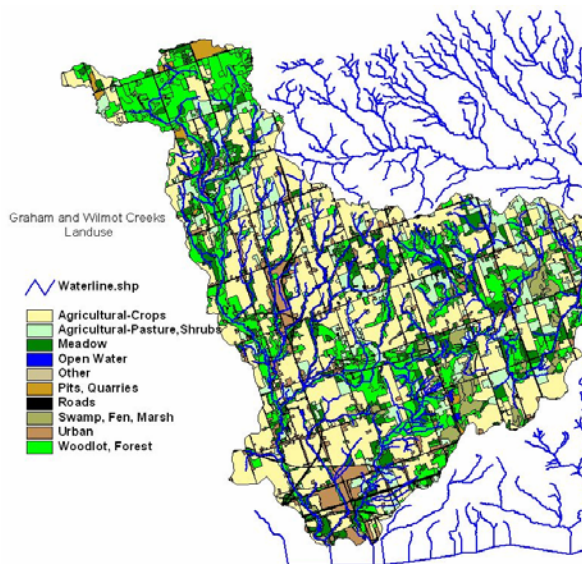
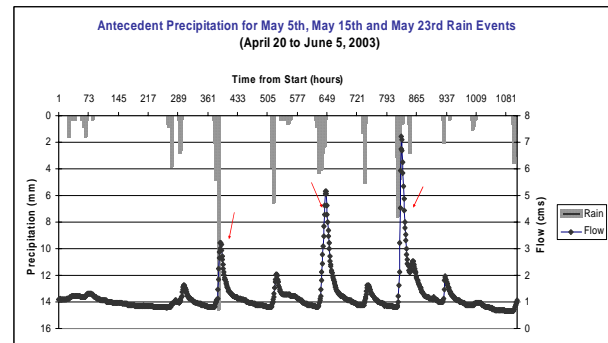
## WATER RESOURCES

### Flood Remediation Plans & Flood Plain Management

#### Graham and Wilmot Creeks Subwatershed Studies

*Clients and Location: Ganaraska Region Conservation Authority, Region of Durham and Municipality of Clarington, Ontario*

Advancements in flood risk mapping are providing more opportunities to better manage watershed resources. Since the accuracy of hydraulic models is highly dependent of the input data and specifically the accuracy of the mapping data, the latest advances in map data collection were used for this project. Mapping data from the *LiDAR Mapping Demonstration* and *South-Central Ontario Orthophotography Partnership* projects previously completed in this watershed were used in this study. Mapping data was verified using the latest Ontario Ministry of Natural Resource (OMNR) standards for flood studies by comparing the mapping with field measured data.



The GIS-based software, **ArchHydro**, was used to develop hydrologic catchment parameters for Graham and Wilmot mapping data, utilizing a hydrology/water balance data collection protocol established by **GREENLAND** for this Study. The catchment parameters were used to generate flow data using the hydrologic modelling software, **Visual OTTHYMO Version 2 (VO2)**. All flow data developed from the **VO2** hydrologic model was calibrated with in-stream hourly flow data. GIS software was also used to develop cross-sections for both watercourses, and the data was imported directly into **HEC-RAS™** to complete the hydraulic analysis. Flood elevations and cross-section data were then exported from **HEC-RAS™** and GIS software was used to develop floodplain mapping for Graham and Wilmot Creeks.