

# HYDRO-GIS LTD

## GIS Applications

Geographical Information Systems refers to a computer based capability for the manipulation of spatial (geographical) data. It is far more than an electronic map since any feature displayed in GIS also includes attribute data. Also GIS enables the overlaying of many data layers and handles data in raster, vector, and tabular formats.

Hydro-GIS Ltd has considerable expertise in the field of GIS which dates back to the early 1990s when hydrological and water quality models were developed within a GIS interface.

Today we use Arc GIS/Arc Info, the most advanced and widely used professional GIS software. GIS often provides a basis for many of our projects and we are regularly included in project teams specifically to provide GIS expertise.



Common GIS applications include:

- Producing maps at a range of scales;
- Thematic mapping where particular features are classified by their attributes;
- Generating digital terrain models;
- Display and analysis of remote sensing data;
- Derivation of hydrological model parameters using GIS such as catchment boundaries, different soil and land use areas;
- Flood depth and extent mapping;
- Modelling flow pathways based on surface topography;
- Re-formatting of data e.g. digitising paper maps, importing from AutoCAD.

In addition Hydro-GIS provide independent and bespoke GIS courses focussing on the application of GIS in the environmental sector.

## Wetland Ecosystem Study

As part of a team working on a DEFRA funded study on the evaluation of wetland ecosystem services (2007-8) Hydro-GIS Ltd provided a range of GIS support collecting and generating data for the Otmoor wetland site, approximately 10km north-east of Oxford, and the wider River Ray catchment area in which Otmoor is located. In this study GIS was not only used for mapping and spatial analysis but also as a means of storing data associated with mapping such as soil and land survey information, data measurements from sampling locations, and photographs.

Specific GIS activities included:

- Mapping of land use, land ownership, geology and soils;
- Generating a digital terrain model from LiDAR data;
- Digitising the drainage network;
- Flood depth and extent modelling using a simplified 2-d cell based approach;
- Producing annotated mapping of questionnaire survey results;
- Calculating lengths of footpaths over particular land uses.

