



MAP MANAGEMENT IN LOCAL GOVERNMENT

COMPRESSION TECHNOLOGY COMES TO THE RESCUE IN A MAJOR LOCAL GOVERNMENT MAP MANAGEMENT EXERCISE

For years, the Planning Department of Southampton City Council, UK, relied upon a set of paper maps of historical planning applications to support their development and planning decisions. However, the constant daily page turning had a detrimental effect and maps that the council most relied upon were in danger of becoming unreadable. The maps contained planning application boundaries hand-drawn on to Ordnance Survey 1:1250 scale paper vellum maps. The 500 maps covering Southampton were held in 9 large books in two sets. One set covered the period from 1950 to 1980 and the other set from 1980 to 2005, when planning application boundaries started to be digitised directly into the planning departments Uniform Spatial system. The loss of a valuable information source like this represented a big risk to the smooth running of the whole department and action needed to be taken as Planning Officers needed clear, simple and instant access to the maps.

Colin Ames, IT Project Manager takes up the story: "We have a variety of different GIS software used throughout the Council and the challenge was to find a method of displaying these maps as a background layer that would be in format common to all of them. Additionally, since there are over 500 individual maps we were acutely aware that the file size would become a real issue."

Faced by these two requirements Colin and his team researched their options and decided to scan and compress the images into the popular MrSID format. LizardTech Inc. has been supplying software tools to enable their clients to compress and prepare huge raster images since their inception in 1992. The latest version of the software; GeoExpress 7.0 is used by organisations all over the world in both the

public and private sectors and the MrSID format is recognised by software and users in all areas of the mapping industry.

The first step in the project was to convert the paper maps to a digital format. The Council contracted MicroMedia to scan both sets of maps at a high resolution of 300 dpi. This high resolution would allow the maps to be digitised later in the next phase of the project, but also meant the size of the files was very large. The planning department needed constant access to the maps, so MicroMedia set up a large, flat-bed scanner on-site so that the valuable maps never needed to leave the department. The resulting scanned images were supplied as LZW compressed tiffs. The images had an average size of 90 MB, so the 500 images were supplied on a huge library of 67 CDs.

The years of use certainly had taken their toll on the maps and the scanned images showed just how badly the maps had been deformed – very few were still rectangular. To resolve this Southampton Council used Intergraph's GeoMedia Image. This simple-to-use, but powerful Windows-based tool allowed the maps to be deskewed, brought back square and cropped to include only the relevant information. The staff were also able to geo-reference the scans and convert them from image files into geotiff raster maps.

Now the council had over 500 individual raster map tiles with a total size of 32GB, but what they needed was a council-wide coverage that was easy to deploy, which meant stitching or mosaicing these together. For this step, Colin Ames and his team used a licence of LizardTech's GeoExpress with the final aim of compressing their mosaic to the MrSID file format.

Again Colin explains: "We had a huge amount of map tiles that needed mosaicing together and GeoExpress coped admirably with the amount of data. It was extremely easy to select the images we wanted in any



one mosaic and just let the software create a new, hugely compressed map. We were able to take 500 files totalling 32GB and compress and mosaic them into only 2 vastly smaller files of only 800MB each. Just as importantly, the compression didn't result in any visible degradation of the images - this was critical if the electronic solution was going to be as effective as using the old paper maps."

The resulting MrSID images were extremely simple to deploy – all of the different GIS used by the council natively read the format and hence were able to display the mosaic. An additional feature of the MrSID file format is that not only does it compress the base data but the technology also displays the resulting file, extremely quickly. To ensure the user is not left waiting, MrSID displays the whole area at low resolution and then streams in more information over time, building up the full resolution image but allowing the users to get an idea of the coverage of the

scene instantly.

The MrSID files are used as backgrounds in the planning system Uniform Spatial and also in MapInfo Professional enabling planning officers to visually check whether historically given planning permissions or rejections affect new planning applications. The GIS team are also using the MrSID files with GeoMedia Professional in the next phase of the project to digitize the historic boundaries, with the ultimate aim of automating the visual checks and speeding up the planning process.

The success of the project and the benefits that using the MrSID format brought to the council has prompted use of GeoExpress in other areas of the council. Like all local governments, Southampton City Council uses a range of raster mapping products from the Ordnance Survey, including Street View, 1:10000, 1:25000, 1:50000 and 1:250000 scale mapping. These nationwide datasets contain thousands of tiles of map images and are an essential part of any GIS in providing background and reference. All these images take up a lot of space on servers and Ordnance Survey regularly sends updated tiles as they update the mapping. Using GeoExpress to compress the images and mosaic the tiles together into fewer, smaller files that all GIS systems can read has considerable benefits. Updating the mosaics with tiles that have changed is also easy using GeoExpress. The council is now in the process of converting their raster imagery layers to the MrSID format and hence making these essential datasets much easier to store, update and distribute to everyone who uses them in the organisation.

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