



# Thames Water

## GIS Foundation Programme

### Project Brief

Thames Water is the UK's largest water company, with more than 13 million customers. It manages 20,000 miles of water mains, 100 water treatment works, 40,000 miles of sewers and 351 sewerage treatment works.

For many years Thames Water has operated with a highly complex GIS environment, involving 23 applications and databases from multiple vendors. Support and development costs were high, and data was siloed in different systems, making it difficult to get a "single view of the truth". Equally, extensive incremental infrastructure costs prevented Thames Water from providing business-wide access to the systems. To further complicate matters, two important business requirements became time critical and needed to be met by September 2008.

- The Drinking Water Inspectorate (DWI) laid down new recommendations about risk assessment for interventions in the clean water network. To achieve compliance, Thames Water needed to upgrade its existing Geographical Information Systems (GIS) to support improved hydraulic modelling directly from the corporate GIS system – a technical challenge which has rarely been achieved anywhere in the industry.
- Also, the existing environment was based around the Ordnance Survey Landline mapping service, which had recently been replaced by the new OS MasterMap® system. Support for Landline would end in September 2008, so Thames Water needed to update the GIS environment for the new spatial data format.

To address these high level requirements the GIS Foundation programme was conceived. The Barnsnape team have experience of several significant similar programme deliveries and were appointed to provide client side programme management and delivery management.

### What Barnsnape Did

Two implementation approaches were considered:

- The first was a tactical solution, which would keep the majority of the existing GIS landscape and update it to support OS MasterMap and hydraulic modelling.
- The second was to implement an entirely new strategic product set based on ESRI ArcGIS software, providing Thames Water with one of the most powerful GIS platforms in the world.

Enhancing the existing GIS estate proved to be technically unfeasible, so Barnsnape advised Thames Water to pursue the second option and implement the ESRI product.

Due to the retirement of Ordnance Survey's Landline dataset and commitments made to the DWI, Thames Water had a hard-stop deadline of September 2008 - the project was started in December 2007, which meant that delivery had to be achieved in 10 months.

Against a very aggressive budget, personally set by the CEO, the project was delivered on time and significantly under budget. As a frame of reference, GIS implementations of this scale typically take two years to design, develop and implement.

Barnsnape worked closely with Thames Water providing overall programme management driving through the gathering of requirements and drawing up of a comprehensive programme plan.

Barnsnape also recognised that the Thames Water overall IS roadmap was strategically oriented towards the introduction and extension of enterprise applications from SAP. Barnsnape focused on ensuring the design of the Integrated Asset Repository data model was aligned with the data structure of the SAP Asset Management system – helping to ensure data exchange with Thames Water's other corporate systems.

The main deliverables of the project included:

- A GIS platform that enables the management of one of the most complex metropolitan and urban water networks in the world.
- An Integrated Asset Repository for all GIS data.
- Automated processes to clean and migrate data (in excess of 4 million assets) from the 23 legacy systems to the IAR.
- Modelling tools that allow rich, real-time analysis of the water network.
- OS MasterMap compatibility – avoiding the expense of attempting to extend the OS Landline licence.

This assignment has clearly demonstrated how even the most challenging objective can be delivered if the client and supplier can work together effectively as a seamless coordinated team. Taking a transparent approach to the problems that inevitably occur on a project of this complexity helped the team to ensure the solution would meet the acceptance criteria and achieve the go live dates that had been targeted 10 months earlier.

***'The GISF project is the most significant GIS refresh we have undertaken in 10 years and the largest GIS implementation project to be carried out in the UK. It gives us a far more advanced system than any other water and sewerage company - making us the industry leader in this area. The level of technology combined with the number of employees affected makes this one of the most complex business and IT projects in AMP4.'***

**Bob Collington**

**Director Wastewater Services**

**GIS-F Project Sponsor**

## **Outcome and Benefits**

By consolidating 23 GIS systems to a single platform based on off-the-shelf products, Thames Water has dramatically reduced software licensing, maintenance, support and development costs. As a result, per-user costs have been reduced to a level where it is practicable for Thames Water to roll out GIS access to more than 2,500 users across the organisation – from senior management to call centre staff and field engineering teams. Employees can access the data they need much more easily, which improves productivity and promotes rapid customer service.

With a single asset repository for all network and boundary data, including external sources such as environmental data and so on, Thames Water now has access to a 'single version of the truth'. This makes a significant difference to service quality. For example, the company can see at a glance if there are any environmental issues surrounding a proposed intervention on a certain asset. All the relevant factors are known before work begins, and any risks can be modelled, assessed and mitigated.

The practical difficulties of integrating Thames Water's business-critical new SAP solution with the previous GIS infrastructure would have been almost insurmountable, so the new solution is viewed within Thames Water as a vital building block in its IT strategy.

Currency, completeness and the correctness of spatial data are fundamental to the success of any GIS implementation. Through the journey of migrating data from the Thames Water legacy databases, data quality was enhanced, thereby improving efficiency and ensuring the highest quality standards are met in future.

The system is accessible from any standard PC, or even from a mobile device – allowing field engineers and external contractors to view and edit the corporate GIS database whilst working remotely. This has dramatically reduced the update cycle on the sensitive and highly complex Victorian Mains Replacement programme. Equally, when a customer calls to report a problem, contact centre staff can quickly view the local infrastructure, identify area-related incidents and ensure a rapid response.

## **For more information**

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