GeoSpatial Systems: Data management for large infrastructure projects
We have an extensive and successful track record of providing GIS expertise, consultancy and services to a range of clients in a range of disciplines.

Spatial information lies at the core of many of the activities undertaken by our clients. We deliver data collection, data management, application development and GIS services to support them in achieving improved data management and better business decision making – with particular regard to the civil engineering industry in planning for the built environment.

We are experienced in delivering GIS projects from simple desktop studies to enterprise-wide web solutions.

Our team comprises GIS consultants, analysts, developers and technicians who have a wealth of knowledge in managing spatial data and developing the applications to consume it – whether through out-of-the-box Esri software or bespoke mobile, desktop or web solutions that we develop in house.

In our experience, early adoption of GIS on large projects maximises return on investment and the probability of successful outcomes.

Our knowledge and experience is evident in the best practices and standards we work to when both delivering and managing GIS solutions.

**Our skills encompass the following tools:**
- Esri ArcGIS for Desktop;
- Esri ArcGIS for Server;
- Esri ArcSDE;
- web application programme interfaces (APIs) such as JavaScript and Flex;
- Microsoft SQL Server;
- ModelBuilder; and
- Python scripting.

**We help our clients to:**
- design robust data management strategies;
- reduce any risk resulting from unmanaged or badly managed data;
- reduce duplication of data;
- manage large volumes of data; and
- design bespoke, web-based GIS applications.

Mouchel’s team of geospatial specialists uses geographical information systems (GIS) technology to visualise, manage, analyse and collate data on all of our major infrastructure projects; including HS2, Thames Tideway Tunnel and A5 Western Transport Corridor in Ireland.
Share data with anyone

Large-scale infrastructure projects often require the involvement of a number of different teams and disciplines that are often geographically disperse. Using enterprise GIS and effective data management as the central hub – through which information can flow and be accessed – can improve the efficiency and success of a project.

One of the biggest challenges of GIS data management on a large project is disseminating the right information to the right people at the right time – those consuming data at any one time can include the project team, the client, contractors, stakeholders and the public.

Web-based GIS provides highly scalable frameworks for the publishing of spatial data suitable for both corporate intranets and the Internet. Our web GIS services allow our clients and teams to publish, discover and share geospatial information.

In our experience, GIS technology provides a powerful tool for stakeholder engagement.

A5 Western Transport Corridor – saving time and money

On the A5 Western Transport Corridor project (www.a5wtc.com) a particular challenge was the size of the project team (ten disciplines across 12 offices in the UK and Ireland). At one stage, there was 500 staff working on the project. Behind the scenes, our web-based GIS application helped the dispersed project team to collaborate better.

Our solution facilitated the sharing of information between geographically disparate teams – enabling them to work in parallel. This facilitated significant savings in decision-making time, travel costs and environmental impact.

Spatial analysis was used to support and refine the activities of our technical specialists; for example to identify and delimit natural river catchment areas upstream of proposed discharge points and to predict likely habitats for certain bird and bat species in order to efficiently plan subsequent, more detailed ground-based investigations.

Better information leads to better decisions leading to lower costs. By designing bespoke mobile applications for site-based data capture we were able to work faster on site and use GPS location information to improve the accuracy of our data. This ultimately led to a streamlined workflow and the application of GIS technology was critical in saving four months, which was key to scheme delivery.

Key benefits include:
• cost savings resulting from greater efficiency;
• better decision making;
• improved communication via web-based GIS;
• centralised data storage (leading to maximum return on investment in data collection);
• education of senior management in the value of GI data management;
• leverage of mobile applications to streamline data capture;
• creation of automated processes for spatial analysis and improving business processes; and
• using scripting expertise to produce customised solutions.

Thames Tideway Tunnel – making the complex simple

On large infrastructure projects the development of a data management strategy is regarded as best practice. However, managing large amounts of data can be challenging, complex and time consuming.

Data management tools and processes can be used at all levels of a project for both geographical and numerical data. Data comes in a variety of formats and sizes. For example, design data – often in the form of computer-aided design (CAD) or, looking forward, Building Information Modelling (BIM) – spatial data (often in GIS) and descriptive data (spreadsheets and other documents) means that related information is often “locked away” in silos.

Our experts are used to dealing with a variety of datasets and can process, simplify and manipulate them to produce usable datasets as part of a decision-making process.

We currently work with Thames Water on its Thames Tideway Tunnel project (www.thamestidewaytunnel.co.uk) that has approximately 43,000 interests – the data for which is managed using our bespoke in-house database, Pinpoint PERCS, and ArcGIS.

Pinpoint PERCS – an easy-to-use, manageable, web-based application – was designed and developed to manage land information for major projects for clients including the Highways Agency, Transport NI, HS2, Thames Water and the Countryside Agency. It provides the ideal base for project management, co-ordination of existing land records, for accessing information at public exhibitions and inquiries and offers the following key benefits:
• facilitation of the recording of property consultation/communication information to provide a complete overview of scheme developments;
• combining of property and land registry information to enable the ability to upload documents (i.e. land registry titles or registers) easily and associate with each land parcel, consultation/communication record;
• online confirmation schedule functionality to achieve time and cost savings;
• the ability to run a range of customised reports;
• a full historical catalogue for diligent enquiry; and
• links to spatial information via GIS.
Our GeoSpatial Systems team is comprised of GIS, CAD, 3D and software development specialists based in four offices across the UK – London, Liverpool, Woking and Belfast – and includes members of BCS (The Chartered Institute for IT), Royal Geographical Society (RGS), Association for Geographical Information (AGI) and Chartered Management Institute (CMI).

Our additional capabilities include:

**Development of mobile applications**
By designing bespoke mobile applications for site-based data capture we are able to work faster on site and by using GPS location information improve the accuracy of our data. This ultimately leads to a streamlined workflow, and the application of GIS technology is critical in saving precious time in meeting delivery deadlines.

**Asset Management Systems**
GSS develops tailor-made applications for inventory, inspections and works management of highways assets. Our portfolio includes drainage, vehicle restraints, signage, bridges and environmental management systems.

### 3D Visualisation
Pre-visualization can play a critical role during the life of a project. GSS produces stunning, high quality 3D visualisation material for design analysis, client liaison and public consultation events. We can provide:

- Accurate 3D models that can be textured to reflect the material finish of completed structures.
- 3D fly-through animations that are ideal for design evaluations to highly detailed final design animations that are more suited to consultation and promotional events.
- 3D photomontages to convey the impact of a new or modified structure as it will be seen in its planned environment.
- Interactive virtual environments that allow the user to navigate through a 3D representation of a design that features dynamically changing environments triggered by the user.

### Additional services that GSS offer include:
- AutoCAD, MicroStation;
- plan production;
- route planning;
- constraints analysis; and
- website design.

For more info on data management please contact:
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