



Energy/Environmental/Engineering

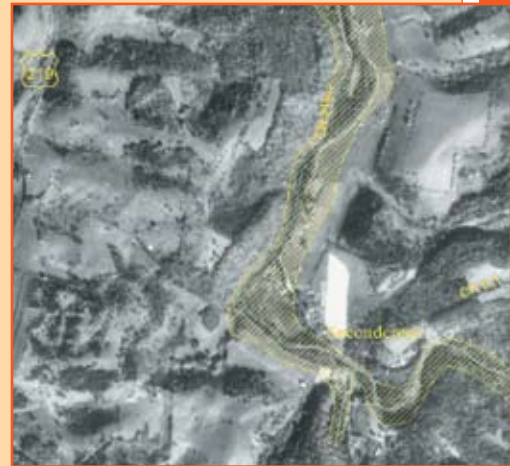
# GIS SERVICES

## GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Geographic information is a strategic resource, essential to making informed decisions. Spatially referenced data can be mapped and analyzed in its proper geographic context. By linking conventional databases to digital maps, GIS helps organizations make better use of their information.

MM&A's GIS services include:

- GPS Field Data Collection
- Map Conversion and CAD Data Integration
- Database Design and Integration
- Hydraulic modeling and floodplain mapping
- Remote sensing and imaging
- Advanced cartography and map production
- Web-based GIS hosting and server configuration



The following are examples of how MM&A can help organizations take full advantage of their geographic data.

### Mineral Reserve Evaluation

GIS can bridge the gap between geologic evaluation and tax assessment. Combining detailed geologic data with land ownership boundaries, MM&A has worked with mineral land owners to create accurate and authoritative asset evaluations for tax filing purposes.

### GPS Data Collection

Handheld GPS (global positioning system) units provide an affordable way to catalog field assets for facilities management. A single operator can quickly collect point locations to within a foot of positional accuracy while recording any additional information about the object being surveyed. Roads, transmission lines, sewer systems, and storage tanks are among the features that can be mapped and described with GPS data loggers in a small portion of the time that a traditional survey would require. GPS is the fastest and most cost-effective way to add the geographic dimension to any data set.

### Database Design

MM&A has experience designing relational database systems for the storage and maintenance of facility information. A database can present complex information in a clear, straightforward way, enabling better decision making. Storing data in a standard database environment ensures that records will be available to other applications and can be searched, updated, and analyzed by users with minimal training.

### Floodplain Management

For several years, MM&A has produced maps and hydraulic models to meet FEMA's new Digital Flood Insurance Rate Map (DFIRM) specifications. Combining high-resolution aerial photography with floodplain boundary maps, these DFIRMs are a valuable tool for county and regional floodplain administration. MM&A's in-house engineering staff includes civil engineers and hydrogeologists qualified to delineate floodplain boundaries in accordance with national standards.

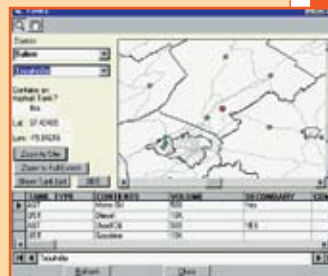


## GPS Data Collection

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This is an example of a geographically enabled gas well database



The above Windows® application displays storage tank locations and contents. Digital photos gathered in the field can also be stored with each feature.

## Floodplain Management

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MM&A's in-house engineering staff includes civil engineers and hydrogeologists qualified to delineate floodplain boundaries in accordance with national standards.

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