

# Geographic Information Systems (GIS)

## Putting the world to work for you

### Why AMEC?

AMEC is a proven leader in Geographic Information Systems (GIS). We intertwine the technology vision with a firm understanding of environmental and engineering principles. The digital world is in a constant state of growth, producing vast amounts of data about our environment. A GIS is a principal tool to manage, analyze, and present that data to better visualize the past, the present, and the future. The key difference between a GIS and other digital mapping software is that a GIS consolidates database and graphical elements into intelligent features. This forms the basis for spatial analysis, which can range from a simple area calculation to a complex environmental model. GIS analysis provides a holistic decision-making approach which remains unbiased and reproducible.

AMEC provides full-service GIS capabilities.

- Data Capture, Design, and Integration
- Spatial Analysis and Modeling
- Data Presentation
- Customization
- Needs Analysis and Training



### Data Capture, Design, and Integration

A key task in any GIS is to integrate data from a variety of sources into a unified and geo-referenced spatial database. Some common tasks include:

- Conversion and Integration of Data Between Various Sources
- Integration of Industry Standard Models
- Integration of Aerial and Satellite Imagery
- Rectification of Aerial Photos and Scanned Images
- Linking Tabular Databases with Spatial Databases

### Spatial Analysis and Modeling

Once in digital format, a broad range of algorithms can be used to analyze the various thematic datasets and to reveal complex relationships. Datasets can be exported for use in environmental models and the results used to create GIS datasets. Some typical analyses and models might include:

- Automating Hydrologic and Hydraulic Models (HEC-1, HEC-2, HEC-HMS, HEC-RAS, DAMBRK)
- Change Detection (Time-series, Alternatives)
- Wildlife Habitat Modeling
- Floodplain Modeling and Management
- Non-point Source Pollution Analyses
- Terrain and Surface Modeling (Watershed Modeling, Visibility Studies)

### Data Presentation

The production of quality maps, posters, reports, and animations remain a major component of most projects. Data presentation ranges from simple site location maps to complex publications using various databases and display techniques. AMEC generates animations to display dynamic data based on variable conditions, time-series models, alternative analyses, and landscape fly-throughs.

## Customization

AMEC has extensive experience in providing custom interfaces and applications to simplify complex or repetitive tasks:

- Automated Report and Map Production
- Development of Customized Data Collection Tools Using ArcPAD and GPS Solutions
- Front-end (Data Management) and Back-end (Queries and Reports) Database Applications
- Customized GIS Interfaces
- Custom Models, Simulations, and Management Tools
- Development of Custom Internet Mapping Sites Using ArcIMS



## Project Experience

AMEC offers a wide range of project experience from mapping and data entry to regulatory compliance services.

- Spatial Database Design and Conversion
- Environmental Impact Assessments
- Stormwater Inventories
- Floodplain Analyses and Management, FEMA Flood Studies, Compliance, Mitigation, and Recovery
- End-user Applications
- GPS/field Surveys
- Spatial Analysis
- Decision Support Systems
- Flood Insurance Studies (FIS)
- Pipeline and Railroad Routing
- Web-based Application Development
- Graphic Development and Presentations
- Water Supply Watershed Studies

AMEC utilizes GIS and related software packages from various vendors and is an ESRI Authorized Business Partner. This partnership allows AMEC access to the most current ESRI GIS software, as well as updated technical information to help you plan for your future GIS needs.

## Needs Analysis and Training

AMEC's goal is to develop systems that provide value. We accomplish this by knowing the technology and identifying how it fits within individual organizations. To complement its GIS services, AMEC also provides hardware, software, and network needs assessments, help in determining level of GIS services, and training on how to use the GIS system and deliverable products.



For a list of office locations, company contacts and other services refer to:  
[www.amec.com](http://www.amec.com)