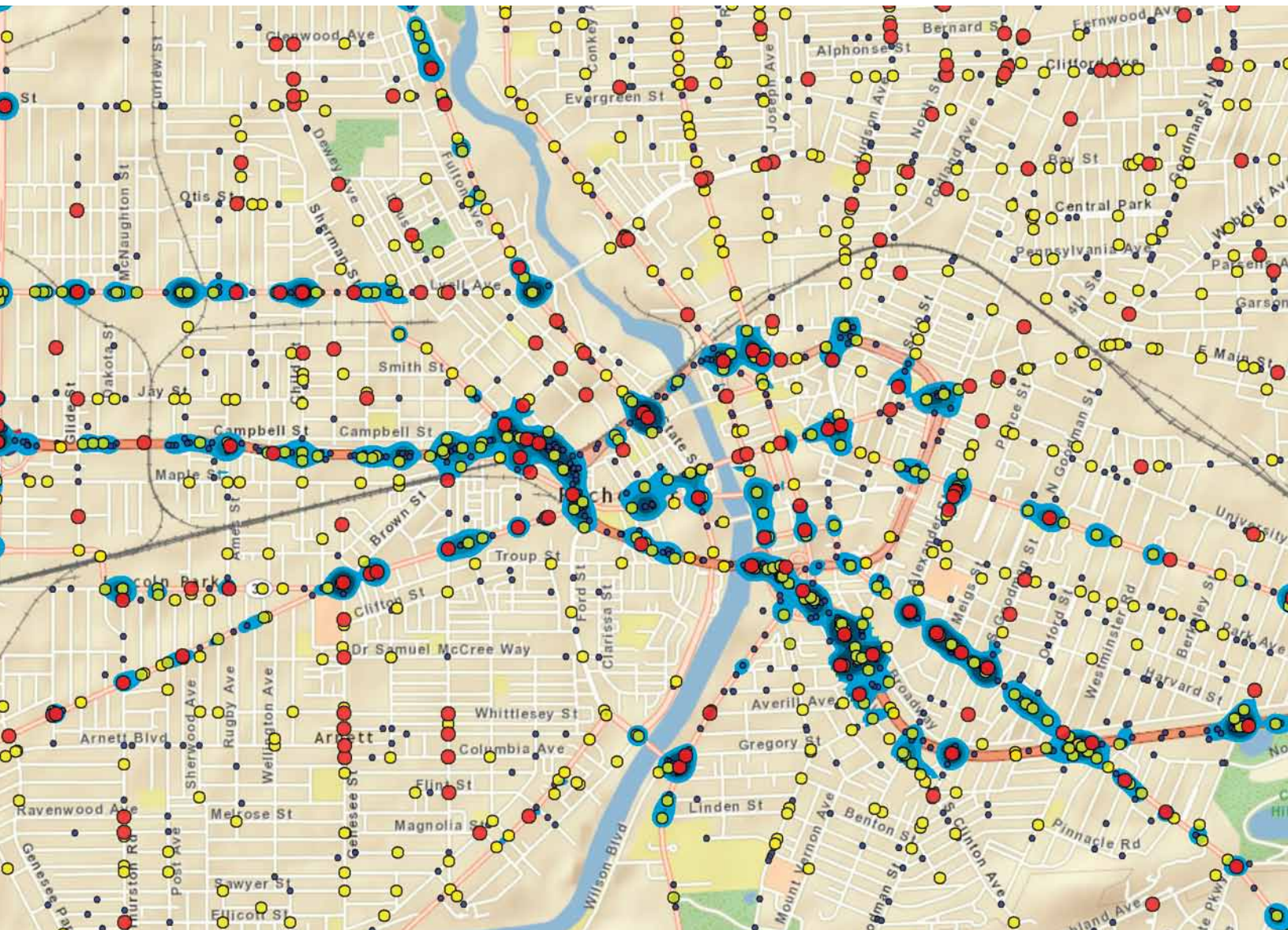
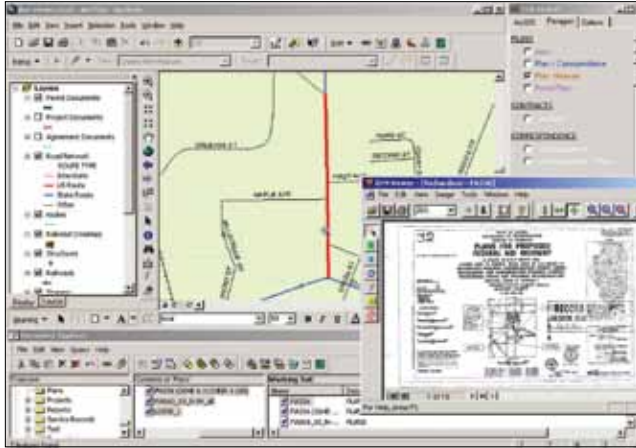


GIS Solutions for Highway and Roadway Management





GIS integrates with other technologies such as CAD and document management.

Integrate Your Existing Systems and Data with GIS

Most large transportation organizations have developed numerous applications and systems that manage their current data and information. Here, GIS plays a pivotal role by helping you integrate your existing systems. GIS and the use of modern service-oriented architecture (SOA) advance the ability to build enterprise applications and bring together information, such as traffic counts, pavement conditions, and accident statistics, into a single application for complex analysis.

GIS software emphasizes interoperability and easy integration with commercial off-the-shelf (COTS) solutions. For example, take advantage of your CAD data by bringing it into a GIS and integrating as-built surveys and blue-line drawings into an environment where they maintain their correct spatial characteristics.

GIS delivers powerful spatial analytics, allowing you to discover patterns and gain intelligence to better understand travel behaviors and perform accident analysis. Through detailed GIS maps, this information can be easily conveyed to decision makers and the public.

Collect Information from the Field with Mobile GIS

Esri's mobile GIS technology allows transportation maintenance and inspection crews to save time when collecting and updating information from remote locations. By using GPS and GIS-enabled devices, field crews accurately collect information from the field and seamlessly update corporate databases located in the office in real time.

Through GPS and Esri technology, you can track resources and assets in real time, allowing a quick response to any event that requires immediate attention. You can also more effectively manage mobile resources by instantly seeing the location of any work or inspection crew on a map, then redeploy resources as needed.

Significant productivity gains are achievable by optimizing scheduling and routing maintenance and inspection teams, which not only boosts productivity but also results in significant fuel savings. The integration of work order management system, routing, and scheduling software allows modern highway managers to more efficiently direct their mobile workforces and ensure that resources are most effectively utilized.



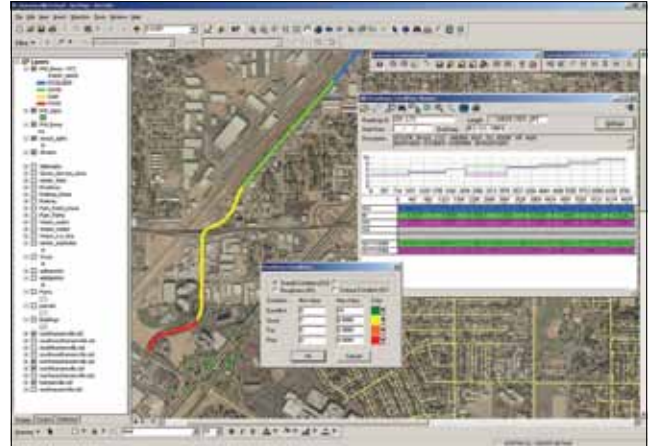
Modern transportation administrations use mobile GIS to manage fieldwork.

GIS Solutions for Highway and Roadway Management

Managing modern roadways is a complex business. From computerized traffic control systems and incident and safety management systems to effective capital improvement planning and maintenance activities, highway managers must draw on a wide array of technologies to effectively manage today's roadways.

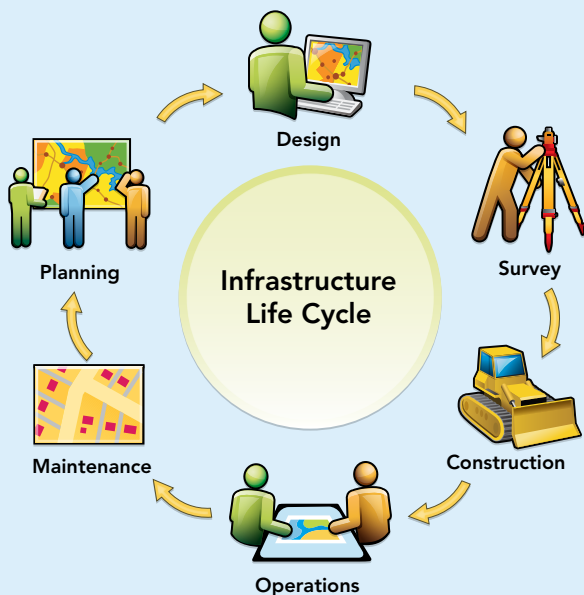
A comprehensive geographic information system (GIS) can help you integrate agency-wide information to achieve better operational efficiencies and results.

Esri® software aids analysis and support through the infrastructure life cycle—from planning and design through survey and construction management to operations and maintenance—giving transportation professionals the ability to comprehensively manage their infrastructure.



GIS makes all types of highway information available to a wide range of users.

Enterprise GIS Integrates the Transportation Infrastructure Life Cycle



A centralized information system based on Esri GIS software provides transportation professionals with the IT framework for maintaining and deploying data and applications throughout every aspect of the transportation infrastructure life cycle.

Planning: Identify deficiencies and determine optimal solutions.

Design: Integrate GIS with most design tools, including CAD, bringing greater analytic and cost-estimation capabilities to your infrastructure design process.

Survey: Manage and store GPS data and survey measurements more effectively.

Construction: Integrate project and financial management software with GIS to better manage infrastructure projects. GIS can provide a single point of entry for all construction-related documents and files.

Operations: Incorporate GIS into business processes to improve your operational performance.

Maintenance: Easily manage disparate assets. Integrate your asset inventory with inspection history and work order management to maintain your critical investments in a cost-effective manner.

GIS Yields Greater Efficiency . . .



A detailed asset inventory is effectively managed in a GIS.

Highway Asset Management

Applied to asset management, GIS not only facilitates data collection, processing, and display but also integrates asset mapping with project management and budgeting tools so that construction, operational, and maintenance expenses can be centrally managed and accounted for.

Once established, asset management systems provide a framework to efficiently and equitably allocate scarce resources among competing objectives. Field personnel can take detailed GIS information with them on any number of mobile devices and quickly locate relevant facilities and perform detailed inspections. Deficiencies identified during inspection can generate new work orders for maintenance and repair.

Maintenance and Work Order Management

Modern highway management agencies have gained productivity and efficiency by integrating maintenance and work order management systems with GIS. Maintenance management systems allow more efficient scheduling of maintenance activities and tracking of work tasks, personnel, equipment, and material usage and help managers understand and report their complete maintenance activities.

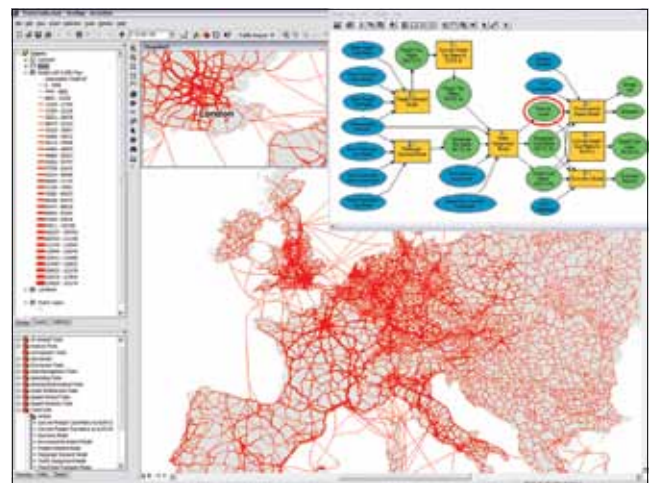
Traffic Operations

Managers have come to appreciate the advantages of GIS-based traffic and incident management systems to operate roadways at their peak efficiency. GIS can take a central role in developing effective traffic management strategies. The capabilities to integrate data feeds and share dashboard views make GIS ideal for viewing a comprehensive picture of current traffic conditions. For example, traffic managers can visually monitor bottlenecks and related information to quickly respond to vehicle incidents. In addition, these views can be shared with the public over the web, giving drivers the latest information on road closures and current travel conditions.

Transportation Planning

Finding the right balance between the need to accommodate demand on public infrastructure and the responsibility to preserve quality of life and environmental sustainability in your community is a challenge. GIS technology provides rich analytic and visual tools to help you meet this challenge.

GIS provides a framework to inform models, such as those used to forecast travel demand and plan capital improvements, and to support strategic decision making. In addition, GIS applications that perform environmental evaluations shed light on the consequences of various transportation alternatives.



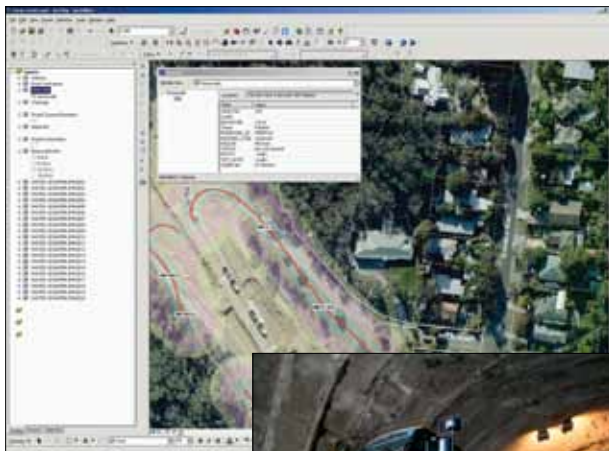
ArcGIS® gives transportation planners powerful tools for analysis and display that integrate with many travel-demand forecasting models.

. . . and Better Decision Making

Construction Management

GIS, integrated with project management and financial software, helps you track performance.

GIS helps organize all relevant project information, from survey data, soils, and geotechnical studies to planning, environmental studies, engineering drawings, and project maps. GIS makes this information easily available to project staff using a browser interface. Having quick and easy access to information during construction can greatly increase efficiency and reduce time spent searching for needed information.



GIS provides a wealth of environmental information, allowing you to avoid road-blocks at late stages of planning and construction.



GIS helps you better visualize and understand locations with high numbers of accidents and their causes.

Transportation Safety Analysis

Recent transportation legislation strongly emphasizes achieving higher levels of safety on the nation's highways. GIS allows highway departments to accurately capture and analyze traffic accident information as well as identify dangerous highway segment locations with high accident rates. GIS, combined with complex statistical analysis and business intelligence tools, helps highway engineers better understand the causes of accidents at these locations and find ways of reducing them.

Environmental Management

Transportation planning and management require careful consideration of the impact that transportation activities have on the environment. GIS is uniquely capable of assisting transportation professionals to understand these repercussions and select the most environmentally sensitive solutions.

GIS helps identify wetlands, drainage areas, and sensitive habitats as well as evaluate and manage the effects of storm water runoff on water quality. With GIS, transportation planners can understand the impact of land-use decisions and evaluate smart-growth alternatives, leading to more livable communities.

GIS integrates environmental factors with land-use and housing and employment density analysis to help communities address growth issues. The ability to visualize alternative options on a common platform allows differing parties to reach a consensus when dealing with an environmentally sensitive matter.



About Esri

Since 1969, Esri has been helping organizations map and model our world. Esri's GIS software tools and methodologies enable these organizations to effectively analyze and manage their geographic information and make better decisions. They are supported by our experienced and knowledgeable staff and extensive network of business partners and international distributors.

A full-service GIS company, Esri supports the implementation of GIS technology on desktops, servers, online services, and mobile devices. These GIS solutions are flexible, customizable, and easy to use.

Our Focus

Esri software is used by hundreds of thousands of organizations that apply GIS to solve problems and make our world a better place to live. We pay close attention to our users to ensure they have the best tools possible to accomplish their missions. A comprehensive suite of training options offered worldwide helps our users fully leverage their GIS applications.

Esri is a socially conscious business, actively supporting organizations involved in education, conservation, sustainable development, and humanitarian affairs.

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