Planning

Building and Safety

Code Enforcement

Engineering

GIS Solutions for Community Development

ESRI

ESRI GIS Software

Helping Design Tomorrow's Cities Today

On any given day, more than 1,000,000 people around the world use ESRI's geographic information system (GIS) technology to improve the way they conduct business.

Founded in 1969, ESRI's GIS solutions are emerging as an integral component in nearly every type of government service.

Local government professionals have always been involved in developing communities we would all want to call home.

Originally, this meant designing and maintaining cities and counties through land use regulation and infrastructure support. Agencies have had to balance the needs of residential neighborhoods, agricultural areas, and business concerns. Now, in addition to that complex challenge, local governments must factor into these decisions the requirements of a growing list of regional, state, and federal agencies as well as special interest groups.

Rapidly changing economic conditions have further complicated the process by threatening the funding needed to carry out these functions. To date, local governments have been right-sized and downsized and have had budgets drastically cut while trying to maintain service levels. Information technology, especially geographic information systems, has proven crucial in helping local governments cope in this environment.

ESRI® software solutions help planning, building and safety, public works, and engineering professionals meet or exceed these demands. ESRI software is the number one choice of local governments for mapping and analysis. Using GIS software from ESRI, local government staff have discovered how traditional tasks can be performed more efficiently and tasks—previously impractical or impossible—can be easily accomplished.

Here are a few of the benefits of using GIS in local government:

- Increase efficiency.
- Save time.
- Generate revenue.
- Provide decision support.

- Improve accuracy.
- Manage resources.
- Automate tasks.
- Save money.

GIS Across the Enterprise

GIS has expanded from a niche technology used by specialists to an integrated information technology used throughout an organization. While the demand for staff who specialize in GIS persists, numerous community development and public works professionals are embracing GIS as a basic tool for doing business. ESRI supports both approaches with an array of tools for GIS professionals performing georeferenced tasks and those who use GIS in many disciplines to improve efficiency and centralize information.


Managing the Development Review Process

The development review process assures that plans for development adhere to federal, state, and regional requirements as well as protect citizens from environmental or public safety hazards and support progressive economic development. Community development and public works agencies are integrating ESRI software solutions as a central component in the development review process.

The functionality of ESRI's GIS software streamlines design review activities such as mapping, site review, notification, analysis, and environmental review. GIS integrates and streamlines processes between different departments.

ESRI's GIS software, the next step in the evolution of information technology, streamlines the development review process through sharing data. Using a central information base eliminates problems caused by conflicting data.

By integrating GIS with local government processes, staff can

- Streamline processes.
- Track projects.
- Create an information base.
- Perform joint project analysis.
- Share information resources.
- Reduce redundant data sets.
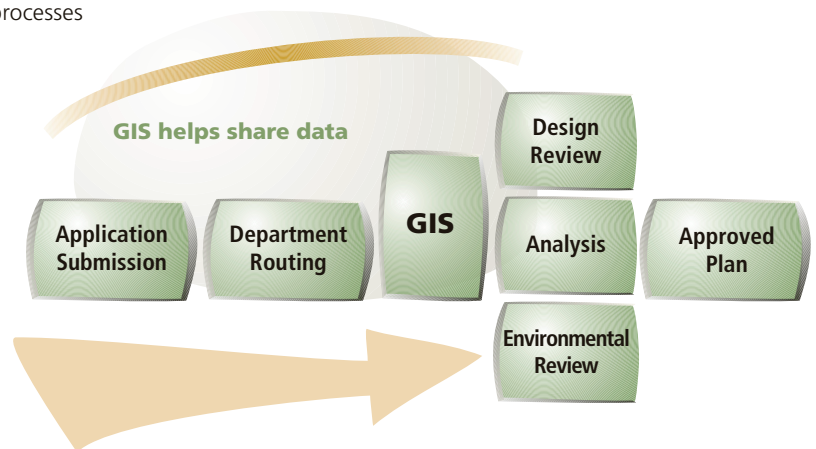
Land Use Mapping Efficiency Increased by 90 Percent
Case Study

GIS has reduced the time needed to complete mapping tasks by more than 90 percent, and the result is a better product.

The Division of Land Use Administration for the City of Richmond, Virginia, replaced a cumbersome manual process with automated GIS-based map production. Adopting GIS has not only made the process more efficient but also more accurate. As part of the Department of Community Development, the Division is responsible for amending the zoning ordinance and supporting the Board of Zoning Appeals and the Planning Commission. Until recently, a drafting technician created zoning, land use, and Master Plan maps by accessing data kept in filing cabinets, outdated paper maps, and legacy mainframes.

Before GIS was implemented, property maps were compiled by an outside vendor and delivered in paper format. Property maps, copied from the Assessor's keycards, were made at different scales. Because each City block was recorded on a separate page, a drafting technician had to assemble, copy, and scale a number of pages to map an area.

The process for creating zoning maps was equally onerous. The zoning maps, printed on Mylar, had to be sent out for large size duplication on paper. These paper copies were hand colored to indicate zoning. If a property was located at or near the edge of a zoning sheet, additional sheets would have to be printed, scaled, and colored. The resulting sheets would be pieced together manually.

Before GIS was used, staff members researched land use coding values assigned by the Assessor's Office by locating properties on a paper map, checking property locations by referencing property descriptions stored on a mainframe, and then cross-referencing coded values with a more generalized scheme kept in a notebook. Finally, each property was hand colored according to existing land use.

The City's Master Plan maps were created using a graphics program so the technician had to photograph the pertinent Master Plan map to create slides for zoning board meeting presentations. Because Special Use Permits were not noted on zoning maps, this information had to be researched using the Division's card catalog.

With GIS, the drafting technician can query for a specific address, zoom to a desired geographical extent, and quickly create a site, zoning, existing land use, or Master Plan land use map with a date and scale bar. Layers were developed for parcel, zoning, Master Plan land use, transportation, surface parking lots, and the existing land use.

The parcel layer is powerful because its features are directly linked to the Assessor's Office and Central Address databases. Address, ownership, property values, and land use information can be accessed directly by clicking on a parcel without any time-consuming research!

The drafting technician can now query a complete, City-wide representation of property boundaries. After labeling streets and properties, the drafting technician simply turns on the zoning, existing land use, or Master Plan land use layers and can print any of these maps. Before GIS, producing a series of site, zoning, existing land use, and Master Plan land use maps took between five and seven hours. With GIS, it now takes less than 30 minutes. GIS has reduced the time needed to complete mapping tasks by more than 90 percent, and the result is a better product.

Planning—Dealing With Constant Change

Planning seems simple enough: design the ideal community, then develop regulations to ensure design goals are met. Reality is far more complex. Today, planning for local governments means dealing with constant change.

Planning professionals have the technical expertise, political savvy, and fiscal understanding to translate a vision of tomorrow into a strategic action plan for today. Requirements handed down from federal and state regulatory agencies, regional boards, and an increasingly active public have made this job even more challenging.

Literally thousands of local government organizations have embraced GIS tools from ESRI as a means of meeting these demands while dealing with limited funding and staffing.

Front Counter Service

GIS promotes a good public image of a planning department. Armed with GIS tools from ESRI, staff members can quickly access information on parcel maps such as environmentally sensitive areas, zoning, permit status, and other planning information.

Current Planning

Current planning requires evaluating present conditions, identifying problem areas, and managing change. The mapping functions of GIS illustrate relationships between various parts of the community to planners and residents alike far more easily than paper maps or design guidelines.

Comprehensive Planning

Comprehensive planning is an ongoing process of goal setting and problem solving. ESRI GIS software supplies a suite of powerful tools to capture, integrate, and leverage large and disparate data sets. These tools help planners analyze problems more quickly and thoroughly, formulate solutions, and monitor progress toward long-term goals for the community.

It is no wonder that ESRI's software solutions have been adopted by more planning agencies than any other GIS software. By integrating and organizing information spatially, planners can get a broad view of the current situation and more accurately assess the future. GIS software can analyze more scenarios more quickly, giving decision makers more choices.
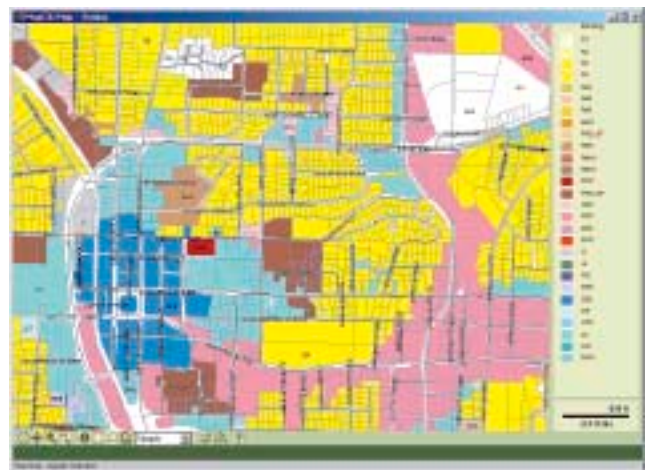
GIS-based e-government solutions, such as MapCiti from ESRI business partner Syncline, automate permit issuance, management, and tracking and eliminate problems associated with traditional front counter, paper-based permitting systems.

Weeding Out Error in Code Enforcement
Case Study

Keeping weeds under control isn't just a matter of aesthetics—it reduces fire and health hazards. Inspectors for the City of Riverside, California, enforce the City's codes for weed maintenance. Abatement procedures are taken only after the City has mailed two notices and performed two on-site inspections. If a parcel owner has not complied at this point, the City provides weed abatement at the owner's expense.

Until recently, tracking weed maintenance compliance was a labor intensive and wholly manual process. Inspectors used loose-leaf copies of the Assessor Parcel Map Book to determine assessor parcel numbers (APNs) for noncompliant parcels so that property owners could be notified. Parcel maps were hand colored to indicate the type of abatement work needed and owner notification information was hand typed.

Because parcels most often cited for weed abatement are undeveloped, and frequently nondelineated, offending parcels could be misidentified or missed altogether. Hand-colored maps sometimes did not provide enough information for contractors to complete abatement measures, and data entry errors caused problems with notifying owners.

Inspection time has been cut by 50 percent with a full return on investment after just one year.

The City worked with Affiliated Computer Services, Inc. (ACS), of Dallas, Texas, in developing a solution that eliminates these pitfalls and helps code officers by supplying current parcel data and custom tools. Using ArcPad™, the mobile GIS software from ESRI, the application ACS developed runs on GPS-enabled handheld computers. When ArcPad starts, the GPS unit supplies the inspector with the current location, shows the parcels that the inspector is responsible for, and displays a simple interface with pan, zoom, refresh, search by address/APN, identify, and editing tools.

During the first inspection cycle, the officer marks each inspected parcel as compliant or noncompliant and updates the associated shapefile, which is downloaded at the end of the day. Supervisors view updated parcel shapefiles and can track work progress by viewing inspection maps.

For the second inspection cycle, which is limited to non-compliant parcels, the GUI is modified. The Noncompliant tool is replaced with an Abate tool. If a parcel has been brought into compliance, the inspector uses the Compliant tool and the database is instantly updated. Clicking on a noncompliant parcel with the Abate tool invokes a form that provides the officer with a combination of pulldown menus and radio buttons for specifying the necessary details about the work to be performed on the property by contractors.

The process is simple and fast and does not require a keyboard. After the second inspection cycle is completed, data is downloaded to a server that generates work orders for the parcels that have been flagged for abatement. Work orders are printed and delivered to the contractor.

Inspection time has been cut by 50 percent with a full return on investment after just one year.

Building and Safety
Promoting Better Communities

Building and safety professionals promote a better community environment for citizens and protect the public interest during the development of property. The needs of maturing and emerging residential neighborhoods must be balanced with those of business and agricultural areas.

Meeting these needs involves permit assistance and tracking, field inspection, code enforcement, and policy development for community design standards. Building departments worldwide use ESRI's GIS software with custom solutions from established business partners to solve these problems. This enabling technology allows building and safety personnel to review emerging trends while streamlining business processes and maintaining good service levels.

Administrative Support

Building officials must answer public demands for less bureaucratic red tape as well as help create livable and sustainable communities. ESRI has a complete suite of affordable GIS software solutions for geographically managing, analyzing, mapping, and reporting information. GIS can be used to review policies such as establishing moratoriums or identifying areas of substandard building construction. Using ESRI software with leading business partner solutions shortens the development review process and can improve the overall performance of the department by more efficiently handling projects.

Permit Assistance and Tracking

Effective counter technicians are vital in developing a positive image for a planning department with developers, business owners, and community residents. Public information counter applications developed using ESRI software let counter personnel rapidly retrieve accurate information for topics ranging from parcel size to school districts.

ESRI solutions automate many of the most time-consuming and labor-intensive tasks. Building and plan check fee calculations, address assignment, and report production can all be handled rapidly and accurately using GIS. Projects can be tracked throughout their life cycle and progress and fees monitored.

Field Inspection and Routing

ESRI software teamed with business partner solutions can efficiently route inspectors and speed collection and entry of information from the field. Use GIS to update databases and maps in the field and coordinate the collection of all types of data from field inspection notes to letters and other communications. More effective routing and reporting means more productive fieldwork and reduced work backlogs.

Code Enforcement

Effective code enforcement preserves community aesthetics and enhances property values. ESRI's GIS tools enable building officials to respond proactively and prevent neighborhood deterioration. From updating databases in the field to quickly generating maps and reports for presentations to community groups and elected officials, ESRI provides powerful tools that enable building officials to maintain and improve the quality of communities through code enforcement.
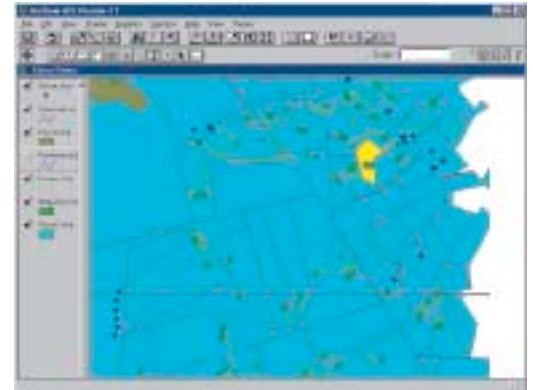
Engineering and Public Works

Sustaining Infrastructure

Public works and engineering professionals keep our cities and counties moving ahead. They maintain land records, keep traffic flowing, design utilities, and protect the environment. These complex and crucial tasks require powerful and sophisticated tools.

With GIS software from ESRI, managers can map, plan, and analyze infrastructure. Historically, engineers and public works professionals have embraced technological advances that have helped build better, safer communities.

ESRI provides the next step in the evolution of infrastructure management technology. GIS supplies accurate mapping tools that can incorporate survey data and integrate existing computer-aided design (CAD) data. Data modeling available using GIS enhances planning activities.

Survey Mapping

The integration of GIS into traditional cadastral and survey mapping leverages the latest in advances in geodetic control through use of
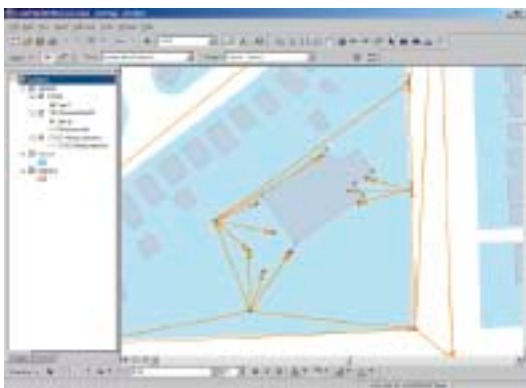
- Coordinate Geometry (COGO)
- Remote Sensing
- Photogrammetry
- Digital Orthophotos
- GPS

ArcGIS Survey Analyst

Survey Analyst, an extension to ArcGIS™, stores and manages measurements, survey points, and computations. Surveyors can manage field surveys in an ArcGIS geodatabase.

In addition to importing raw survey data from data collectors and COGO measurements from survey plans, field sketches can also be entered. Based on this information, a location's previously unmapped features can be defined, or the spatial accuracy of features already in the database can be improved.

Import raw survey data and coordinate geometry measurements, and make field sketches using the ArcGIS Survey Analyst extension.

Better Asset Management

Being Proactive With GASB34

GIS helps comprehensively inventory government infrastructure. It supports both reporting methods stipulated in GASB34 standards and is especially beneficial to a modified approach to reporting because GIS can provide a powerful database backbone.

Traffic and Street Management

Designing and maintaining street networks is a complex and serious responsibility. Local government agencies use GIS to plan and manage the myriad tasks required to maintain safe streets.

Maintenance and Service Program Management

Local governments can use GIS to schedule and route crews for tasks such as road repairs, tree trimming, graffiti, and weed abatement. Easily track the status of infrastructure components, prioritize jobs, and create efficient work plans and routes for crews using GIS software.

Enhancing Safety and Generating Savings
Case Study

Maintaining a road sign configuration as it was designed becomes more difficult over time. Signs are replaced, damaged, or stolen. Because road signs are cited only slightly less often than the condition of the roadway as a factor in transportation-related litigation, governments are concerned about this aspect of maintenance. Missing or improperly placed signs not only make governments vulnerable to lawsuits but can also put the motoring public at risk.

> *The time GIS personnel save can now be spent performing maintenance work.*

In 1995, the Boulder County Road Maintenance Department in Colorado decided to produce a spatially accurate map with attributes for centerline, sign, culvert, bridge, and other transportation layers using GPS equipment. A bar code was attached to each feature to uniquely identify it. Once the mapping and inventory phase was completed, ArcView® and ArcInfo™ were used to maintain the data.

Previously, paper maps and videotapes were used to verify sign type and placement. When performing sign inspections, employees had to make a minimum of two trips to an office to compare recent observations with maps and videotapes. After the new sign inventory, employees could view more complete sign information using ArcExplorer™ but they still had to travel to the office to do this.

In May 2000, the Road Maintenance Division implemented a new sign inventory maintenance program using ArcPad, the mobile GIS software from ESRI. With ArcPad installed on Cassiopeia E-115 Pocket PCs, personnel now take an accurate and current digital map into the field that provides the locations of more than 7,000 road signs and supplies all necessary information about each sign.

Sign inventory data can be edited as well as viewed with ArcPad. Employees update information about existing signs in the field, and missing or incorrect signs are noted. Standardized items contained in drop-down menus have speeded data entry. Data collected in the field can be downloaded from the Pocket PC, eliminating the need for data entry from paper documents. Roadside sign inspections are now more complete and accurate.

The time GIS personnel save can now be spent performing maintenance work, which has increased in overall productivity. One unexpected result of the program is that employees have developed a stake in its success.

Making Better Use of CAD Data

Because ArcGIS can use CAD data without conversion, local governments can take full advantage of investments in CAD. ArcGIS supports AutoCAD® drawing files (.dwg) up to AutoCAD 2000 and all ASCII, binary, drawing interchange files (.dxf), and MicroStation® design files (.dgn) up to version 7.

DWG™, DXF™, and DGN™ files can be added to a GIS map containing other types of data, and the CAD data will be symbolized as the data was originally defined in the CAD file. CAD data can also be converted and its symbology modified. When converting data from CAD files, ArcGIS can impose higher data quality standards by checking CAD attributes against the business rules for a GIS layer. Once converted, GIS data automation tools can clean data and fix geometric errors such as unclosed polygons and unconnected lines.

The return on investments made in CAD data can be maximized by making the data widely available via the Internet. The ArcMap™ Server for ArcIMS®, a new extension to ArcIMS 4, allows files created in the ArcGIS ArcMap application or ArcGIS Publisher to be shared over the Internet using ArcIMS. In addition to making data kept in all types of GIS formats available, ArcIMS can share DWG, DXF, and DGN format data across an Intranet or the Internet.

ArcGIS can use CAD data without conversion. The return on investments made in CAD data can be maximized by making the data widely available via the Internet.

Street Excavation Coordination Pays Off
Case Study

How does a government agency provide real-time project information and service to employees and the public?

Have you ever driven through a neighborhood and noticed the same street dug up several times in a short period of time? Or have you ever driven through a neighborhood and found a freshly overlaid street being trenched?

The organizational silos that reengineering trends of the 1990s were supposed to eliminate are still pervasive. Typically, cross-organizational communication is secondary to satisfying immediate project responsibilities. Additionally, the fiber optics boom has created a backlog of construction projects and a stockpile of planning and development studies. These problems, coupled with staffing shortages experienced by engineering and planning organizations, make the opening question in this article very difficult to answer.

An ArcIMS solution developed for Sacramento County is the Street Excavation in Right-of-Way (SEROW) application. This Web-based coordination tool allows users to produce maps of current and planned projects in Sacramento County that involve street excavation in the right-of-way and perform spatial and tabular queries based on several criteria to produce reports. Users of this application include engineers, planners, developers, utilities, governing boards, and the public.

The application's most powerful features are the online tools for creating and maintaining project data and an automated e-mail notification process that tracks project data status. Creating project data that conflicts with other projects triggers the generation of an automated e-mail notification that is sent to the contacts listed for affected projects.

Sacramento County deployed SEROW on its Intranet so that it would be accessible to anyone with a browser and a network connection. Users can access project data through spatial and tabular searches. To access data via a spatial search, a user uses navigation tools to zoom and pan to the geographic area of interest, trigger the rendering of projects, and mouse-click on a project to open a new window that presents a tabular display of project data. To access data via a tabular search, a user can open the project search screen and define search criteria.

An organization must commit staff to maintain project data using the online administration tools. However, the return on investment quickly justifies the minimum required efforts. If an associate level engineer were to update every single project record in the SEROW database during the course of one year, the staff time costs would be approximately

$10,000. The cost to overlay a typical street in a short residential cul-de-sac in Sacramento County is approximately $20,000. Preventing one unnecessary cul-de-sac overlay in Sacramento County more than justifies the expenditure. This example represents savings realized by preventing duplicate work on small-scale projects. The savings that the County of Sacramento realizes every time it prevents a similar scenario on a large-scale project are tremendous.

In addition to monetary savings, some of the significant benefits of this application include improved communication and coordination among government agencies, developers, and utilities; a reduction in public inconvenience; and enhanced customer service.

The savings that the County of Sacramento realizes every time it prevents a similar scenario on a large-scale project are tremendous.

A New Level of Service: G-Government

G-Government is using the Internet and GIS to create more effective government. The combination of readily available Internet access and maps lets governments provide a new level of service to both businesses and the public. It is making collaboration between government agencies possible in new and powerful ways. The strong data integration abilities of GIS let governments truly capitalize on data existing in legacy systems.

GIS-enabled Web sites can provide services such as online booking, fee payment, and application submission that were not previously available. Three categories of G-Government applications have developed—government to business, government to citizens, and government to government.

- Government to business applications typically relate to economic development, land development, licensing, or permitting.

- Government to citizen applications provide information on government service, such as trash pickup, or streamline the public's interaction with government agencies by allowing online payment of fees or providing feedback to officials.

- Government to government applications improve the amount, quality, and speed of information exchange between various levels of government and/or agencies and departments within governments. Better communication helps governments use resources more wisely by avoiding duplication of effort and allows agencies to work together to tackle large-scale problems or respond to emergencies.

Greenwood County, South Carolina

The interactive GIS mapping Web site for Greenwood County, South Carolina, allows visitors to locate maps and information about real property in the County. Parcels can be viewed online and maps printed. Parcel data is updated monthly. Layers showing water, gas, sewer, and electric facilities and topographic layers with shaded relief, contours, and spot elevations can also be viewed in addition to zoning and soil type layers.

A Web-Enabled Snowplow Tracking System

Case Study

The Bureau of Highways is responsible for plowing 950 miles of roads in Howard County, Maryland. These roads are divided into three operational zones. To balance the truck force, the Bureau of Highways needs to know the completion percentage of each zone as well as the progress of each individual truck. The goal of the Web-enabled snowplow tracking system project was to develop a snowplow tracking system that not only improved the Bureau of Highway's snowplow productivity but also improved the citizens' trust in government through better service. Using this system via the County Web site lets users see which roads have been salted and plowed.

In addition to displaying vehicle locations on a map, the successful completion of the project required additional functionality such as statistical tracking, vehicle location, vehicle logging and playback, and the incorporation of other data sets. The County's map was partitioned into grids. The user can click on an individual grid to view locations of snow trucks and the progress of snow removal in that area. The system will automatically archive the history data in half hour intervals during an event. The title of each map contains the date and time it was created and is included in the hyperlink.

The snowplow tracking system also works with other agencies. During storm events, the 911 fire dispatcher using the County's Intranet can monitor street conditions and advise emergency vehicles being dispatched to these areas about current conditions. The dispatcher can also see the locations of snowplows and can request that the nearest snowplow be diverted to assist in getting vehicles to the fire scene. This collaboration via the snowplow tracking system not only decreases the response time to the public but also improves the efficiency of snow and ice control operation.
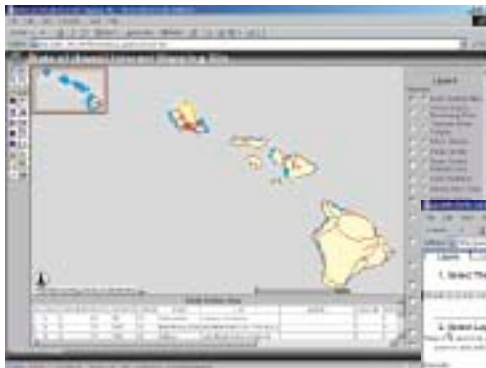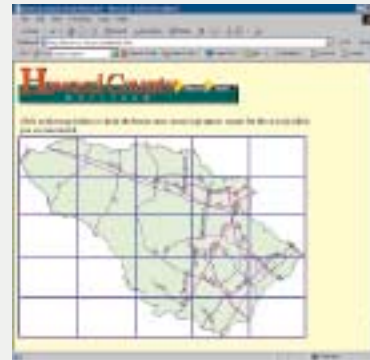
Hawaii Statewide GIS

Visitors to the ArcIMS portion of the Hawaii Statewide GIS Program Web site can view maps created with more than 25 data layers. These layers contain data that ranges from the location of good beaches for body surfing to the nearest elementary schools to congressional district boundaries. Maps can be viewed online or printed.
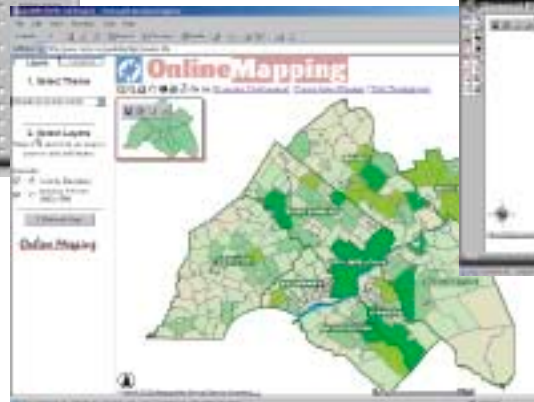
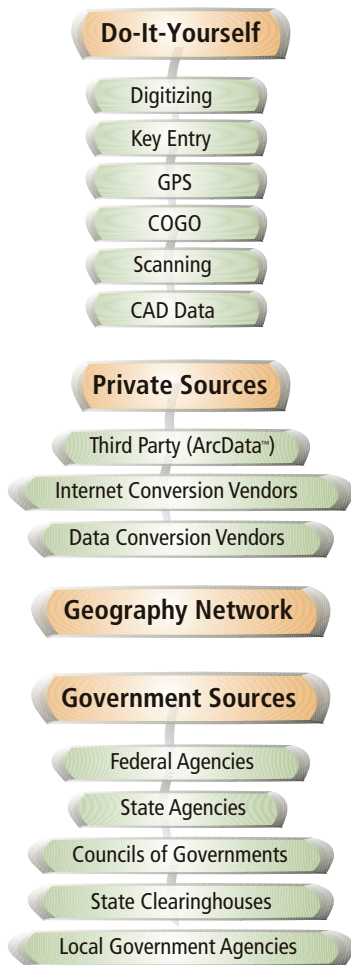*Delaware Valley Regional Planning Commission*

ArcIMS applications on the Delaware Valley Regional Planning Commission (DVRPC) display select data sets for the region and surrounding counties. DVRPC is a metropolitan planning organization that provides comprehensive planning to five southeastern Pennsylvania counties and four southern New Jersey counties.

City of Laguna Niguel

A variety of maps is available from this site—parcels, zoning, general plan, environmental constraints, and sewer system in addition to aerial photos and elevation contours.

Information Is Power—Power Up Your GIS!

Do-It-Yourself
- Digitizing
- Key Entry
- GPS
- COGO
- Scanning
- CAD Data

Private Sources
- Third Party (ArcData™)
- Internet Conversion Vendors
- Data Conversion Vendors

Geography Network

Government Sources
- Federal Agencies
- State Agencies
- Councils of Governments
- State Clearinghouses
- Local Government Agencies

ESRI GIS solutions offer the ability to incorporate a wealth of data sources from inside and outside your organization.

Data is available from federal and state agencies, state clearinghouses, councils of government, and local government agencies. Much of this data can be obtained at low or no cost or through data sharing agreements with other jurisdictions.

Another often overlooked information source is the legacy data created by an organization over the years. These existing data sets can be joined with others for use outside the specific department in which they were created. For example, by combining parcel data from planning with business license records from the finance department, revenue auditing can be more effectively conducted.

ESRI GIS solutions offer the ability to incorporate a wealth of data sources from inside and outside your organization.

The Geography Network

The Geography Network℠ is a global community of government and commercial data providers who are committed to making geographic content easily accessible. This Internet portal allows people to publish, share, and use geographic data and services on the Web. It is available to private, public, and commercial users; data publishers; service providers; and developers around the world. Content may be provided in the form of data, maps, or more advanced services and solutions. Those interested in economic development data can access the Geography Network to find data about streets, demographics, boundaries, points of interest, and business listings.
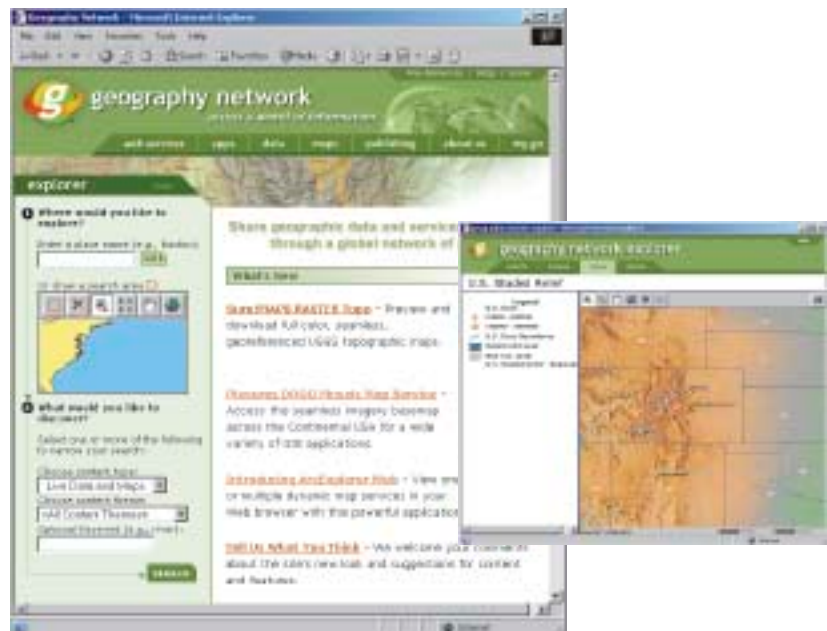
The ESRI Family of GIS Solutions

ESRI has solutions that can be deployed on the desktop, on the Web, or across the enterprise. ESRI products work in an integrated and flexible manner. They provide just the right software for your needs today and can be scaled to meet future needs.

ArcGIS

ArcGIS, a family of software comprising a complete GIS, is built on industry standards. Out of the box, it provides rich functionality and the applications in ArcGIS—ArcView, ArcEditor™, ArcInfo— can be configured to match an organization's needs. Built out of modern object-based components, these software programs share the same core applications, user interface, and operating concepts. ArcGIS is used for the creation, management, integration, analysis, display, and dissemination of spatial data. Strong visualization, editing, and analysis, along with advanced data management, distinguish the ArcGIS software family as the leading GIS software.

ArcView

ArcView is designed with an easy-to-use, Windows-like user interface and includes Visual Basic for Applications (VBA) to allow for customization. ArcView consists of three desktop applications: ArcMap, ArcCatalog™, and ArcToolbox™. Display, query, and analyze data in ArcMap. Manage, create, and organize geographic and tabular data using ArcCatalog. Use the tools and wizards in ArcToolbox to convert data to other formats.

ArcEditor

ArcEditor is a state-of-the-art GIS data visualization, query, and creation solution. Designed for the Windows desktop, ArcEditor can create and edit all ESRI-supported vector data formats including shapefiles, coverages, personal geodatabases, and multiuser geodatabases.

ArcInfo

ArcInfo is the complete GIS data creation, update, query, mapping, and analysis system. ArcInfo includes the most comprehensive collection of GIS tools available. As part of the ArcGIS software family, ArcInfo encompasses all the functionality of ArcView and ArcEditor and adds the advanced geoprocessing and data conversion capabilities that make it the de facto standard for GIS.

ArcSDE

ArcSDE™ is the GIS gateway for managing spatial data in a database management system. ArcSDE allows you to manage geographic information in commercial databases such as IBM® DB2® Universal Database, Informix®, Microsoft® SQL Server™, and Oracle® as well as serving ESRI's file-based data.
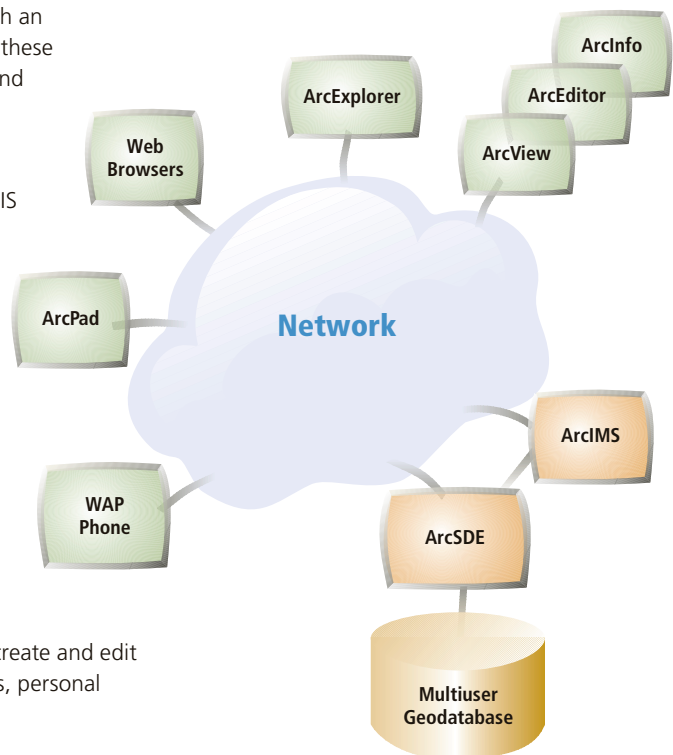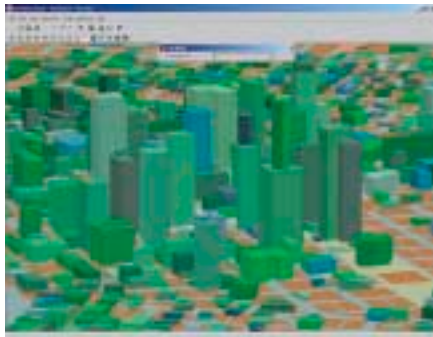
ESRI has solutions that can be deployed on the desktop, on the Web, or across the enterprise.

ArcGIS Extensions

These optional extensions dramatically extend functional capabilities of ArcGIS.
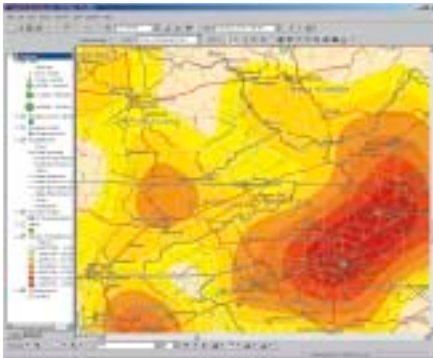
ArcGIS Spatial Analyst

ArcGIS 3D Analyst

ArcGIS Geostatistical Analyst

ArcGIS Survey Analyst

ArcGIS Spatial Analyst

Take advantage of the broad range of powerful spatial modeling and analysis features available with ArcGIS Spatial Analyst. Create, query, map, and analyze cell-based raster data; perform integrated raster/vector analysis; derive new information from existing data; query information across multiple data layers; and fully integrate cell-based raster data with traditional vector data sources.

ArcGIS 3D Analyst

Use the advanced tools provided by ArcGIS 3D Analyst™ for three-dimensional visualization, analysis, animation, and surface generation. Unique features of ArcGIS 3D Analyst include support for triangulated irregular networks (TINs) and simple three-dimensional vector geometry as well as interactive perspective viewing.

ArcGIS Geostatistical Analyst

This powerful suite of tools for spatial data exploration and optimal surface generation uses sophisticated statistical methods. With ArcGIS Geostatistical Analyst, create a surface from limited data measurements in situations in which extensive data collection is impractical or impossible.

ArcGIS StreetMap USA

This ArcGIS extension provides nationwide address matching and street map display for the entire United States. ArcGIS StreetMap™ USA layers automatically manage, label, and draw features such as local landmarks, streets, parks, water bodies, and other features. ArcGIS StreetMap USA can find addresses in the United States by interactively matching a single address or by batch matching from a file of addresses.

ArcPress for ArcGIS

ArcPress™ for ArcGIS provides a PostScript-based raster image processor (RIP) for quickly printing high-quality maps and exporting map files. ArcPress for ArcGIS translates maps into industry-standard export formats or a printer's native language.

MrSID Encoder for ArcGIS

Efficiently use large georeferenced images in ArcGIS with this extension. The MrSID® Encoder for ArcGIS extension can encode large image files into smaller-sized high-quality MrSID files and is ideal for use with maps, satellite images, and aerial photographs.
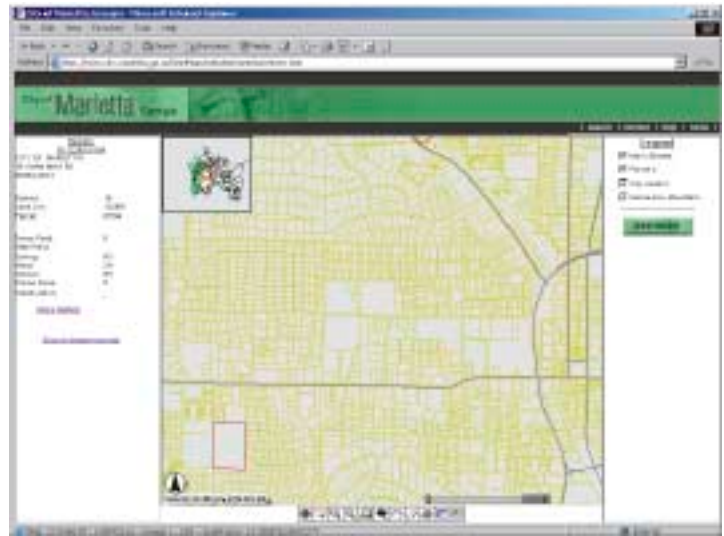
ArcGIS Survey Analyst

Manage survey data in a geodatabase and represent survey measurements and observations on a map using this extension. It provides tools that allow professional surveyors and GIS technicians to work together in an integrated system.

Internet and Mobile GIS

ArcIMS

ArcIMS

ArcIMS software is the foundation for distributing GIS data and applications on the Internet. By providing a common platform for sharing GIS resources, ArcIMS can integrate information within and between agencies. ArcIMS can serve geographic information to a variety of clients, integrate sevices with ESRI's ArcGIS Desktop products, provide secure access to map services, and create a central repository for publishing and browsing metadata. ArcIMS extensions allow publication of ArcGIS documents and supply routing and point-to-point driving directions. ArcIMS supports Windows®, UNIX®, and Linux® platforms.

ArcPad

ArcPad™ software, a mobile GIS technology, makes data collection in the field easy and efficient. Using a handheld device, GIS data copied from a desktop computer or obtained from the Internet via wireless connection can be accessed virtually anywhere. Custom forms tailored to data collection activities make staff more productive and improve accuracy. GPS receivers can be added for direct capture of locational data.

RouteMAP IMS

RouteMAP™ IMS lets companies add mapping and routing capabilities to Web sites easily. RouteMAP IMS software resides on the server, allowing the user to change, edit, and serve an unlimited number of maps and routes and retain total control of the content and the user interface. It can be customized and comes with data sets for the United States, Canada, and Europe, and includes Dun & Bradstreet business listings for the United States.

ArcPad

RouteMAP IMS

GIS Solutions

ArcView

ArcView is the most popular desktop GIS and mapping software, with more than 500,000 copies in use worldwide. With ArcView you can create intelligent, dynamic maps using data from virtually any source and across the most popular computing platforms. ArcView includes tools and data you can use immediately to perform state-of-the-art analysis on key issues. It lets you work with maps, database tables, and business charts all in a single application. Also, ArcView can be customized to fit a user's needs with Avenue™ scripting language included in the product.

ArcView Network Analyst

The ArcView Network Analyst extension enables users to solve a variety of problems using geographic networks (e.g., streets, highways, rivers, pipelines, electric lines) such as finding the most efficient travel route, generating travel directions, finding the closest facility, or defining service areas based on travel time.

ArcView Business Analyst

ArcView Business Analyst can make a government instantly productive. Use this powerful desktop solution to develop community profiles for long-range planning. An easy-to-use wizard interface guides the user through complex analyses. ArcView Business Analyst comes with data from Uniform Data Systems, Geographic Data Technologies, Inc., and Experian as well as a nationwide street network. Analysis procedures are built into the software so that the user can focus on results rather than the details of the underlying technology. ArcView Network Analyst for routing and drive-time analysis is included with ArcView Business Analyst.

ArcLogistics Route

ArcLogistics™ Route is a stand-alone application for vehicle routing and scheduling. It optimizes routes and schedules and outputs maps, directions, and reports. Routes are built based on actual network drive times instead of straight-line distances.
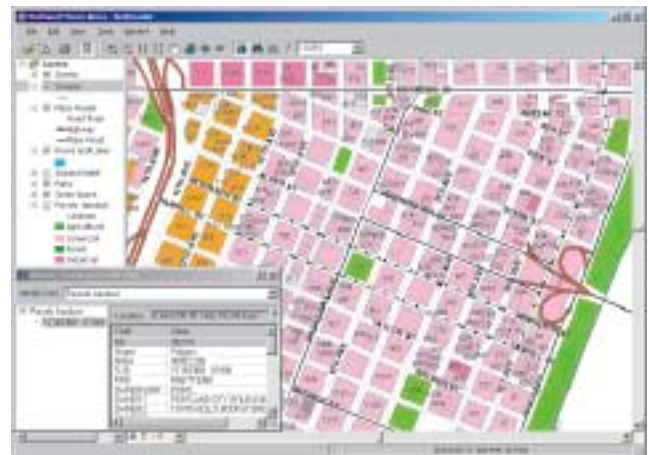
ArcReader

ArcReader™ is a light-weight, free map viewer for ArcGIS that provides GIS users with a method to publish and share electronic maps locally, over local networks, and via the Internet. ArcReader makes it easy to view, explore, and print interactive maps. Read-only maps protect data from unauthorized modification.

Full Service Support

ESRI fully supports clients throughout the process of acquiring and implementing a GIS, from an initial needs assessment to system design and development. Services offered include implementation planning, system acquisition and integration, database design and automation, applications programming, education and training, and technical support.
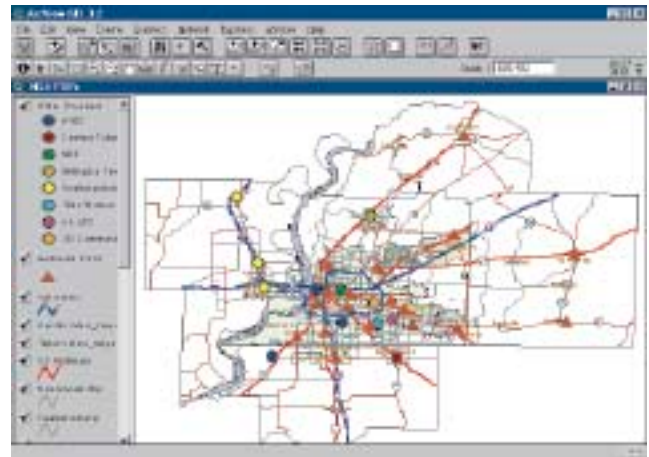
ArcView 3.x

ArcReader

ESRI:

Bringing GIS to the World

ESRI has been the world leader in the GIS software industry for more than 30 years. As the leader in GIS technology, ESRI offers innovative solutions that will help you create, visualize, analyze, and present information more clearly and make better decisions.

Working with location information, ESRI's GIS software and solutions give you the power to solve problems you encounter every day. Organizations around the world, as well as local, state, and federal government agencies, are using ESRI GIS software to make smart and timely decisions. ESRI provides powerful GIS solutions to more than 300,000 clients in more than 189 countries. In fact, ESRI is leading the industry in providing mapping technology that meets today's global needs.

ESRI offers GIS solutions to help you unlock the spatial component of your valuable data and see your organization's information from a new perspective.

www.esri.com

ESRI

For more than 30 years ESRI has been helping people manage and analyze geographic information. ESRI offers a framework for implementing GIS technology in any organization with a seamless link from personal GIS on the desktop to enterprisewide GIS client/server and data management systems. ESRI GIS solutions are flexible and can be customized to meet the needs of our users. ESRI is a full-service GIS company, ready to help you begin, grow, and build success with GIS.

Corporate

ESRI
380 New York Street
Redlands, California
92373-8100, USA
Telephone: 909-793-2853
Fax: 909-793-5953

For more information
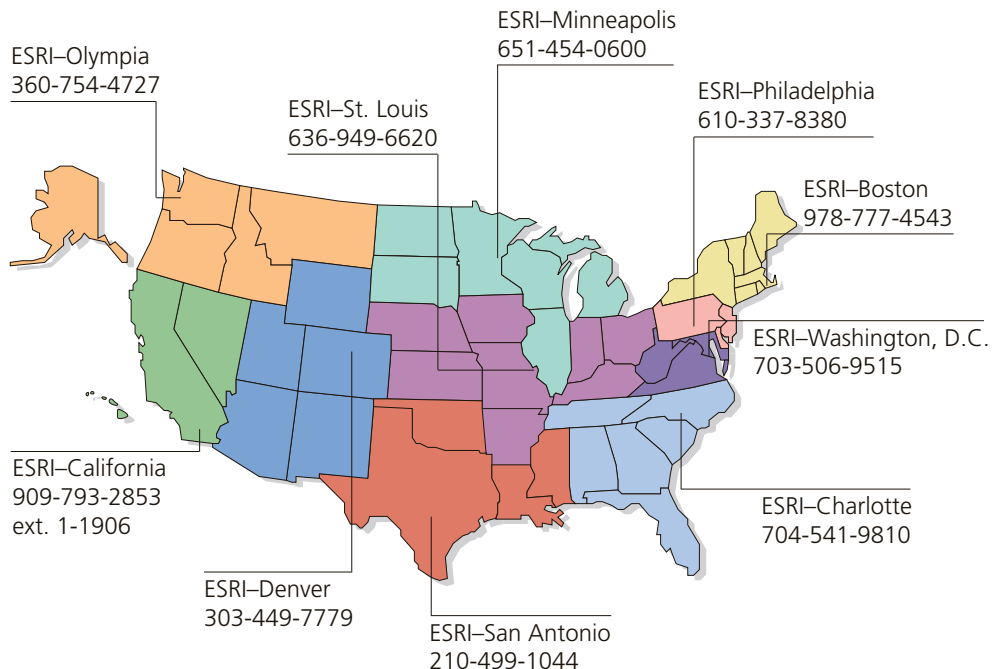on ESRI, call

1-800-447-9778

(1-800-GIS-XPRT)

or contact an ESRI reseller near you.

Send e-mail inquiries to

info@esri.com

Visit ESRI's Web page at

www.esri.com

Outside the United States,
contact your local ESRI distributor.
For the number of your distributor,
call ESRI at 909-793-2853,
ext. 1235,
or visit our Web site at
www.esri.com/international

Regional Offices

ESRI–Olympia
360-754-4727

ESRI–Minneapolis
651-454-0600

ESRI–St. Louis
636-949-6620

ESRI–Philadelphia
610-337-8380

ESRI–Boston
978-777-4543

ESRI–Washington, D.C.
703-506-9515

ESRI–California
909-793-2853
ext. 1-1906

ESRI–Charlotte
704-541-9810

ESRI–Denver
303-449-7779

ESRI–San Antonio
210-499-1044

International Offices

Australia
613-9867-0447

Belgium/Luxembourg
32-2-460-7480

Bulgaria
359-2-964-0850

Canada
416-441-6035

France
33-1-46-23-6060

Germany/Switzerland
49-8166-677-0
41-1-360-2460

Hong Kong
852-2730-6883

Hungary
361-428-8040

India
91-11-620-3802

Indonesia/Malaysia
62-21-570-7685
603-7874-9930

Italy
39-06-406-96-1

Japan
81-3-3794-6681

Korea
82-2-571-3161

Netherlands
31-10-217-0700

Poland
48-22-825-9836

Portugal
351-2-1-781-6640

Romania
40-1-231-13-81

Singapore
65-742-8622

Spain
34-91-559-4375

Sweden
46-23-755-400

Thailand
66-2-678-0707

United Kingdom
44-1296-745-500

Venezuela
58-212-285-9394

GSA
Federal Supply Schedule

No. GS-35F-5086H

Place ESRI business partner or distributor address here.

91921
XXX5M11/02kh

Printed in USA