GIS FOR YOUR SPECIALTY
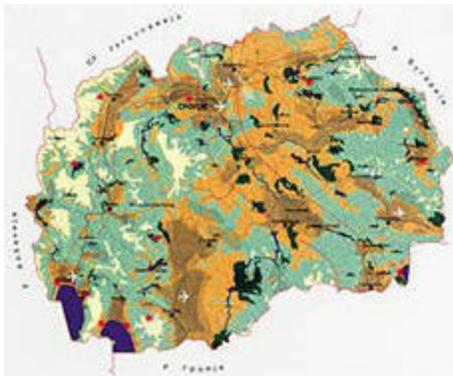
GIS for Government

Governments around the world are increasingly required to streamline business practices while adhering to complex political and regulatory requirements. To do so, they must digest an immense amount of information to perform their duties in a fair and reliable manner. Almost all of this information is in some way tied to a geographic element such as an address, parcel, postal code, census block, or some other component.

GIS technology provides a flexible set of tools to perform the diverse array of functions handled by government agencies. More important, GIS technology makes data sharing among departments easier so that the government can work as a single enterprise.

The Spatial Plan of Macedonia is a government document that defines the spatial organization of the country. It is a complex development project articulating the goals and concepts for spatial development as well as the terms for their implementation. The project is long term, with anticipated completion in 2020. Map courtesy of Public Enterprise for Spatial and Urban Planning, Skopje, Macedonia.
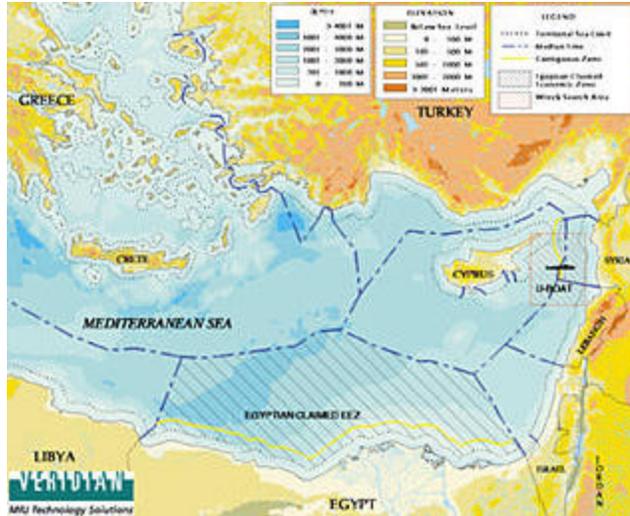
GIS for National Government

As globalization of businesses and economies brings our world closer, problems increasingly cross international boundaries with widespread implications. GIS helps national governments collate and analyze the quantities of data needed to address these issues.

GIS cuts across nearly all disciplines, provides a common language for discussion, and acts as a means to bring governments, agencies, and constituents together in the decision making process.

Ownership and the right to recover antiquities and objects of value from the seafloor (in this case, the German submarine U-559, sunk during World War II) remain controversial issues. Knowledge of the extent of maritime boundaries and a coastal state's jurisdiction over waters and the seabed are essential to ensure that those who seek to salvage such objects conform to legal protocols.


GIS has become so important to national governments and for international cooperation that the United Nations recently formed the Geographic Information Working Group to address collaboration in the fields of cartography and geographic information science.

GIS for State and Local Government

State, provincial, and local governments are responsible for the day-to-day management of cities, counties, states, provinces, and principalities.

More importantly, however, they have a duty to their constituents to protect law-abiding citizens; administer health, welfare, and educational services; and ensure fair and equitable representation of all constituents in the government itself. GIS technology solutions can be used to meet these difficult tasks.

One of the main functions served by state, provincial, and local governments is developing and maintaining infrastructure. Departments involved in this work include planning and zoning, economic development, building permits and inspection, redevelopment agency and resource management, engineering, and public utilities to name just a few.
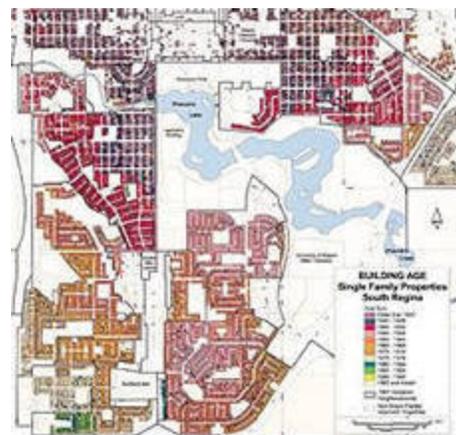

The map above shows an example of planning activities by a local government. The city of Regina in Saskatchewan, Canada, is Saskatchewan's provincial capital and contains nearly 58,000 properties with in 29,000 acres. Since 1997, the city's assessment division has been conducting

property reassessments following new provincial standards and procedures dictated by the Saskatchewan Assessment Management Agency. The new methodologies are more market sensitive as they adjust cost schedules according to market adjustment factors, which are based on prior comparable property sales.

Law Enforcement and Criminal Justice

GIS allows law enforcement and criminal justice personnel to plan effectively for emergency response, determine mitigation priorities, analyze historical events, and predict future events. In the "mission-critical" nature of law enforcement, information about the location of a crime, incident, suspect, or victim is often crucial to determine the manner and size of the response.

The map to the right shows the victimized as well as juvenile suspect and arrestee offense frequencies by police beat. Specific police beats are shown here to have a high frequency of instances of juvenile crime (the large purple targets). Map courtesy City of Winston-Salem, North Carolina.
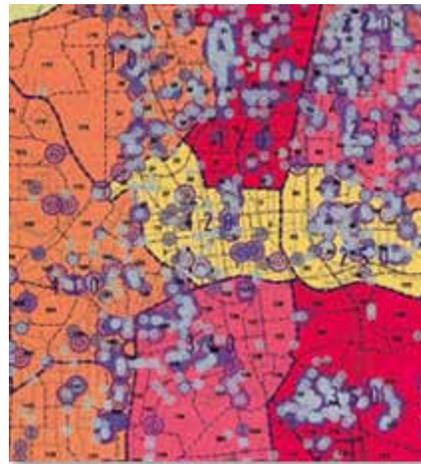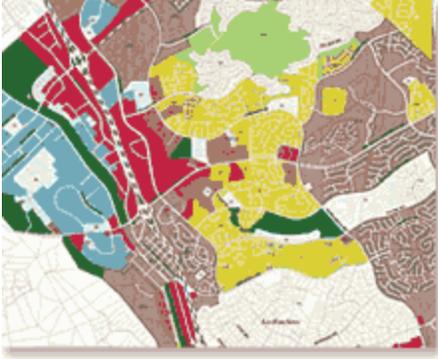
Public Safety

GIS plays an important role in public safety. Response capabilities often rely on a variety of data from multiple agencies, and GIS is the best software to integrate that data. The capability to access and process information quickly and deploy resources where needed can be mission critical. Information about the location of an incident or disaster is often crucial in knowing how to respond.

GIS also allows public safety personnel to effectively plan for emergency response, determine mitigation priorities, analyze historical events, and predict future events. GIS can also be used to expedite critical information to emergency responders upon dispatch or while en route to an incident to assist in tactical planning.

The map to the right shows predicted ground acceleration for a Seattle Fault Zone earthquake of maginitue 6.5 along the Puget Sound (from 0.0g [green] to 1.0g [red]). The purpose of the map was to illustrate the vulnerability of the transportation system in King and Pierce counties, Washington. This map was made to support the Project Impact initiative.

Cadastral/Land Records

This City of Temecula, California map shows zoning designations. The map was adopted in 1995.

GIS helps planning, building and safety, public works, and engineering professionals meet or exceed the many demands placed on them. Useful community development functions that can be performed more effectively with GIS include

- Preparation, mapping, and analysis of general plans, housing elements, land use regulatory controls, zoning districts and consistency issues, existing land use, development constraints, and facility locations.

- Demographic analysis for Community Development Block Grants, housing, capital improvement, and other projects.

- Building permit and inspection operations such as building and plan check fee calculations, inspection routing, permit tracking, and report production.

- Support of economic development programs, such as managing inventories of available sites and buildings suited for industrial and commercial development, and mapping of characteristics of the community and labor force.

- Front counter service--staff members can quickly access information on parcel maps, environmentally sensitive areas, zoning, permit status, and other planning information for the public.