Why is GIS Important to YOU?

Geographic information is the key to better decision-making; just about everything a community, business, or public agency does, whether in day-to-day operations or long-term planning, is related to its geography.

Education is a good example. The primary purpose of schools, of course, is to teach children. But schools also have to worry about maintaining an efficient and safe transportation system for their students, whether the school building will have to expand if the population keeps growing, and whether the building's septic system will be adequate in years to come.

Commercial site evaluation is another example. Zoning regulations, utility availability, traffic access, and proximity to consumers are all important considerations for retail businesses choosing building sites.

**Imagine how maps would present the information described above
in an easy to understand format.**

In fact, many routine operations of business and government are tied to a location and *rely on the use of geographic information* to accomplish their goals. Some examples are:

- Land-use planning (Where is growth happening?)
- Marketing (Where are our customers?)
- Subdivision review (Where is the wetland?)
- Permit tracking (Whose property is the permit attached to?)
- Parcel/tax mapping (Who are Jane Doe's abutters?)
- Engineering design (What is the topography of the building site?)
- Road and utility maintenance (Where is the downed power line blocking the road?)
- Event (crime, fires, accidents) reporting (Where do the most accidents takes place?)
- Emergency dispatching (Where is the E-9-1-1 call originating from?)

For many years, personnel involved in these routine operations have had to rely on reams of printed material, hand-drawn maps and their own imaginations to consider alternatives and make choices.
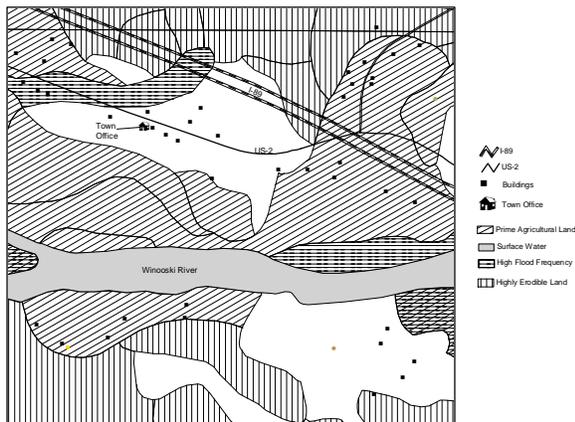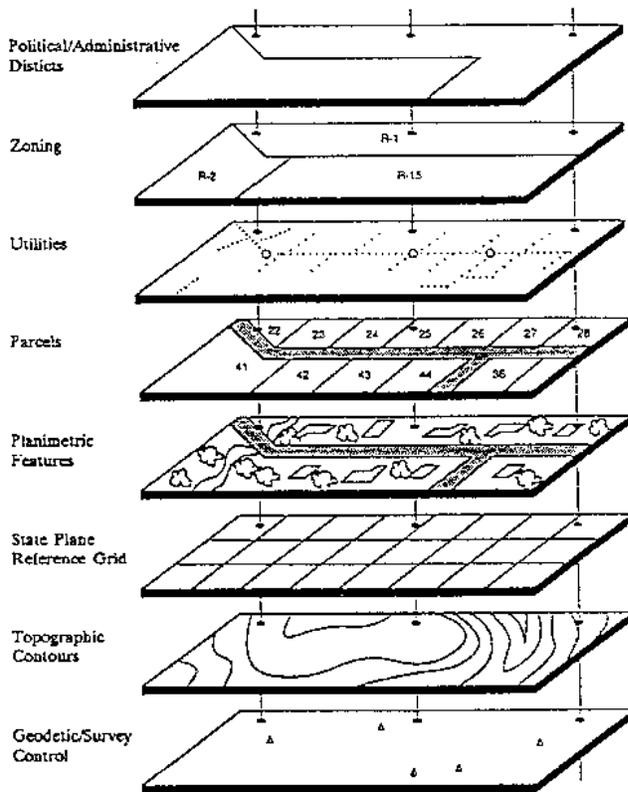

GIS stands for *geographic information system*, a method of managing, analyzing, and displaying geographic information on easily understood, computer-generated maps.

The strength of GIS is its ability to create distinct map *layers* for different types of information, and then to combine them in any way desired or needed. Each layer consists of geographic, or *spatial*, data linked to descriptive, or *tabular*, information. In combining layers, GIS uses known earth coordinates (like latitude and longitude) to make sure each layer lines up correctly with the others.

For instance, a community involved in municipal planning might *want to know how suitable different areas of the town are for development*. GIS can be used to generate maps showing where various conditions exist: prime agricultural land, surface water, high flood frequency, and highly erodible land (see map above). Planners can use this information to make decisions about zoning designations and building permits.

GIS Database Layering Concept

Political/Administrative
Districts

Zoning

Utilities

Parcels

Planimetric
Features

State Plane
Reference Grid

Topographic
Contours

Geodetic/Survey
Control

To compare that information with data showing where development is already occurring, GIS could generate another map or series of maps showing where permits have been issued, when, and for what kinds of development.

GIS can also *help businesses research retail markets*. By entering customer survey data into a GIS database, marketing research staff can see where customers are coming from, and decide where their marketing efforts will have the most impact.

The Sandwich Analogy:
Using GIS is a little like making a multi-decker sandwich. The person desiring the "sandwich" can use any type of layer or number of layers required. The toothpick holding the sandwich together is the coordinate system that guarantees the layers line up properly.

How is GIS Different From Using Tra-ditional, Hand-Drawn Maps?
Traditional paper maps exist in many different map scales and projections, making it next to impossible to superimpose or *overlay* them the way GIS can. GIS can mathematically transform map features from one scale or projection to another to allow map layers from different sources to be used together.

Traditional maps are also less efficient because changes require starting from scratch with a brand-new map. Once information is entered into a GIS system, it is a simple matter to change the data on the computer and produce an updated product. GIS can produce maps at any size, depicting an entire community or only a selected area using information from different scales.

How can YOU start taking advantage of this powerful tool?

- Talk to someone at The VT Center for Geographic Information, Inc. about how GIS could be useful to you (or visit our web site at **www.vcgi.org**)
- Contact your local Regional Planning Commission GIS specialist and find out what they can do for you (VCGI can help you figure out which region you are in)
- Contact one of the many consultants who can be hired to work on GIS projects
- Learn more about GIS software, a web search will yield information on many different products (and some are free!)

For more information, contact the VT Center for Geographic Information, Inc. at (802) 882-3000
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