

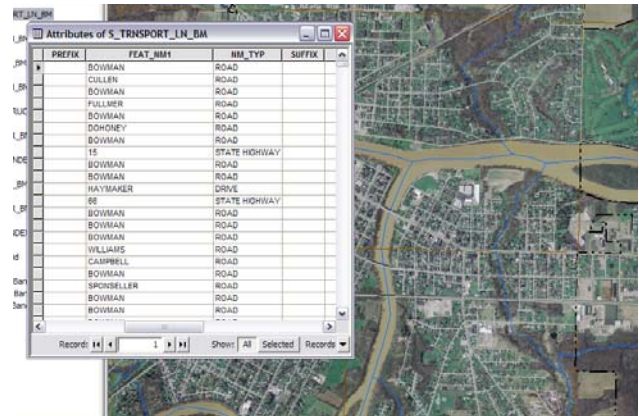
GIS and Mobile Technology

GIS

A Geographic Information System (GIS) can be used to store any type of data with a spatial component. A GIS combines hardware, software and data for use in managing, capturing, analyzing and displaying geographic information.

GIS gives us a visual representation of data that can be used to understand and interpret the relationships, patterns and trends found in that data.

A GIS is often thought of as map, however a map is only one way of working with spatial data. There are three different ways in which spatial data can be viewed in a GIS



1. The Database: The underlying layer in almost every information system is the database. GIS is no different in that all attributes, including the shape and location of the data, are stored in some type of database.
2. The Map: A set of intelligent maps can be generated from a GIS showing the relationships between features on the earth's surface. These maps are visual representations of the database and can be used to support queries, analysis and editing of the data.
3. The Model: A set of tools that transform the information in the database into newly derived information. Geoprocessing functions take the existing information and apply analytic formulas to create results into new datasets.

Mobile Technology

Mobile Technology can be used as an aid for workers in the field. An endless number of applications exist for use in mobile technology. Maps can be used simply to reference the location of features, GPS can be used to locate features, or mobile GIS can be used the edit features on the spot.



There are several forms of mobile technology that can be used with GIS. These range from the most basic type being a paper map to more advanced types such as GPS units and tablet PCs with GIS software.

- **Paper maps** or plans can serve as a visual representation of the area in which work is being conducted. Paper maps are not dynamic and therefore must contain all data necessary prior to going in the field. The field crew can mark up the maps and these marking can be georeferenced and incorporated back into the GIS
- **Digital Pen** technology can be used to mark up paper maps in the field and this data can be transferred back into the GIS with very little work on the GIS users' part. This is more effective than the use of plain paper maps.
- **GPS** technology can be used to locate certain features accurately on the earth's surface. The GPS unit can also be used to enter information about the feature such as a description or id number.
- **Mobile Mapping** technology is a full blown GIS in the field. All of your data is accessible to you instantaneously and allows for the creation of intelligent dynamic maps. Features can be located on the map and edited on site with no need for changes to be made back in the office.

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