

INTEGRATION OF GIS AND GPS: COMING TO A TOWN NEAR YOU

By Ralph H. Whisler III, PLS



Given the onset of advances in technology, the integration of Geographic Information Systems (GIS) and the surveying profession is inevitable. Generally, surveyors demand exceptionally accurate data which, until recently, the GIS Professional didn't need or provide. When some surveyors hear the term GIS, they tend to think it means "Get It Surveyed". All sarcasm aside, this may be closer to the truth than they think.

GIS initially consists of a Map Base, with high-resolution digital photogrammetry preferred, due to the usual cost and time constraints combined with the level of detail needed. This map base is then tied to some type of localized grid usually involving the use of state plane coordinates (or latitude and longitude) and surveys showing the location of land corners, geodetic control stations, highway control points and the other monuments referenced to property locations. Once the map base is complete, other features or "layers" can then be added such as land boundaries, utilities, roadways and other infrastructure items of concern. You will notice that all of the above steps are (or could be) functions of the Land Surveyor.

The use of Global Positioning System (GPS) equipment by the surveyor has become the chosen tool for the collection of data necessary to build an accurate GIS model. While most municipalities and governmental agencies may not have a need for the precision provided by GPS, surveyors find that the use of GPS and GIS together can be an invaluable tool in the location of land boundaries and other topographic features. The combination of the two will provide the surveyor with the ability to "join" distant projects into a common database, together with the storage of control points without duplication. One use of this combination that is sometimes overlooked is the record of the relationship between points and features prior to their removal by construction, or more recently, catastrophe.

It can be seen that the integration of GIS and GPS-based surveying is upon us and the uses for the combination of the two are endless. All we need now is a good software package that is compatible to both, but we'll save that for another article.

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