ABSTRACT

USING GPS/GIS TECHNOLOGY
FOR HIGHWAY PURPOSES

Many organizations, especially those in need of frequent database updates, are unable to afford the upfront costs of GIS data collection and conversion. As a result, they are turning to GPS technology as a low-cost alternative to traditional GIS data-input methods.

Several Departments of Transportation have sought to implement GIS technology because digitizing U.S. Geological Survey quad maps have provided agencies with only minimal highway location information and virtually no highway feature data, such as no passing zones or bridge locations. Montana's Department of Transportation could not implement GIS technology because it lacked the time and budget required for traditional data-gathering techniques.

This situation changed in the spring of 1990 when the department began a pilot project in cooperation with GeoResearch, Inc. By implementing the Geolink conversion program, developed jointly by GeoResearch and Trimble Navigation, the department was able to record highway attribute position information with a GPS receiver, automatically convert it to a portable GIS, and visualize the data while driving down the road.

By installing a GPS receiver and antenna, along with a laptop computer in a van and also having a pre-designed database, we were able to record positional data on 15 attributes driving at 35 miles per hour. By running the data through a post-processing routine, we obtained a ready-built GIS database, accurate to about two to five meters.

As a result of this pilot project, our surveying, maintenance, and planning divisions are prepared for an all-out effort to incorporate GPS/GIS capabilities.
This technology offers us the opportunity to catch up on and maintain a major portion of our highway needs throughout the entire state.

Requirements:

- Overhead projector
- Slide projector

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