

CaseStudy



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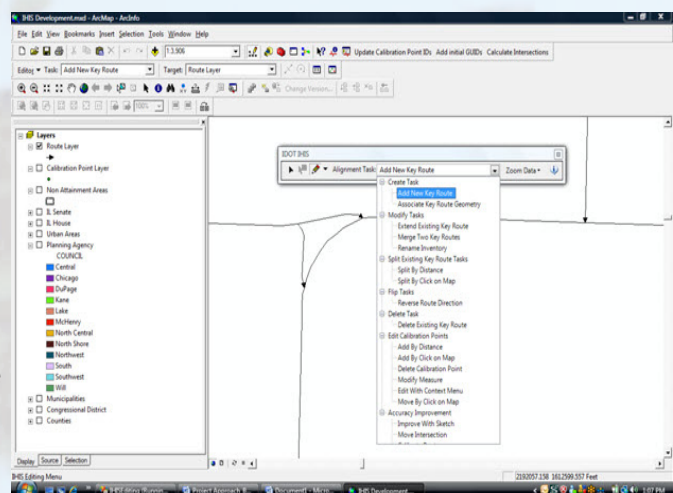
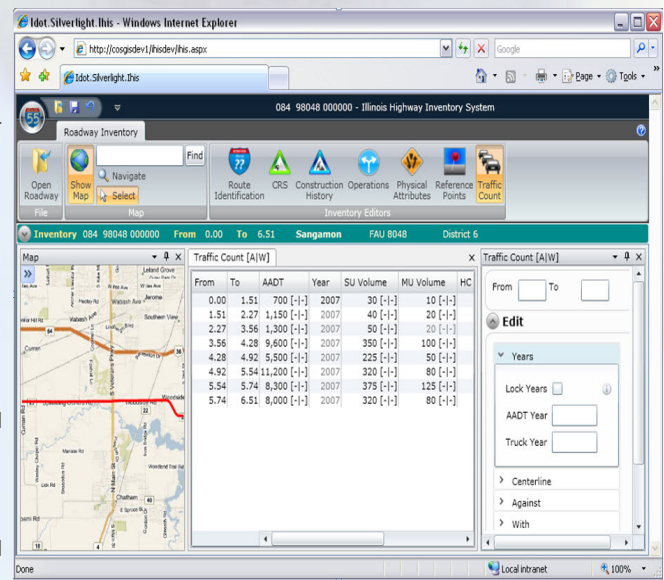
Linear Referencing and Road Inventory System Illinois Department of Transportation

Using “Designing Geodatabases for Transportation” by J. Allison Butler as a reference, GIS Solutions has developed a new LRS and Roadway Inventory System for the Illinois Department of Transportation (IDOT). The new system consists of two major components: an Esri 9.3 ArcGIS desktop application for linear reference system editing and management and a Silverlight 3.0 web interface for roadway inventory editing and management. Both components share a common database. The Silverlight 3.0 interface integrates Microsoft’s Bing Maps, Esri’s Silverlight API; and Esri ArcGIS Server web services to build a line of business application accessible via a web browser.

The web-based editor supports a considerable number of point and linear events such as road conditions, traffic counts, construction history, reference points and physical attributes such as number of lanes, speed limit, median type, etc. The grid display of the data, the editor window and map are interactive. Selecting a route on the map highlights the record in the data grid.

The custom ArcGIS Desktop Route Editing toolbar was developed to accommodate the linear reference system editing and maintenance responsibilities. The custom toolbar provides capabilities to edit the core centerline geometry. The application itself relies on standard out-of-the-box functionality found in Esri’s ArcGIS Desktop product. The application is delivered as an ArcMap toolbar and includes capabilities to create, extend, merge, split, re-align and delete routes. Corresponding updates to related measurement and event tables are accommodated by back-end services that take information about the specific edit and traverse the data model to make the requisite modifications.

The integration with ArcMap has been particularly beneficial for GIS Solutions clients in that the route editing tools are delivered within the familiar environment of ArcMap. This integration lessens training time and encourages quality data maintenance in that the tools are similar to the everyday tools employed by the end users. In addition to the edit tasks, the proposed solution accommodates an archived, historical perspective. The enterprise services built by GIS Solutions that propagate edits through the data model also archive the existing state of the linear reference system so users can retrieve historical views as needed. In operation, the enterprise services include a facility to manage timestamps on the modified features. GIS Solutions has streamlined the archival process to fit within the Esri transportation data model and work efficiently in live, production settings.



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