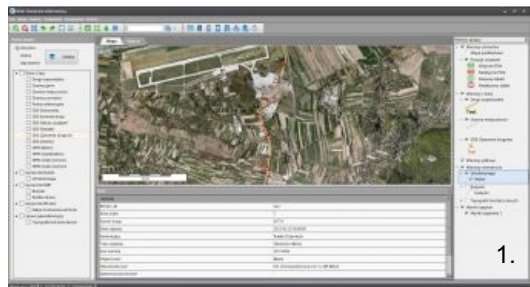# Road Infrastructure IT Solution Supports Efficient Teamwork

Poland's Malopolska Province uses a road infrastructure management IT solution provided by TatukGIS's customer SHH. The solution includes dedicated GIS tools that enable analysis, sharing and reporting of information concerning roads and incidents. For this implementation, the Malopolska Province Road Management Authority in Krakow was awarded the Gold Award in the 'Innovation' category for the transport industry.

The TatukGIS Developer Kernel was used to develop two of the system's modules:

1. The desktop application portion of the solution which is, essentially, a thick client to the *Geoinformation Data Warehouse* running on Oracle database, and
2. the *Design Files Repository* that enables team members access to road project metadata georeferenced to map location. The application is used on desktop workstations and Windows OS touch enabled PDA, tablet, and specialised mobile applications in the field.

The Geoinformation Data Warehouse aggregates data from all IT modules of the Malopolska Province Road Management System. The desktop application is configurable, such as with wizards for submitting database queries. The application provides access to the data and its visualisation through internet client applications and geoportal with access to external WMS services.

Modules

The Design Files Repository supports efficient teamwork by enabling project team members to access, search for, and report on collected project resources. Files are described with the following information: linked road and its reference segment, kilometre status associated to the particular road segment, database type (e.g., mapping data letter, spreadsheet, documentation, correspondence, photo, video, audio), comments, character, and geometric range associated with a deposited document (point, line, or shape).

Other important modules and functionalities of the SHH Road Management System:

- *Linear Reference System* for editing and updating elements of the road system, making it possible to locate objects and features according to their distance along a linear road segment.
- *Management for Roads and Bridge Facilities* providing multifaceted collection of data about the road, its development and technical infrastructure.
- *Cadastral Register* for keeping records of roads, adjacent property parcels. This part of the solution is compatible with the Bentley graphic environment (that was implemented earlier by the Malopolska Provincial Road Management Authority), and with the Poland National Cadastral System standards.
- *Road Information Geoportal* enabling publication and analysis of technical, business, and GIS information from warehouses or other data sources via a standard web browser.
- *System for signage and traffic safety equipment* to manage a huge inventory of vertical and horizontal signs and road safety equipment, including replacement scheduling of these assets.
- *Mobile work system* enabling use of PDA and other mobile devices by personnel in the field to record events and online access to technical documentation.

Besides its Road Management System, SHH develops infrastructure information management solutions for railway lines, mining and geological design, water and gas utilities, cadastral survey, urban planning, and industrial project design. SHH looks forward to upgrading future development to the TatukGIS Developer Kernel v.11 for Delphi / Mobile edition, with its support for mobile GIS application development for the popular Apple iOS and Android operating systems.