Alberta Uses Geospatial Solutions to Manage Complete Road Network

Alberta Transportation | Canada

Alberta's Department of Transportation leads the planning, construction, and preservation of the province's highway network to connect communities and support economic and social growth. It also is involved in safety services, providing information and enforcement programs, along with engineering solutions to promote safe driving and the transport of dangerous materials.

Following a realignment in 1996, Alberta started to outsource many operations, including highway maintenance. Instead of actually performing work in the field and other tasks, the department was managing and planning activities for contractors. Alberta needed an information system capable of managing data from outside sources, and one that could provide accurate data now that the organization had fewer personnel in the field. The department wanted to enable Web access to management processes across the enterprise, and develop a transportation model with dynamic segmentation through a linear network.

Such a system would help Alberta ease the transition to a more distributed model of operations.

Overcoming challenges

- Develop a system that would improve the capital planning process
- Implement web services to improve access to network data
- Support transition to distributed model of operations realizing results

A Hexagon customer for more than 30 years, Alberta evaluated the market and went through a request for proposal process. The department chose to extend its successful relationship with Hexagon because of the company's deep transportation industry knowledge and past support.

Alberta used Hexagon's Geospatial Road and Rail Infrastructure Management Solution to enhance its Transportation Information Management System (TIMS) and support the TIMS objective of becoming a knowledge portal for the department. The implementation of GeoMedia®

WebMap gave users quick-and-easy access to targeted data, which supported more informed decisions related to the management of the province's transportation infrastructure. TIMS is an enterprisewide knowledge system for the life-cycle management of Alberta's highway assets, and critical to the department's success as a planning organization as it works with various contractors.

The GeoMedia WebMap implementation has resulted in positive feedback from users across the department. The system improves the access, visibility, and integrity of transportation network data. Regional offices can view maps, aerial photos, video, and other highway data through a single source. Updates are propagated throughout the network, ensuring all users can work with accurate information. The system is also used as a single point of entry for all boundary data.

Alberta also uses the system for various other tasks that streamline the management of the entire road network. For example, it has established rules for the automation of data entry, ensuring a rigorous and consistent data set. Because users have access to all of these data sets through GeoMedia WebMap, they can view a digital video log of a roadway anywhere in the province, and access the history of alignments, aerial photos, and more. This reduces the number of field trips and field work required. Another benefit of the system is the reduction in the number of data requests from consultants, which saves the department significant time and money. Anyone who needs data can now access it through GeoMedia WebMap, avoiding the need to go to an office for information.

At a Glance

The Challenge

Alberta's Department of Transportation (DOT) manages the planning, construction, and preservation of the province's 34,000-kilometer highway network, as well as Alberta's water management infrastructure. It needed an infrastructure information management system that would integrate and manage data from outside sources, ensure data accuracy, and use web services to improve network access.

The Solution

The Alberta DOT implemented Hexagon's road infrastructure management solution, built on GeoMedia products to enhance its enterprisewide asset management system. By incorporating an infrastructure management system centered on streamlining network data, improving the capital planning process, and transitioning the department to a distributed operations model, Alberta DOT has saved valuable time and effort while promoting a safe and well-maintained provincial roadway system.

Another key benefit of the system is better data integrity. With a broad user base and easy-to-see information, users can identify data errors faster and correct them throughout the network. TIMS also enables Alberta to analyze data previously not represented spatially, such as collision data. Instead of using paper maps to report on collisions, the data is now in a spatial database that interacts with the highway map. The geospatial tools enable the department to see a history of collisions along a certain stretch of highway and analyze trends, which helps to improve the safety of the transportation network. With Hexagon's Straight Line Diagram (SLD) application, Alberta can study pavement conditions, traffic counts, and other information that might lead to future roadway enhancements.

" GeoMedia provides a comprehensive way to present spatial information to the end-user."

The software Alberta implemented is part of Hexagon's Road and Rail Infrastructure Management Solution, which brings together a common data architecture with modular applications focused on helping transportation agencies integrate their enterprise geospatial and business data.

Moving Forward

Alberta views Hexagon applications as tools that provide it with unlimited development opportunities for its transportation network. It plans to use the database to provide a routing system for overheight/overweight trucks, called TRAVIS. The system will integrate permit requests with the municipal road network and create best routes. This can help eliminate problems for large vehicles, such as a truck getting stuck on a highway because a bridge is too low. The department also plans to implement a new system to detect power lines and integrate it with TRAVIS. Alberta envisions using a panoramic system to capture a 360-degree view of the highway system, integrated with all of its geospatial data. Another goal is to provide a simple interface to the public that will allow access to specific data sets through Alberta's website.

"GeoMedia provides an effective and efficient way to manage our transportation infrastructure," says Jerome Hetu, Alberta's director of geomatics. "Particularly, we appreciate the degree of functional integration, efficient data maintenance workflows, and effective geospatial processing. Also, GeoMedia provides a comprehensive way to present spatial information to the end-user. GeoMedia brings it all together."

Contact us

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Hexagon's Geospatial division creates solutions that deliver a 5D smart digital reality with insight into what was, what is, what could be, what should be, and ultimately, what will be.

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