Case Study

Washington State DOT

Washington, USA

Key Facts:

Industry: Government

Problem: Dispersed, individual transport databases made inter-governmental cooperation and data sharing difficult.

Solutions: FME® Server

Results: Centralized system leads to better inter-governmental collaboration, operational and financial efficiencies.

"Using FME, we have been able to integrate local datasets much more efficiently and reduced the hours per individual provider by 90 percent."

– Michael Leierer, assistant project manager and WA-Trans technical lead at WSDOT.

Summary

The Washington State Department of Transportation (WSDOT) needed to harmonize disparate road-related databases and implement a single repository of transportation data for the entire state. Using Safe Software's FME, a team created a web-enabled GIS transportation system that offers a seamless, statewide transportation dataset and enables users to acquire the data they need in their specified data format. The new system gives authorities the platform to foster better collaboration, improve operations and services, and ultimately improve their bottom lines.

The Organization

The Washington State Department of Transportation is charged with monitoring more than 18,300 miles of state highways and 3,600 bridges - including the four longest floating bridges in the US. In addition to building, maintaining, and operating the state highway system, WSDOT is responsible for the largest vehicle-ferry system in the world.

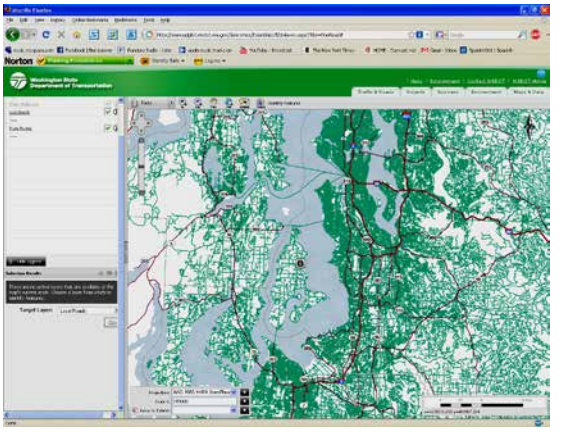
The Situation

Geospatial personnel within WSDOT and Washington's counties have become avid users of advanced GIS technology to collect, create, inventory and maintain detailed transport data stores and to leverage that information to enhance other business analyses and processes. However, each has amassed highly valuable, critical transportation databases with their own singular view and singular purpose. That has led to a winding and bumpy road for data sharing and inter-governmental cooperation, particularly for emergency response where incidents often cross jurisdictional lines.

The Challenge

WSDOT, in conjunction with Washington State, wanted to gain operational and financial efficiencies at both the state and county level by removing the information roadblocks between the transportation parties. With those goals in mind, WSDOT launched the Washington Statewide Transportation Framework Project (WA-Trans) to create a web-enabled GIS that would centralize and seamlessly connect roads, railways and ports data across the state.

The framework structure was clear: the system had to integrate and to normalize the disparate county data from initially 16 counties into a centralized database and still allow authorities to work in their native GIS software and formats; it had to have a back-end system that could effectively manage, integrate and manipulate a multitude of diverse data layers; and it needed a user-friendly front-end Web portal for submitting and extracting data.



To retrieve WA-Trans data, users access the data-user portal, search for the specific data they need and choose the datasets in the required format. FME then extracts the chosen data layers, transforms them into the specified format and creates a zip file for users to download. Visible in the portal is the I-90 stretching over the I-90 floating bridge and Mercer Island in Seattle.

The Solution

The WA-Trans team initially selected eight counties to participate in WA-Trans, however, the system needed to connect road-related data from another eight counties by the spring of 2010. Though the solution was strong on diverse infrastructure and GIS tools, the system needed to be complemented and supported with a spatial data interoperability and delivery tool that could unify and distribute the counties' diverse data. The team identified that those data interoperability and data delivery challenges could only be resolved with a complete spatial ETL solution - from data integration to electronic delivery. After analyzing traditional ETL solutions, they chose FME to manage the data transformation and delivery requirements.

To submit data to WA-Trans, providers securely log in to the provider portal access and browse their own system to select the data files to upload. The portal validation system verifies that all required GIS files are present and then the provider is allowed to submit the data. Submitting the files initiates FME to begin the validation and translation process specific to that individual provider. After the data is successfully translated into WA-Trans, the system automatically flags changes since the last data submitted and performs quality control checks to flag possible data issues. Once the data passes the QA/QC and integration processes, it is distributed to the WA-Trans ArcSDE® for Microsoft® SQL centralized database for all providers to access.

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The Benefits

With WA-Trans a reality, both WSDOT personnel and county authorities are navigating a path to numerous operational and financial benefits while simultaneously paving strong collaborative bonds.

For example, users will now be able to analyze the root cause of traffic incidents. In the past, individual counties as well as WSDOT were only able to analyze roadway incidents within their respective jurisdictions. Now local law enforcement can identify the exact X,Y location of collisions along the roadway and WSDOT personnel can combine those geo-locations with other roadway-related information to identify possible mitigating factors contributing to the collision volumes at the location. This helps the state spend their transportation dollars more effectively.

The new transportation framework will allow WSDOT to comply with new reporting requirements for the federal Highway Performance Monitoring System (HPMS) program - an important funding and budgeting mechanism to maintain highways - that requires reports to include spatial data down to the county level.

Given WA-Trans initial success, the team is working on adding another eight counties. Ultimately, the system will include data from the state's 39 counties as well as connected datasets for light rail, heavy rail, ferries, ports, airports and non-motorized transportation infrastructure.

What They're Saying

"Good spatial ETL software like FME is critical for bringing data from providers into the database and for serving it out. It has been a deciding factor in WA-Trans success thus far." **Says Michael Leierer, assistant project manager and WA-Trans technical lead at WSDOT.**

"WA-Trans has facilitated dialogue and collaboration between counties and entire regions on a scale rarely achieved with previous data-management structures," **says Tami Griffin, WSDOT's IT and GIS project manager and WA-Trans project manager.** *"Now everyone can be on the same data page, enabling people to perform E-911 planning and routing, transportation planning and maintenance, root cause incident analyses and road-related reporting with far more efficiency and confidence."*

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