



Project Summary

Organization:

Oregon Department of Transportation

Solution:

Roads

Location:

Oregon, United States

Project Objective:

- Develop a spatially enabled transportation asset management system that can be used throughout the agency and added to over time.
- Establish a foundational business intelligence solution for DOT, state, and federal reporting and analytics.

Products used:

AssetWise

Fast Facts

- The solution improves Oregon DOT's ability to leverage corporate asset data and prepare to meet MAP-21 requirements.
- Bentley software provided a powerful interface for assembling and analyzing data, and producing both tabular and spatial extracts.
- AssetWise largely removed the need for custom code in the DOT reports, which reduced associated production costs and time.

ROI

- The shift from data assembly to data analysis allowed Oregon DOT to leverage existing data in ways previously not possible.
- Oregon DOT realized a 66 percent increase in efficiency when responding to annual report requirement changes to produce the HPMS extract, compared to more than three months before the AssetWise implementation.

AssetWise Empowers Oregon DOT to Report on and Proactively Manage Transportation Assets

DOT Realizes a 66 Percent Increase in Efficiency When Responding to Annual Report Changes

Creating a Safe and Efficient System

The Oregon Department of Transportation (Oregon DOT) strives to provide a safe, efficient transportation system to support economic opportunity and communities throughout the state. It supports Oregon's system of highways, roads, and bridges; railways; public transportation services; transportation safety programs; driver and vehicle licensing; and motor carrier regulations.

Like other U.S. DOTs, Oregon DOT is responsible for publishing highway and asset data in the form of federal, state, and agency reports, data layers, and extracts. This is no small task, as the state highway system consists of about 8,000 miles of highways (roadways owned and maintained by Oregon DOT). The types of assets tracked and reported on range from physical assets (such as bridges, ramps, and barriers) and boundary assets (around districts and regions) to logical assets (such as traffic volumes and lanes) and proximity assets (such as intersecting roads and rest areas).

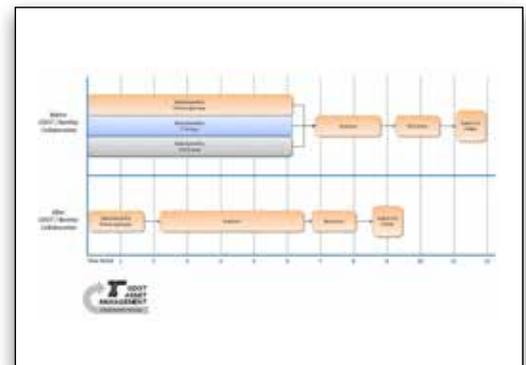
Barriers to Accurate, Timely Asset Reporting

Over time, reporting requirements have increased in scope and complexity. Producing the annual Highway Performance Monitoring System (HPMS) report for the Federal Highway Administration, for example, required months of effort from programmers, data analysts, and managers. The process relied heavily on custom coding and required collecting data scattered across multiple, homegrown legacy databases. In addition, each year, regulators required the inclusion of more data—even as delivery time frames decreased.

Moreover, the lack of automated error-checking was impacting report accuracy, as well as downstream, business-critical processes. The road inventory system, for example, stores information on miles of guardrail, signage, and other physical roadway features and helps drive the budgeting process for asset maintenance and replacement. However, keeping the data in the mainframe system up to date—and manually cascading new data to other databases to support dependent processes—was extremely time and resource intensive. “The budgeting process depends on having real

asset counts, so delays in updating the database supporting this process, as well as inaccurate inventory data, can have serious consequences,” explained Lorena Lambert, TransInfo Project Coordinator at Oregon DOT.

Oregon DOT needed a faster, more efficient way to capture, aggregate, and analyze asset data, ensure accuracy, run reports, and make data readily available to downstream systems and processes. “The goal was to implement a foundational system—a single source of truth that other asset management systems could connect to and access the very latest data,” explained Lambert.



Reduced effort for data assembly and reliance on external groups substantially reduces overall timelines.

Finding the Right Solution

After sending surveys to multiple states to learn about how other DOTs addressed these challenges, Oregon DOT produced a detailed RFP, and then ultimately chose to deploy the spatially enabled AssetWise solution. “Bentley offered a centralized data management solution with full spatial integration,” explained Heather King, Oregon DOT Road Inventory and Classification Service (RICS) unit manager. “This spatial integration was particularly appealing as it ensured any changes to the information are reflected automatically in both the spatial and logical data.”

“Not only is reporting faster and easier, but we are able to respond to requests for reports that in the past we would have had to say ‘no’ to. The time savings allows us to place more emphasis on serving our customers instead of writing code.”

— Lorena Lambert,
TransInfo Project Coordinator,
Oregon Department of
Transportation

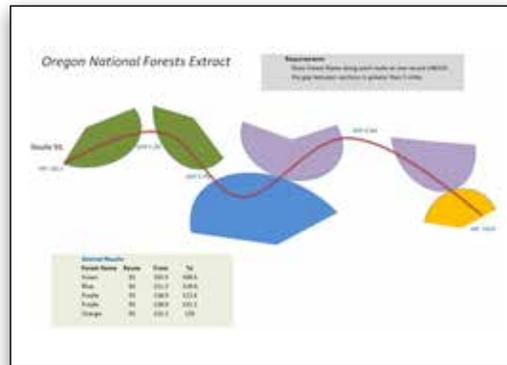
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Oregon DOT worked closely with Bentley’s consultants to implement a core transportation asset management system. “We’ve enjoyed working with the staff at Bentley,” commented King. “They know our industry and business and brought best practices to ensure the outcome we were looking for,” noted Lambert. “They were extremely knowledgeable, dedicated, and focused on delivering a solution for us.”

Soon after the initial implementation, Oregon DOT integrated AssetWise Transportation Intelligence Gateway. Bentley software supported the sophisticated reporting and analysis that Oregon DOT needed to proactively manage transportation assets. “This application allowed us to report our data in ways that were previously unimaginable,” says King. Using the streamlined process, the DOT can perform analysis on any linear-referenced dataset, including the standard or custom aggregate and analytical functions to generate data extracts. Results can be displayed either on a map, or in a tabular format depending on the need.



Configurable rules can be defined to summarize and roll up data.

Realizing the Benefits

Using the AssetWise Transportation Intelligence Gateway, Oregon DOT can now assemble data to quickly produce the annual HPMS extract and other state and federal reports. “We can run any report directly on our central data in the Transportation Intelligence Gateway,” explained Lambert. “We still need to pull reports, but it’s so much faster and easier to do. For instance, when we compared how long it took to produce a typical HPMS report before and after deploying Bentley software, we realized a 66 percent increase in efficiency.” Oregon DOT can now reuse existing programming, whereas before, they had to make assumptions when joining data sets, which is a complex problem.

In addition to reducing the production costs and time required to produce reports, the AssetWise implementation increases the quality, accuracy, and flexibility of the resulting extracts and reports. “The solution helps to keep data clean for us,” said Lambert. “It literally prevents many data errors by making it impossible for data to be entered incorrectly.”

A significant benefit for management is that the AssetWise Transportation Intelligence Gateway can be adapted to support new requirements without the need for costly custom programming. “With our old mainframe system, customization was not only costly, but generated 90 percent of system maintenance costs,” commented King. “With AssetWise, we can configure the solution, with minimal or no involvement from IT—for example, when we want to add a new table or change a domain.”

Delivering Value across the Enterprise

Oregon DOT is just beginning to exploit the full value of the AssetWise solution, which is expected to help establish a single source for corporate highway data. The agency is using AssetWise to deliver transportation intelligence to stakeholders through a secure user interface, as well as move asset data to GIS applications, intelligent transportation systems, and data consumers across the agency. Stated Lambert, “It’s been so successful that our biggest challenge now is keeping up with requests from other areas of our organization that want to store their data in TransInfo.”

The solution has also prepared the agency to meet MAP-21 requirements, which set national performance measures for congestion, speed, safety, and other measures. “We can’t afford to find out after the fact that we’ve missed the targets,” said Lambert. “This solution allows us to monitor and analyze lots of data, understand where we stand at any point in time, and proactively adjust course before it’s too late.”

Perhaps most importantly, Oregon DOT can shift more of its focus from data assembly to data analysis, putting the DOT firmly in the business of transportation asset management. The solution acts as a business intelligence tool to help the agency understand the current state of assets, make better maintenance decisions, and proactively manage transportation assets.