

## REVAMPING THE ROADWAYS

**Bentley Systems presents concrete solutions to beautify highways and to streamline IT operations from initial permit application to final approval.**

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**B**entley Systems assisted the South Carolina Department of Transportation (SCDOT) Outdoor Advertising Office (OAO), headquartered in Columbia, South Carolina, to track signage in seven districts encompassing 46 counties. Bentley worked with the OAO to enhance the application and deliver a nearly paperless process and automate state-wide management of billboard permits and vegetation maintenance.

At SCDOT, it is easy to imagine being overwhelmed by numbers. Until recently, the department used three different permitting systems to track signage in seven districts encompassing 46 counties, 844 miles of interstate highway and 2,666 miles of National Highway System (NHS) roads with 6,500 active outdoor advertising permits. The permits are required under the Highway Beautification Act (HBA) of 1965, which mandates that outdoor advertisements visible from highways and interstates should display a permit from the state department of transportation (DOT). The intent is to eliminate unsightly signage and advertisements for illegitimate businesses.

When President Lyndon B Johnson proposed the act as part of his, 'America the Beautiful', initiative in January 1965, he said he wanted to 'make sure that the America we see from these major highways is a beautiful America.' The HBA now controls outdoor advertising along 3,06,000 miles of federal-aid primary, interstate and NHS roads. The penalty for a state's failure to comply with the HBA's exacting provisions—controlling sign content, size, height and location—leads to a 10% reduction in highway allocations.

The job of managing so many billboards in such a wide geographic area was made all the more difficult by SCDOT's multisystem permitting process and the duplication of effort

that it caused. Transitioning from the legacy systems to a new system only exacerbated the problem. "The department was working on developing an improved system in 2001," said Keith Melvin, director of outdoor advertising for SCDOT. "But before going from the old system to the new one, the office found itself putting data into both. Neither one did what we wanted it to do." At the time, Bentley Professional Services was developing the Geo Transport ARPS system for the SCDOT oversize/overweight permit office to manage permits for vehicles and loads that exceed legal size or weight limits. It was a natural extension of this \$1.1 million project to add capabilities for managing outdoor advertising permits, which would qualify for federal transportation enhancement funds.

SCDOT retained Bentley to deliver the Outdoor Advertising System (ODAS) in early 2002. The goal was to convert the three permitting databases into one database that would allow for easy access to data, timely retrieval of information and a web-based interface with customers. "With Bentley, we could come up with one programme that had the functionality of the existing programmes, plus additional features," said Mr Melvin.

### Defining workflows

The first challenge for Bentley's business process analysts was to document the largely manual workflow of the permitting process. The OAO staff, including three administrators in Columbia and one coordinator in each of the seven district offices, managed applications for all the active permits as well as 3,200 inactive permits and more than 1,400 vegetation maintenance permits—required to remove vegetation from signage sites to improve visibility. It was the coordinators' job to balance customers' needs to

advertise against the need to meet regulations and preserve the beauty of state highways. Each application, submitted on paper, was reviewed for compliance with outdoor advertising guidelines, which can require one or more site visits and visual inspection to document that the advertised business is legitimate. Site visit notes were recorded on several paper forms and then transcribed into the system. Permits had to be renewed annually, relocated signs had to be re-permitted and lost permit tags had to be replaced. In the event of a corporate buyout, hundreds of permits had to be transferred.

"Bentley came on site and sat down with us to look at how we did business to make sure that the workflow in the system matched with what we did in the field as well as in the office," Mr Melvin explained. "The software developer asked questions that helped us identify a better way of doing things." The coordinators provided huge inputs to the process, since they did the time-and-labour intensive physical site reviews. They also suggested new features that would be beneficial, such as providing XY coordinates for mapping sign locations. Bentley ultimately identified five major processes that were workflow driven— applications for new permits, revised permits, transfer permits, replacement permits and new vegetation applications. The ODAS application would streamline these workflows and manage data in a single database, as well as transfer data residing in existing databases without losing information.

#### 24/7 access to information

The initial phase of ODAS was delivered in late 2002. Over the next five years, Bentley worked with the OAO to enhance the application and deliver a nearly paperless permitting process. When the final e-commerce phase is complete, the OAO will have a robust client-server based application with online payment capabilities. Sign owners can now print applications online at the SCDOT website and once submitted can track the status of their applications. The OAO can track permit actions from initial application to final approval. Active permits are held in inventory and the office can generate billing invoices for yearly permit renewals. Currently, the OAO is testing e-commerce functionalities that will allow sign owners to pay online.

Outdoor advertising coordinators across the state have remote access to the centralised permitting system, eliminating the need to mail permit applications. When data is entered into

the system, it is immediately available to all who have authorised access. A mapping interface allows coordinators to locate sites online and review notes as well as real-time digital images of signage can be downloaded for immediate review, virtually eliminating headquarter staff trips to the field to resolve issues. All actions on an application are tracked in the permit history to create an audit trail.

"Bentley's commitment to the success of ODAS had made the adoption of this project a smooth transition from an outdated process to a more updated and manageable operation," Mr Melvin said. Although monetary benefits of the ODAS are minimal, the system has enhanced productivity, efficiency and customer service. If all of the application information is correct, a process that typically took a week now takes as little as two days. As a result of SCDOT's commitment to process improvement, this workflow-driven solution is now available to other DOTs challenged to comply with HBA. The more efficient and effective the state-by-state compliance, the more beautiful the nation's highways will be. According to the Federal Highway Administration, the HBA has eliminated nearly 8,75,000 unsightly signs along the nation's highways since its inception.

#### Outdoor Advertising Innovation

SCDOT is one of the 33 members of NAHBA that share an interest in the regulation of outdoor advertising and junkyards across America. The features that put the SCDOT on the leading edge of permitting include:

- ▶ **Web-based access:** The client-server application centralises the data store.
- ▶ **Online permit application:** Customers can submit and track applications online.
- ▶ **Real-time digital images:** Headquarter staff can review signs and resolve issues without the need for a field trip.
- ▶ **Bulk permit transfer:** Company buy-outs can trigger a batch transfer of permits.
- ▶ **E-commerce:** By 2008, customers will be able to pay permitting fees online via credit card.

The National Alliance of Highway Beautification Agencies (NAHBA) recognised SCDOT Outdoor Advertising Office for its leadership in solving the challenges associated with implementing the Highway Beautification Act. In 2006, SCDOT received NAHBA Awards for Innovations in Streamlining and Integration in Outdoor Advertising. ➡