



Project Summary

Organization

Central Permits Section
West Virginia Department of
Transportation

Solutions

Roads and Bridges

Location

Charleston, West Virginia, USA

Project Objectives

- Improve route safety and sustainability of road infrastructure
- Improve customer service with faster turnaround and reduced staff hours
- Address skyrocketing volume of oversize/overweight permit requests
- Move to an outsourced system that improves reliability and lowers costs
- Remove dependence on DOT computing infrastructure and support personnel

Products Used

- InspectTech, SUPERLOAD®, and Bentley® LARS Bridge™

Fast Facts

- West Virginia issues approximately 130,000 oversize/overweight permits annually.
- SUPERLOAD analyzes routes and clearances instantly for 15,000 miles of paved road and 5,000 bridges.
- Since 1998, superload permits alone have increased from 10 to 250 per week.

ROI

- The Permit Office has maintained eight employees while permits issued annually more than doubled in a decade
- In 2013, all permits will be hosted and issued by GotPermits.com
- With GotPermits.com, WVDOT will have no infrastructure or maintenance and support costs for permit and route processing

West Virginia DOT Opts for an Integrated Solution for Oversize/Overweight Permitting

Comprehensive System Integrates Timely Bridge Load Rating and Restrictions Management to Improve Safety and Reliability of Infrastructure

Infrastructure for a Resource-Rich State

With the highest mean altitude of any eastern U.S. state, West Virginia has always faced singular transportation challenges, but none more than in the last decade as efforts to tap the region's extensive natural resources have amplified. The boom in shale oil and gas production alone has markedly increased the oversize/overweight load burden on the state's transportation infrastructure with the movement of heavy pumps, drilling, and hydraulic fracturing equipment. The number of oversize hauling permits issued annually by West Virginia Department of Transportation (WVDOT) has doubled since 2003, reaching 123,000 in 2011. Fortunately, WVDOT was in a position of readiness as this boom in oversize/overweight loads occurred.

Sustaining Infrastructure while Addressing Challenges Head On

WVDOT's search for a better way of managing oversize/overweight loads began in the mid-1990s as the Highway Division's Permits Office realized that its existing process was not going to make the long haul. "We saw that we couldn't keep up," said Bill Wolford, evaluation section supervisor and manager of West Virginia's Bridge Inspection Program. At that time the Permits Office followed what was essentially a manual process, he explained: "We consulted county maps marked with weight restrictions and general guidelines on how much was allowable to process permits." Bridge load rating was handled by technicians, but there was no way to incorporate bridge information and run a real-time permitting process. Meanwhile, trucks got heavier and larger and the frequency of loads grew higher.

As always, safety was the WVDOT's major concern. Critical to both safety and sustainability was the condition of the state's 6,800 bridges, of which 32 percent are longer than 100 feet. The primary reason West Virginia chose SUPERLOAD was that it could incorporate bridge load rating analysis – from its sister product, LARS Bridge – in the routing process. "C.W. Beilfuss (later acquired by Bentley) was the only company that could integrate bridge load-rating with trip analysis and permitting," explained Wolford.

To achieve a unified system for intelligent routing and permitting that would help ensure both public safety and bridge

sustainability, WVDOT selected an integrated solution: the SUPERLOAD system for automated permitting, routing, bridge analysis, and restriction management, and LARS Bridge for bridge load-rating modeling and analysis.

Wolford and Wayne Kessinger, WVDOT's permit section administrator, concur that the accuracy of checking routes and bridges remains the top advantage that SUPERLOAD brings to the permitting and routing process. "A system doing bridge analysis and checking vertical and horizontal clearances for safe passage of the vehicle ... that translates to safety improvement," said Kessinger.



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Achieving Excellent Return on Investment during Rapid Growth in Demand

The in-state SUPERLOAD solution was deployed in 1998 and built over three phases, moving to the web in 2001. "From phase one – the interstates – we achieved good initial savings and began to see the full potential of the system," recalled Wolford. "I estimate that we saved the equivalent of five engineers' time.

"In the second phase, U.S. and West Virginia routes were added along with more advanced business and transactions administration capabilities. The third phase was all paved roads in state plus restrictions management and other advanced functionality that developed along the way."

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*– Bill Wolford,
evaluation section supervisor
and manager,
West Virginia’s Bridge
Inspection Program*

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During this time, the increase in superload applications alone is indicative of the type of growth that WVDOT was seeing in oversize/overweight permit applications. “When we started with the system, we handled maybe 10 superload applications a week,” remembers Wolford. “Today, we handle approximately 250 a week.” It’s telling to note that the Permit Office staff remains at eight, the same number of people as 1994, while the Bentley solution enables the organization to process many times the number of permits.

With the SUPERLOAD system now handling up to 500 permits a day, and more than 80 percent issued automatically, the staff workload is substantially reduced. Whereas originally there might be a two to three day backlog, most permits are now issued immediately, with special cases taking anywhere from a few hours to 24 hours if the application must be submitted for engineering review. The Permits Office will likely process more than 130,000 oversize/overweight permits in 2012.

“We think that the increased volume in permits is partly due to the ease of permitting with SUPERLOAD, which means that there are a lot less haulers circumventing the system and running without permits,” added Wolford. “Customer service has improved substantially – without the backlogs we used to experience.”

Reducing Risk While Boosting Process and Business Practices

WVDOT’s SUPERLOAD system currently protects about 15,000 miles and more than 5,000 bridges along state-maintained roads and the West Virginia Turnpike. This comprises all paved roads, with gravel roads to come. The central office and all 10 districts use LARS Bridge for bridges load-rating analysis. The data is automatically processed in SUPERLOAD. Additionally, WVDOT uses the Bentley InspectTech solution for bridge inspection.

For every request with a specified route, SUPERLOAD:

- Ensures route connectivity.
- Verifies clearances for all travel over or under all bridges.
- Performs the live-load bridge analysis for all bridges crossed over to ensure the load can be safely handled.
- Checks the entire route for temporary restrictions.

This analysis is done in real time, the exact same way, for every request, resulting in maximum safety and infrastructure preservation. The software returns analysis results virtually instantly.

SUPERLOAD offers the industry’s most sophisticated, real time restrictions management system. “I doubt many other states are where we stand with all paved roads – especially in the area of restrictions management,” said Wolford. “The most typical scenario is construction, where we restrict the width of passage or block it and route the hauler a different way. SUPERLOAD handles routing when one bridge has to carry two-way traffic during bridge replacement.

“Intelligent system routing can even instruct the hauler to cross the bridge on the left or the right side if engineering analysis tells us that a certain part or area of the bridge is stronger – safer.

“At the administrator level, SUPERLOAD follows our business rules and processes, collects the right information, and enforces adherence to state laws,” said Kessinger. During permit application, SUPERLOAD automatically checks permit applications against account balances, insurance coverage, registration, and other background information as chosen by the DOT. “If a hauler is delinquent on account payment, SUPERLOAD will not issue a permit,” he added.

SUPERLOAD also provides WVDOT more complete and better organized historical data, with fast retrieval of information through built-in reports and advanced search capability, added Wolford. SUPERLOAD information about the movement of oversize loads helps the Permit Office better manage staffing and hours. What’s more, the information can augment performance- and risk-based asset management and capital project planning.

Evolving to a No-additional-cost-to-hauler Permitting Solution: GotPermits.com

WVDOT’s history as an early adopter of permit and routing automation is remarkable, and its most recent step may be the most impressive yet: In 2013 WVDOT outsources its permit processing system to a hosted, online solution – GotPermits.com – thus revolutionizing the permitting and routing process for haulers, permit service providers, and the WVDOT permit administration staff.

GotPermits.com is Bentley’s online permitting service, an easy-to-use web storefront that is becoming the industry’s leading source for multi-state permitting. West Virginia oversize/overweight permit applications became available on GotPermits.com in late 2005, grew to 35 percent of all applications by the end of 2008, and 70 percent in 2011. Some states allow permitting through GotPermits.com in addition to their DOT-based SUPERLOAD system. Now states can also opt for a software-as-a-service contract to totally outsource their SUPERLOAD system with GotPermits.com as the sole storefront for oversize/overweight permits.

West Virginia turned to Bentley to host the permits system. “With a new outsourced hosting agreement, 100 percent of the state’s oversize/overweight permits will be processed through GotPermits.com,” said Kessinger. “All software, services, hosting, and on-going support and enhancement costs will be covered by transaction fees.”

Bentley now hosts all of West Virginia’s SUPERLOAD modules at GotPermits.com. WVDOT will have no infrastructure or maintenance and support costs for its permitting system, and oversize/overweight carriers will see no extra cost added to permits. Furthermore, public safety and care of the transportation infrastructure are improved – a win-win situation for everyone.