

# Quality assurance for the maintenance world

State DOTs expend tremendous resources to maintain their highways, bridges and other facilities. Many states use Maintenance Management Systems to plan and budget maintenance activities, but until recently DOTs' quality assurance programs were largely limited to the realm of construction.



Documenting field conditions

Responding to this need, NCHRP initiated Project 14-12, "Highway Maintenance Quality Assurance," to expand the use of QA programs in highway maintenance. The project's goal was to create a template for an MQA program that could be implemented by any state DOT. A program like this allows agencies to make educated decisions about where to invest limited maintenance resources, and to assess the benefits of investing in one type of asset over another.

The program template took the form of NCHRP Report 422, *Maintenance QA Program Implementation Manual*. Published in 1999, the report lays the groundwork for developing and implementing an MQA program, including guidelines for a Level of Service rating system and for field inspections, analysis and reporting.

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## Building a program from scratch

For Wisconsin DOT, Report 422 was a key factor in the 2001 launch of the department's ambitious maintenance quality assurance program, called Compass.

"I can't imagine trying to start the program without this report," says Alison Lebwahl,

former Compass program manager. "We had our pilot launched in six months, and I don't think we could have done it without having this step-by-step guide."

Tennessee DOT also put Report 422 to use in developing its Maintenance Rating Index, including program details such as TDOT's inspection form and the weighting factors assigned to roadway characteristics.

## More thorough inspections

Before TDOT developed the Maintenance Rating Index, Tennessee county supervisors evaluated roadway conditions using a traditional "windshield inspection"—rating highway segments while driving.

"Overall it's been a very positive program for us," says Chris Harris, an operations specialist with TDOT. "Inspectors like it because it gives them an opportunity to see more within their county than if they were just doing a windshield inspection."

## Bringing MQA to practitioners

A unique aspect of Project 14-12 was its aggressive approach to technology transfer. The project included funding for six workshops that brought the manual's principles to state DOT managers and maintenance professionals across the country.

"We walked them through it," says Marshall Stivers, the project's co-principal investigator and formerly ERES Consultants' director of maintenance systems. "We took them out in the field and let them evaluate the quality of a highway segment. It was interesting—there were lots of variations in what people saw."

Lee Smithson, former deputy director of the maintenance division at Iowa DOT and a workshop attendee, said the workshops had a great deal of practical value.

"The workshops demonstrated how to use condition ratings as a target—how to go to policy makers and say 'Here's where we are, and here's how much money or staff it will take to get to that next level,'" Smithson says.

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## Interest builds nationwide

The workshops helped expand awareness of the new NCHRP manual and of the MQA concept, which was in its infancy when the manual was published in 1999. By the time Wisconsin DOT and the University of Wisconsin held a Maintenance Quality Assurance Peer Exchange five years later in 2004, participation was very strong, with staff from more than 35 agencies attending the event.

"The report was a real steppingstone to advancing the national trend toward maintenance quality assurance," Lebwahl says.

NCHRP Report 422 is available for purchase from the TRB Bookstore at <http://www.trb.org/bookstore/>. A related report, Web Document 8, is available online at <http://www.nap.edu/catalog/6346.html>.



Winter performance measures

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