

RESEARCH UPDATE

FEBRUARY 2011

Peer Exchange Focuses on Implementation

All the research in the world is of little value unless it is put into practice. To that end MDOT's Office of Research and Best Practices (ORBP) hosted a three-day peer exchange in Lansing in early December to review the office's plans for systematically implementing high-value research results.

Six transportation research managers from around the country, peers of recently retired Engineer of Research and Best Practices Calvin Roberts, brought a rich variety of perspectives to the discussion. (See "Peer Exchange Visiting Team," page 2.) The visiting team and ORBP staff, MDOT research project managers, university representatives and the local Federal Highway Administration (FHWA)



Mark Morvant, associate director for research at the Louisiana Transportation Research Center, serving as team chair for the peer exchange.

representative took an in-depth look at the challenging process of moving research results into practice. The team members shared details of their own research implementation efforts, both successes and lessons learned, as they reviewed ORBP's process.

At the conclusion of the exchange, team members reported to MDOT executives on the strengths of ORBP's new implementation process and keys to moving forward. The final peer exchange report, detailing discussions, suggestions and next steps, may be found on MDOT's Web site at www.michigan.gov/mdotresearch. Highlights are summarized below.

BUILDING IMPLEMENTATION INTO THE RESEARCH PROGRAM

ORBP and the visiting team members agreed on several key principles, including thinking about implementation at the beginning when the research

project is being scoped, and ensuring that senior managers, project managers and field staff understand and support the changes identified by the research findings.

Team members recognized the importance of ORBP's nearly completed *Research and Implementation Manual*, particularly the proposed Chapter 6, "Implementation and Technology Transfer," which lays out roles and responsibilities for implementation, a process map, and a detailed 10-step guide "to turn the best of research into practice."

Central to this process is the ORBP Implementation Action Plan, which prompts the implementation coordinator to document how the research results will be used, the benefits and potential cost savings, a step-by-step work plan, and required approval signatures.

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FUNDING IMPLEMENTATION OF RESEARCH

Some research findings can be readily implemented into practice through a change in a specification, an improved construction practice or a new department policy. Other findings, however, may require pilot testing and extensive communication, manuals and training before they can be integrated into daily practice. To make these tasks possible, MDOT will build separate funding for high-priority findings right into the research program budget.

Peer exchange team members gave high marks to MDOT's plans for setting aside dedicated implementation funding with a formal approach to assigning funds to projects. High-priority research results that have been identified through a strategic assessment and approved by the MDOT Research Executive Committee will be considered for one of two tiers of funding depending on the scope of the proposed change to MDOT practice.

SHOWING THE VALUE OF RESEARCH AND IMPLEMENTED RESULTS

Successfully transferring new technology and procedures from research

into practice is a key way to demonstrate the impact of research. ORBP will maintain a strong focus on implementing results and on communicating project and program successes to MDOT executives and practitioners throughout the state.

The visiting team agreed that the detailed information captured in MDOT's Implementation Action Plans will provide a database of information for reporting on the effectiveness of the research program. They also noted that ORBP's Research Spotlights are an effective means of highlighting the benefits of research that has already been implemented.

Watch this newsletter for updates on how MDOT is implementing the results of completed research projects.

Executives Support Vision for Implementation



MDOT executives meet with exchange participants.

Mark Morvant, peer exchange chair and associate director for research at the Louisiana Transportation Research Center, reviewed the highlights of the three-day exchange for MDOT executives, emphasizing the comprehensive vision of MDOT's planned implementation processes.

"ORBP has laid out a clear path to implementation," Morvant said, "that involves top executives as well as internal and external stakeholders." He and other team members also highlighted other important features of ORBP's implementation initiative:

- Research and implementation efforts are designed to advance MDOT's strategic initiatives and respond directly to agency needs.
- The Research Executive Committee provides direction and support to the program throughout the agency.
- Implementation is considered at the beginning of the research process and throughout the project life cycle.
- An Implementation Action Plan for each project outlines the budget, participants in the process, timeline and expected outcomes.

MDOT executives noted the decentralized nature of the agency. "It will be important to involve region and TSC staff as implementation champions," said Greg Johnson, MDOT chief operations officer. "They need to understand and support the need for research and its application in the field."

"ORBP has laid out a clear path to implementation that involves top executives as well as internal and external stakeholders."

—Mark Morvant, Louisiana Transportation Research Center

Peer Exchange Visiting Team

Research managers from five state DOTs and FHWA's national Office of Technical Services met with MDOT and university representatives to review the new research implementation process.

Rhonda Brooks

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FHWA Office of Technical Services

Bonnie Fields

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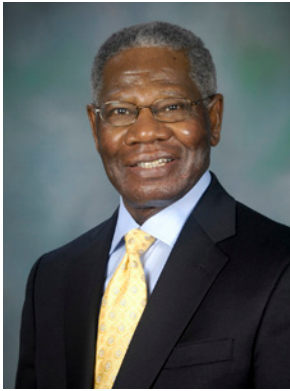
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Farewell from Calvin Roberts



With this issue of the newsletter, ORBP marks the achievement of several key goals and the beginning of a new chapter for MDOT research. We now have the

processes in place to help bring innovation to the department through research and to help MDOT work smarter while the department continues to deliver a world-class transportation system to the citizens of our great state.

Our new master contract with Michigan's universities outlines our working relationship with them and provides MDOT with the vehicle to engage experienced investigators and skilled students in solving complex transportation problems.

Additionally, we have proposed a strong research implementation process tailored to MDOT. It is the most important part of the new research program because it will help translate research into beneficial change. In this issue we highlight the results of ORBP's recent three-day peer exchange, "Bridging the Gap: Implementing Research Results." I deeply appreciate the time and energy given by our visiting experts to review

MDOT's research implementation process and make suggestions for continued improvement.

So it is with a sense of completion and anticipation that I leave ORBP and MDOT. I want to extend my thanks to the many talented and energetic individuals, within the department and among our partners, with whom I have worked during the past 25 years. I will look forward to seeing the continued advancement of the department's research program in the coming months and years. I wish you all the best.

Calvin Roberts

Calvin Roberts, P.E.

ORBP appreciates the continuing leadership of MDOT Director Kirk Steudle. Working with our stakeholders, we will support the department's strategic initiatives through applied research and implementation for Michigan's transportation system.

Research Stakeholders— Key to Innovation Success

On day two of the peer exchange, MDOT Focus Area Manager Steve Palmer discussed the successes and challenges of implementing research results. A key challenge and opportunity is effective communication among research investigators, MDOT staff, contractors and the implementation coordinator, who shepherds the research findings into practice.

Palmer cited added costs to contractors, the need for internal approvals, new software tools, and lack of familiarity with new technologies as implementation challenges that must be addressed. He emphasized that "MDOT needs to get buy-in from stakeholders throughout the period that research is being implemented."

Following Palmer's presentation, visiting team members, MDOT project managers and representatives from several Michigan universities formed small groups to discuss strengths and challenges of ORBP's planned implementation processes. Among other observations, the groups noted the importance of:

- Selecting as implementation coordinator a person with both technical expertise and business knowledge of MDOT.
- Encouraging principal investigators to include preliminary implementation plans in their proposals.
- Using existing tracking systems within the department to track implementation progress.
- Acknowledging that effective implementation requires a commitment of both time and money.

"MDOT needs to get buy-in from stakeholders throughout the period the research is being implemented."

—Steve Palmer, MDOT pavement operations engineer



New Research Projects Slated for 2011 and 2012

Nineteen new research projects are moving forward for the next biennium—Fiscal Years 2012-2013. Requests for Proposals (RFPs) were posted in January for nine projects to begin October 1, 2011. The remaining RFPs are scheduled for posting January 2012 for an October 2012 start date. Only Michigan universities will be solicited to submit proposals for

the 19 proposed projects, to give them the first opportunity to build a successful research team addressing MDOT's needs. Any projects not receiving sufficient response during the first solicitation will be more widely advertised to both consultants and universities in a second round.

Research Area	Research Project
OCTOBER 2011 START	
Safety, Systems Operations and Mobility	Study of High Tension Cable Barrier on Michigan Roadways
Safety, Systems Operations and Mobility	Transportation Patterns of Older Drivers in Rural Michigan
Pavements, Construction, Materials and Maintenance	Preparation for Implementation of the Mechanistic-Empirical Pavement Design Guide in Michigan
Pavements, Construction, Materials and Maintenance	Evaluating the Financial Cost and Impact on Long-Term Pavement Performance of Expediting Michigan's Road Construction Work
Operations and Delivery of Strategic Measures	Best Practices for Emergency Rerouting
Operations and Delivery of Strategic Measures	Transportation Reliability and Trip Satisfaction
Operations and Delivery of Strategic Measures	Monitoring Highway Assets with Remote Technology
Design and Geotechnical	Effects of Pile-Driving Induced Vibrations on Nearby Structures and Other Assets
Bridges and Structures	Evaluation of Prestressed Concrete Beams in Shear
Administration	Examining the Disadvantaged Business Enterprise (DBE) Program*
OCTOBER 2012 START	
Strategic Planning	Determining Adaptation Needs for Department Infrastructure, Maintenance and Operations
Safety, Systems Operations and Mobility	Development of Performance Measures for Non-Motorized Dynamics
Pavements, Construction, Materials and Maintenance	Density Testing Utilizing Non-Nuclear Methods
Design and Geotechnical	Freezing and Thawing of Frost-Susceptible Soils—Development of a Reliable Predictive Model
Bridges and Structures	Evaluation of Bridge Decks Using Non-Destructive Evaluation (NDE) at Near Highway Speeds for Effective Asset Management
Bridges and Structures	Side-by-Side Probability for Bridge Design and Analysis
Bridges and Structures	Remote Monitoring of Fatigue Sensitive Details on Bridges
Bridges and Structures	Design and Construction Guidelines for Strengthening Bridges Using Fiber-Reinforced Polymers (FRP)
Bridges and Structures	Evaluating Prestressing Strands and Post Tensioning Cable in Concrete Structures Using Non-Destructive Evaluation (NDE) Methods Including Joint Shear Wave Analysis

*RFP to be posted later in 2011.

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VISION: *To be a recognized leader in coordinating applied research and implementing results by identifying cutting-edge research topics, implementing research results and coordinating development of research projects. Our core strength results from a highly integrated network of dynamic partnerships among transportation professionals.*

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