Ohio Department of Transportation

Research Management Peer Exchange Report

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INTRODUCTION

Under 23 Code of Federal Regulations 420.209 (a)(7), as a condition for approval of FHWA planning and research funds for research activities, a State is required to conduct peer exchanges on a periodic basis. FHWA's Office of RD&T has administratively determined this to be every 3 years.

The objective of the peer exchange program is to give State transportation agencies a means to improve the quality and effectiveness of their research management processes. A peer exchange is a practical and effective tool to foster excellence in research, development, and technology (RD&T) program management that provides an opportunity for panelists to share best practices and management innovations with each other.

The basic approach is to invite an outside panel of managers to meet with the host agency to discuss and review its RD&T management process or a specific focus area. Information on the host agency's policies and procedures is shared with panel members in advance of the meeting. During the peer exchange, panel members may meet with managers, staff, stakeholders, and customers to gain further insight into the host agency's program. The information gathered from the exchange is documented in a written report and presented to agency management.

PEER EXCHANGE PROCESS

The Ohio Department of Transportation (ODOT) hosted its third Research Peer Exchange October 3-6, 2006. The invited members of the Peer Exchange Team included:

- Dr. Mrinmay (Moy) Biswas, P.E., State Research and Analysis Engineer
  North Carolina Department of Transportation
- Mr. Jason Bittner, Deputy Director
  Midwest Regional University Transportation Center
- Mr. Frank Burkett, Air Quality Specialist/Research Liaison
  Ohio Division, Federal Highway Administration
- Mr. Ray Derr, NCHRP Senior Program Officer, Transportation Research Board
- Ms. Debra Elston, Director for Corporate Research and Technology,
  Federal Highway Administration
- Ms. Monique R. Evans, P.E., Administrator, Office of Research & Development
  Ohio Department of Transportation
- Mr. David Huft, Research Program Manager
  South Dakota Department of Transportation
- Dr. Richard Woo, P.E., Director, Office of Policy and Research
  Maryland State Highway Administration

To prepare for the peer exchange the team received documentation describing ODOT's research procedures:

- a brief description of the research management process
- a tentative meeting agenda
- the web link to the RD&T^2 Manual of Procedures
- travel details

After the team arrived, they received the following information:

- a detailed agenda
- the final list of peer exchange team members

- guidelines for conducting peer exchanges
- general information on the ODOT research program
- a typical briefing packet prepared for the Research Selection Committee
- detailed information on the research selection process
- sample Requests for Proposal
- sample questions for meetings with the Research Selection Committee, ODOT program office personnel, and contracted researchers
- reports from previous peer exchanges
- ODOT's current research work plan
- The Peer Exchange final report template

During the exchange, team members shared information about their programs. Time was provided for independent observations and discussion with the following ODOT staff and researchers via group and private interviews:

R&D Staff Members

- Omar Abu-Hajar
- Vicky Fout
- Jill Martindale
- Karen Pannell

Research Selection Committee Representatives

- Thomas Lyden, District 6 Highway Management Administration
- Jack Noble, District 4 Planning

Research Contractors

- Dr. Robert Liang
  The University of Akron
- Dr. Norbert (Norb) Delatte
  Cleveland State University
- Mr. Jamal Nusairat
  E.L. Robinson Engineering of Ohio
- Mr. Jagannath (Jag) Mallela
  Applied Research Associates, Inc.
- Dr. Shad Sargand, Ohio University
- Dr. Richard (Rich) Miller, University of Cincinnati

ODOT Program Staff

- Dave Gardner
  Office of Technical Services
- Gene Geiger
  Office of Geotechnical Engineering
- Roger Green
  Office of Pavement Engineering
- Mohammad Khan
  Office of Traffic Engineering
- Tony Manch
  Office of Technical Services
- Sean Mulligan
  Office of Geotechnical Engineering
- John Randall
  Office of Structural Engineering
- John Ray
  Office of Aerial Engineering
- Jawdat Siddiqi
  Office of Structural Engineering
- Bryan Struble
  Office of Materials Management
- Lloyd Welker
  Office of Materials Management
- Jeff Wigdahl
  Office of Materials Management

FOCUS ISSUES

ODOT's Office of Research & Development identified four critical focus issues for this peer exchange:

- Research Needs Identification
- Proposal Solicitation
- Evaluation & Selection of Proposals
- Outreach to ODOT Customers & Stakeholders

The office expressed particular interest in identifying ways to improve the research proposal selection process to ensure that:

- all proposal reviews are thorough, fair and timely;
- the best proposals from qualified researchers are fairly selected;
- the program is open and balanced to ensure that no single researcher or agency has a monopoly on certain types of research;
- the selection process is clear, efficient and effective;
- DOT staff understand the process and are committed to and held accountable for fulfilling their roles.

FINDINGS

From its review of documentation and discussions with ODOT staff and contract researchers involved in the research process, the Peer Exchange Team made numerous observations related to ODOT's research program and to the four specifically identified focus areas. The team's general observations include:

- ODOT has a robust research program that is valuable to and well appreciated by ODOT customers in the central and district offices.
- ODOT's research program is efficient, handling a $10 million annual program with 5 staff.
- ODOT's research program is decentralized, relying on the active involvement of operational divisions and offices for project definition and management.
- The research community thinks highly of the ODOT research program management process.
- Internal research customers and external research contractors agree that the ODOT research program is managed effectively.
- ODOT and its Office of Research and Development have demonstrated their willingness to improve the research process by conducting this Peer Exchange.
- ODOT actively engages in the national Pooled Fund Research Program, leading or participating in about thirty studies.
- The increase in University Transportation Centers (UTC) in Ohio offers new opportunities for collaboration and leveraging of funding.
- Funding from Part I State Planning & Research, the Innovative Bridge Research & Construction Program, and University Transportation Centers is also used to address research needs, extending the funding available for research activities.

FOCUS ISSUE 1: RESEARCH NEEDS IDENTIFICATION

Observations

- The ODOT research program is admirably addressing traditional transportation research areas such as pavements, materials, and structures.
- Program level staff within ODOT appear to be satisfied with the ODOT research program, generally leading to little controversy.
- The research needs identification process can be intimidating for those not regularly dealing with research.
- The research initiation process seems lengthy to some participants, several of whom expressed the need for quick response, short term projects.
- There appears to be little support outside R&D for a biennial program.
- Research Steering Committee members express a high level of satisfaction with the research program development process.
- Central office is significantly more actively engaged in the needs identification process than are ODOT's districts.

Strengths

- The needs identification process is very responsive to the Divisions' needs.
- The needs identification process is well organized and documented, and is followed as documented.
- The Research Selection Committee is a cross-cutting committee of multiple disciplines with both central office and district representation.
- The Research Selection Committee's feedback was very positive for both organization and teamwork.
- The ODOT Partnered Research Exploration Program is unique and can be effective in developing researchers' interest in ODOT efforts.
- ODOT has defined strategic research focus areas and has used the strategic research plan well.
- The research process reserves funding for pooled funds and other off-cycle needs.

Opportunities

- Further involvement by the districts could help ensure that the program meets the department's overall needs.
- Solicit needs from divisions and districts to encourage broader participation throughout the research process. Explore ways to encourage districts to identify research needs.
- Consider rotating district membership on the Research Selection Committee to increase research interest in the districts.
- Consider personal contact with offices that are not aggressively involved in research.
- Some ODOT research customers have expressed a preference for an annual research needs identification process.
- Consider engaging external input from Metropolitan Planning Organizations, counties, cities, UTCs, and others to ensure a comprehensive program.
- Foster a broad, multi-disciplinary research program that includes planning, environment, safety, and other transportation modes like pedestrian, bicycle, transit, rail, and freight.
- Consider methods for quick response research, including the use of task order contracts, to meet low-cost, short-term needs.
- The Office of Research & Development could work more directly with senior management to help align research with ODOT key initiatives.
- Consider funding a gap analysis to identify strategic research needs.
- Investigate ways to integrate research considerations into daily business processes.
- Look at SAFETEA-LU Titles I, III, and V earmark awards and the Highways for Life program to see whether they could help address ODOT objectives.
- Additional staff could enable the Office of Research & Development to be more effective in areas such as program quality improvement, implementation, performance evaluation, outreach, and marketing.

FOCUS ISSUE 2 – SOLICITATION PROCESS

Observations

- The Ohio Controlling Board policies must be considered when pursing a wider solicitation of research proposals. The policies may present obstacles to short term, quick-turnaround projects and projects with out-of-state research institutions.
- ODOT advertises research needs to a wide pool of researchers. It is unclear whether expanding this pool even further will significantly affect the variety of researchers selected for projects.
- The quality and completeness of RFPs vary among projects.

Strengths

- Use of standard contracts is beneficial and simplifies the proposal solicitation process.
- A good data acquisition device policy is in place that eliminates confusion over allowable computer equipment expenses.
- ODOT has the ability to contract with out-of-state agencies, which is lacking in some other states.
- Staff in ODOT's Offices of Research & Development and Legislative Services appear to understand and effectively work with the Ohio Controlling Board.

Opportunities

- Consider using the National Cooperative Highway Research Program's RFP distribution list for more visibility of project solicitations.
- For certain projects, consider publishing cost estimates to better define the scale of expected work described in the Request for Proposal.
- Consider hiring a project pricing service—possibly by a non-proposing researcher on a task order contract—to better estimate project costs.

FOCUS ISSUE 3 – EVALUATION & SELECTION OF PROPOSALS

Observations

- Policies of the Ohio Controlling Board impact proposal selection.
- The level of technical monitoring throughout the life of some projects is not consistent.
- Some research proposals are evaluated by a small number of reviewers.

Strengths

- Researchers interviewed in the peer exchange believe the selection process is fair and open.
- ODOT program offices are satisfied with the proposal selection process.

Opportunities

- A more thorough preliminary literature review may be needed for some proposals.
- The number of people doing technical reviews could be increased on some projects to ensure quality. Consider using additional reviewers, including district personnel.
- Consider creating individual review forms for OPREP, eliminating potential confusion over multiple forms.
- Consider matching the questions on the proposal review form to the rating categories on the proposal comparison chart.
- Engage FHWA subject matter experts directly in proposal evaluation.
- Consider engaging trade associations in developing research topics and evaluating proposals.

FOCUS ISSUE 4 – OUTREACH TO ODOT CUSTOMERS & STAKEHOLDERS

Observations

- ODOT's research and development communications process is generally effective and well regarded by ODOT customers and the research community.

Strengths

- ODOT has completed successful research to identify effective methods of communication for its research program.
- The ODOT research web site is a well-designed, effective tool for customers and stakeholders.
- The ODOT research manual is well done and is a key asset to the research program.
- The Cooperative Research Seminar has been useful in introducing new researchers to the research process, soliciting research needs, and networking researchers and practitioners.

Opportunities

- Continue to hold the Cooperative Research Seminar and expand its utility.
- Consider communicating directly with FHWA Ohio Division subject area experts.
- Encourage prospective researchers to attend Cooperative Research Seminars.
- Follow up on the implementation of the recommendations from the research communications project.
- Placing research on the agenda of statewide technical meetings could help increase awareness of the research process and projects.
- Consider adding a research suggestion box to the website.

OPPORTUNITIES FOR APPLICATION BY PEER EXCHANGE TEAM MEMBERS

Richard Woo, Maryland State Highway Administration

- Review Maryland's needs identification and solicitation process.
- Consider the next Maryland research Peer Exchange.
- Review Maryland's Research Advisory Board membership.
- Encourage district staff to participate in research projects.
- Train research staff on how to review proposals.

Moy Biswas, North Carolina DOT

- Market research to field offices.
- Develop a Strategic Research Plan.
- Consider a program like NCHRP IDEA or Ohio Partnered Research Exploratory Program in North Carolina.
- Consider using standard master agreement, such as that of Ohio.
- Consider reclassification of "equipment" vis-à-vis "expendable supplies."
- Consider use of task orders for urgent projects.
- Communicate more with prospective researchers.
- Continue to upgrade website.

David Huft, South Dakota DOT

- Share the report of this peer exchange with SDDOT's Research Review Board.
- Share research reports of identified potential interest—such as use of biodiesel fuels, access management, and winter maintenance decision support—with the Ohio Department of Transportation.
- Share ODOT's Research Priorities with SDDOT's Research Review Board as an example of strategic research planning.
- Conduct a meeting similar to ODOT's Cooperative Research Seminar and SDDOT's prior Research Needs Identification Meeting with industry, academia, and SDDOT staff.

- Develop a concise quarterly progress report format that allows posting of reports to each SDDOT research project's web page.
- Create an online research suggestion form for SDDOT's research web site.
- Incorporate some of ODOT's proposal evaluation questions into SDDOT's evaluation form.
- Review applicability of ODOT's Research Communications Plan to SDDOT and tailor a plan for SDDOT outreach.

Jason Bittner, MRUTC

- Project panels to identify topics could be used.
- Invited forums—like the Cooperative Research Seminar—seem appropriate.
- Add literature review to all needs statements.
- Widen solicitation distribution lists.
- Explore sole source/master contract possibilities.
- Post suggestion box on website.
- Use UTCs to broadcast project announcements, especially with new UTCs in the region.
- Elements from the communications report need to be shared and acted upon.
- Use FHWA Subject Matter Experts in project development.
- Use more detailed, focused questionnaires similar to ODOT's with some revisions.

Ray Derr, Transportation Research Board Cooperative Research Programs

- Explore holding an annual session at the TRB Annual Meeting to encourage participation of new researchers in the Cooperative Research Programs.
- Send North Carolina's pre-proposal process to Cooperative Programs synthesis staff.

Frank Burkett, Ohio Division, Federal Highway Administration

- The peer exchange provided a greater understanding of the ODOT research program and its policies and processes.
- There is opportunity to focus greater involvement of Ohio Division program specialists in proposal evaluation and project selection.

Monique Evans, Ohio Department of Transportation

- Explore research in non-traditional areas such as workforce development, and customer service improvement similar to Maryland's program.
- Maryland and North Carolina visit their district offices to market research services and to solicit research needs. These types of visits could be beneficial for our program to facilitate implementation, increase participation from a wider spectrum of users and add depth to the identification of needs.
- South Dakota's Research Review Board consists of the department Secretary, Deputy Secretary, Division Managers plus city, county and regional managers (who rotate on a two-year basis). This board meets five times a year for half a day to authorize the funding and implementation plans for all projects. The frequency and level of participation from all members seems to indicate that these meetings are given a high priority within their department. While there is also good support from senior leadership of ODOT's research program, we need to explore ways to get many of our Deputy Directors more engaged in the process.
- More frequent use of project panels (similar to TRB and South Dakota's models) to develop and monitor research could result in more thoroughly developed RFPs and more comprehensive proposal reviews.

- North Carolina's use of subcommittees in four areas—Planning & Environmental, Pavement & Materials, Structures & Construction, and Safety—could also be an effective way to structure project panels.
- Many of the agencies include representatives from industry and other outside sources on their panels. This appears to be another good way to get broader input.
- Soliciting short (5 pages) preliminary proposals for research like North Carolina does could provide a more effective and efficient way to define the scope of work.
- Limiting final proposals to 10 pages, like MRUTC does, could simplify the proposal review process and shorten the time required to initiate the research.
- FHWA noted several sources for potential research partnerships that we could explore, e.g. earmark recipients listed in Titles I, III and V and Highways for Life.
- North Carolina's highly personal approach of seeking out individuals within their DOT to involve them in research takes time but appears to be an effective way for them to infuse the program with new ideas.
- South Dakota provides guidance to prospective researchers on how to write effective proposals. This could be useful in ODOT as well as providing training to our staff on writing effective RFPs.
- TRB is currently developing a course on Experimental Design that will be follow-up training to the NHI course on Scientific Approaches to Research. We should volunteer to be a pilot agency for the training and/or schedule this training in Ohio as soon as it is available.

APPENDIX A: PEER EXCHANGE AGENDA

ODOT Research Peer Exchange Agenda
October 3-6, 2006 - Central Office Building – Room 1A

Tuesday, October 3, 2006 (Travel Day)

3:30 pm	Team Leader meets with ODOT to finalize exchange details.
6:30pm	Meet for an informal dinner at Abbracci Steaks and Italian Restaurant (located in the same building as the hotel) to get acquainted with team members and ODOT R&D staff

Wednesday, October 4, 2006

8:30am	ODOT van leaves from hotel lobby for Central Office
9:00am – 10:00am	Introductions, requirements, expectations, administrative housekeeping and discussion of ODOT's Focus Issues
10:00am – 10:30am	Break
10:30am – 12:00pm	Continuation of discussion of ODOT's Focus Issues
12:00pm – 1:00pm	Lunch at ODOT (provided by ODOT)
1:00pm – 2:00pm	Discussion with representatives of Research Selection Committee (RSC)
2:00pm - 3:00pm	Discussion on selection process at team members' agencies
3:00pm – 3:30pm	Break
3:30pm – 5:00pm	Continuation of discussion on selection process at team members agencies
5:00pm	ODOT van departs for Hampton Inn
	Dinner on your own

Thursday, October 5, 2006

8:30am	ODOT van leaves from hotel lobby for Central Office
9:00am – 12:00pm	Meeting with ODOT personnel from various program offices
12:00pm – 1:00pm	Lunch at ODOT (provided by ODOT)
1:00pm – 2:30pm	Conference calls to contracted researchers
2:30pm – 3:00pm	Break
3:00pm – 5:00pm	Report preparation
5:00pm	ODOT van departs for Hampton Inn
	Dinner on your own

Friday, October 6, 2006

7:30am	ODOT van leaves from hotel lobby for Central Office
8:00am – 9:00am	Debriefing with ODOT R&D staff
9:00am – 10:00am	Finalize documentation for final report and prepare for report to Executive Leadership
10:00am – 10:30am	Break
10:30am – 12:00pm	Present close out report to Executive Leadership Staff
12:00pm	Peer exchange ends (Please let us know if you desire immediate transport to the hotel or airport)
12:30pm – 1:30pm	Lunch with research office staff for those whose travel plans permit;
1:30pm	Transport to Hampton Inn for those who have later flights

APPENDIX B: PEER EXCHANGE TEAM CONTACT INFORMATION

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