WisDOT Research Peer Exchange

October 16 - 19, 2006

Introduction

The Wisconsin Department of Transportation Research Unit hosted a peer exchange on October 16 – 19, 2006 in Madison, Wisconsin. Representatives from four state DOTs, FHWA-Washington, D.C., and the University of Nebraska joined representatives from WisDOT, FHWA-Wisconsin and the University of Wisconsin to share experiences and best practices in the area of research program evaluation. The meetings consisted of both presentations and active discussions as the group worked to share key information on participants' respective programs.

This report highlights the best practices that came out of the peer exchange discussions and the opportunities identified for WisDOT in measuring and recording the impact of its research program.

Objectives

The overall theme for the peer exchange was program evaluation with an emphasis on performance measures, effectiveness, structure, and partnerships (especially with universities). The meetings were structured around four main topic areas: Partnerships, Needs Identification and Project Selection, Implementation, and Communicating Results. Both visiting team members and representatives from WisDOT gave presentations on these topics that addressed the following key questions:

1. How does your organization conduct the activities being discussed?
2. What do you evaluate regarding these activities – and why?
3. How do you evaluate these activities? What tools, methods, or measures do you use?
4. How do you use the results of your evaluations? (Presentations, reports, publications, media releases, etc.) To whom do you send them? How often?

The WisDOT research team hoped to leave the exchange with new tools and practices for evaluating and reporting on the many activities of the research program.

Participants

Visiting team members

- Mrinmay "Moy" Biswas, State Research and Analysis Engineer, North Carolina DOT (Team Leader)
- Ivy Harris, Assistant State Research and Development Engineer, Alabama DOT
- Ed Engle, Secondary Road Research Coordinator, Iowa DOT
- Ann McLellan, Marketing Program Coordinator, Minnesota DOT
- Marci Kenney, Director, Office of Program Development and Evaluation at FHWA Turner-Fairbank Highway Research Center
- Dean Sicking, Director, Midwest Roadside Safety Facility at the University of Nebraska

Peer exchange planning team

- Kristina Boardman, DOT Officer, WisDOT
- Jim McDonnell, Bureau of Business Services Director/Acting Research Administrator, WisDOT
- Ann Pahnke, Research Unit Analyst, WisDOT
- Pat Casey, CTC & Associates LLC for WisDOT Research
- Kim Linsenmayer, CTC & Associates LLC for WisDOT Research
- Dwight McComb, FHWA – Madison
- Alison Lebwohl, Financial Responsibility Accountant, WisDOT
- Len Makowski, Engineering Services Supervisor, WisDOT
- Rory Rhinesmith, Regional Operations Director, WisDOT
- Hussain Bahia, Technical Director, Wisconsin Highway Research Program

Other peer exchange participants

- Brenda Brown, Administrator, WisDOT Division of Business Management
- Teresa Adams, Director, Wisconsin Transportation Center
- Andrew Hanz, Program Manager, Wisconsin Highway Research Program
- Judie Ryan, Engineering Specialist, WisDOT
- Gary Whited, Program Manager, Construction Materials Support Center
- Jerry Zogg, Engineering Chief, WisDOT
- Todd Szymkowski, Program Manager, Traffic Operations and Safety Lab
- Alan Rommel, Technical Services Chief, WisDOT

Front row: Kristina Boardman, Dean Sicking, Ann McClellan, Marci Kenney, Moy Biswas, Ivy Harris, Ed Engle, Jim McDonnell
Back row: Dwight McComb, Andrew Hanz, Kim Linsenmayer, Pat Casey, Ann Pahnke, Alison Lebwohl, Judie Ryan, Hussain Bahia

Key Observations and Best Practices Discussed

Partnerships

Sources of funding and resource sharing

- Several DOT research programs seek out diverse funding sources, such as industry, the National Science Foundation local organizations, the State Transportation Improvement Program, SP&R, etc.
- Some of Iowa's research dollars are built into state statutes.
- Iowa plans for a portion of their research funds (1/4 to 1/3) to address city and county needs.
- Partnering with universities allows DOTs to leverage university rates on software.
- Universities can help provide technical training to DOTs when they lack the resources internally.
- North Carolina is looking for ways to develop research expertise at more universities by supporting their efforts to get a program off the ground—loaning them equipment, etc.

Identifying research ideas

- North Carolina works with a wide range of university departments, not just civil engineering.
- The Kansas DOT involves their attorney general in submitting and reviewing research project ideas to help the organization avoid tort cases.
- Several states conduct site visits at their universities, district offices and local offices to encourage participation in the research process.
- Iowa meets with its investigators to educate them about the research process.
- Some states go out into the field to present research results and ask about research needs among DOT maintenance and safety staff.
- The Nebraska Department of Roads mandates industry involvement in the research project selection and oversight process because the results of the research will impact them.
- The North Carolina DOT partners with industry/trade organizations and holds joint meetings with them.
- Iowa holds semi-annual collaboration meetings with three universities and CTRE to look at research successes and opportunities.
- Alabama conducts a whirlwind tour of the state universities to review the status of all projects and discuss guidelines for doing research.
- It's important to involve all DOT divisions and maintenance staff in the research process, listening to their needs and reporting back on how you addressed them through research.

Conducting the research

- Minnesota conducts a contractor evaluation at the end of each project, which influences awards of future projects to the investigator.
- Some states advertise RFPs only to select universities within their own states. WisDOT encourages competitive bidding from all investigators (not just Wisconsin university researchers).
- UW Madison uses student groups to help with research projects.
- Iowa uses a single collaborative agreement with multiple universities.
- MnDOT uses a contractor performance evaluation that has been mandated by their audit office after each project.
- WisDOT's Wisconsin Highway Research Program is an effective resource for conducting hard side research for WisDOT.

- A number of university-based research centers are addressing WisDOT's research needs and providing value to the department.
- Alabama performs project evaluations quarterly to discuss what's working and what's not working so that adjustments can be made if necessary.
- Using master contracts with universities helps avoid project start delays and reduces overhead costs.
- Alabama has hands-on monitoring at test sites for projects to make sure the project is running smoothly and is addressing the DOT objectives.
- DOTs need to find ways to motivate university investigators to complete projects on time. Some states will defund all projects after a period of delay is exceeded on a single project.
- Minnesota assembles a Technical Advisory Panel for every project that includes two bureau representatives, one as the technical champion and one as the administrative champion.
- Several states have processes for encouraging investigator accountability, such as period evaluations, basing invoice payments on work completed, and holding annual meetings with universities to discuss delivery issues.
- WisDOT's research program has a strong working relationship with its FHWA Division office.

Internal support for research

- Some states have found that the attitudes toward research within a department are influenced substantially by who is in the position of leadership in the organization.
- Getting buy-in and assistance with project oversight from high-level managers is important for the successful completion and implementation of the project.
- In Minnesota, the research program is located in the office of investment, which is helpful for the maintenance of their funding levels.
- Partnering with other organizations is helpful strategically to ensure buy-in and hands-on support of the research.

Needs Identification and Project Selection

Generating research ideas

- A research executive committee (North Carolina model) engages senior level people but does not waste their time.
- Alabama asks bureau managers to submit problem statements from their groups that they have already prioritized.
- Minnesota DOT has research booths at conferences to share information and solicit research ideas.
- Alabama provides its project proposers with feedback to help them improve their chances of submitting project ideas that will be funded.
- Several states are effectively using the Internet to distribute information about their project solicitation and RFP processes.
- Iowa has an annual solicitation for "out of the box" ideas as well as applied research. By investing in long-term research that may not have an immediate benefit you have an opportunity to take risks with the potential for large payoffs. However, the executive research committee needs to fully support the investment and communicate about it.
- North Carolina uses a plain-English project solicitation form for gathering project proposals called a "Call for Research Ideas" form. It asks what product will result from the research and how the DOT will be able to **use** the results.

- Several states cast their nets broadly when gathering research ideas. Sources include DOT regional staff, counties, cities, the attorney general's office, the public, consultants, and universities.
- Iowa solicits preliminary research ideas broadly and has received up to 120 in a year. These proposals consist of a title and couple-sentence description and are reviewed by board members and ranked.
- North Carolina has hands-on, personal involvement in soliciting research ideas. They send out e-mails, post notices on the Internet, make presentations, and call individuals on the phone to get them excited about participating.
- Iowa DOT visits each of the six districts and all of the counties looking for project ideas.

Selecting which projects to fund/developing a research agenda

- Potential proposal evaluation criteria: expected benefit, potential for success, long-term needs (no immediate benefit), distribution by area or program.
- Research should align with strategic goals.
- Iowa maintains a contingency of funds for unexpected research needs that arise.
- The states discussed the need for a post-mortem on every research project to determine what went well or poorly and why.
- In looking at why projects failed, be sure to define failure: projects that were not completed, the data is unreliable, etc.
- Nebraska makes sure that long-term needs are included in the evaluation process for new projects.
- Mn/DOT has research coordinators in each program area.
- States need to have a champion within the DOT for research to be implemented.
- Research proposals should include the anticipated product or implementation strategy.
- Needs identification and proposal solicitations from outside groups need to be paired with champions to be successful.
- The literature search component of a research project is necessary to fully educate graduate students in preparing for the study.
- Alabama tries to avoid a restrictive, standard problem statement format. By specifying the information needed but not the format, they encourage creativity and get more interesting project proposals.

Implementation

- Implementation needs to be considered at all phases of the research project.
- Consider setting aside expected implementation funding for a project at the time the project gets approved.
- Iowa requires a technical advisory committee to assist the researcher in developing an implementation plan.
- WisDOT has worked closely with the University of Wisconsin-Madison to develop effective implementation and impact forms
    - Implementation forms are part of the review process when committees meet to approve the final report. The research group helps investigators and committees complete the forms.
    - The forms ask specifically what WisDOT policy or practice the research pertains to and what guidelines, specifications or manuals could be impacted.
    - Impact forms are filled out 12 to 24 months after the end of the project.
- WisDOT has a new pilot program in which they are funding four implementation projects ($15,000 set aside for each project).
- Minnesota funds implementation projects at up to $25K. The program allocates a significant amount of money to implementation (about $500K of state and local funds).

- Distinguish between what you can control, what you can influence, and what you have no control over.
- Alabama requires an implementation plan for each project.
- Definition of research "product" is key as part of contract.
- Beware of projects with bias toward projects with short-term gain only—sometimes projects with no obvious immediate application are vital. Programs need balance.
- We're not after products (output). We're looking for a change in practice or confirmation of existing practice (outcome).
- Ask the question: Do the results solve/address the problem?
- Nebraska presents research results at local meetings.
- Be specific about the definition of implementation
- Phases of "deployment" – FHWA table Phase I to Phase II. Very useful.
- Front-end implementation assessment. Need and urgency should be defined first.
- Iowa identifies potential barriers to implementation, along with the who, what, where, and whys.
- Implementation in Nebraska involves "users" as part of the implementation advisory team.
- Approach implementation as "quality control."
- North Carolina defines the agent of change.
- Nebraska counts presentations on research by university professors to industry and staff toward professional development hours. This transfer of information is required of the researchers.
- All DOTs emphasize implementation struggles. It's difficult to get DOT staff and PIs to follow up. Research staff needs to do it.
- Compare actual versus estimated benefits.
- Implementation must be considered in all phases of the research process.
- North Carolina holds project closeout meetings where an implementation plan is developed.
- Manage research projects with implementation in mind.
- Consider that the product of research is an ultimate change in practice. Scope research projects to carry through implementation.
- Have a separate implementation committee
- Nebraska DOT randomly selects projects for implementation.
- North Carolina project kickoff meetings include implementation buy-in.
- North Carolina has a listing of sample implementation products for investigators and committees to reference.
- Document the implementation process to capture how the research results work in the field.

Communicating Results

- Effective communications about research require advance planning—know your audience and your goals for reaching out to them. Different audiences need different forms of communication.
- States are using a variety of communication formats to distribute research results and make customers aware of their information services.
    - WisDOT is a leader in communicating the results of research projects: two-page briefs, project quick-reference guide, annual report/program evaluation, e-newsletters, video briefs.
    - WisDOT produces quick turnaround Transportation Synthesis Reports that capture current research and practices on a topic. See examples online at http://www.dot.state.wi.us/library/research/reports/tsr.htm.

    - WisDOT establishes a communication plan before moving forward—who, why, how, etc.
    - Minnesota has branded their communication materials to encourage customer recognition and trust of their products and services.
    - Minnesota is developing a calendar with key research dates and photos that can be hung in an office for easy reference.
    - Nebraska requires researchers to submit at least one journal article for every completed research project.
    - Minnesota hands out trinkets at conference booths.
    - Nebraska includes a section in their newsletters for frequently asked questions.
    - North Carolina distributes CDs with all final reports.
    - Alabama's newsletters include interviews with key personnel and information about research processes and guidelines.
    - Several states use trading cards to highlight research projects.
- It's important to broadly distribute your research results and to recruit others to help in your efforts.
    - North Carolina actively encourages media support for their projects by sending them information about research innovations and successes and inviting them to test sites where they create live video feeds for the news.
    - Alabama involves public affairs in research oversight committees and communication of research results. Alabama's research office has a close relationship with ALDOT's public affairs office. The PA office will check in to see what from research should be included in future newsletters.
    - Iowa sends research reports to all counties and major cities.
    - North Carolina communication is done by their project champions.
- There are tools available to evaluate customer response to communication products:
    - Minnesota works with the market research team in their department, using their survey development and analysis skills to get customer feedback to their products and activities.
    - WisDOT uses Survey Monkey, an online tool for conducting surveys and analyzing the results. See www.surveymonkey.com.
    - Several states use user feedback to guide their communication activities—from Web site improvements to newsletter content, etc.
- Web sites are great ways to share information, as long as they're organized very well and respond to customer needs.
    - Alabama has a searchable online database of research reports modeled after TRIS.
    - Iowa scans old reports to post in electronic format as requested (demand prioritization).
    - Iowa features projects on the home page.
- Nebraska offers credits for professional development hours for engineers attending presentations of research results by the investigators. Investigators are required to give these presentations as part of the budget for the research project. This is all coordinated through the University of Nebraska's continuing education program.
- Communication products are great, but developing personal relationships both internally and externally is very important for increasing the visibility and respect for the research program.
- Research should be part of the culture of DOT.
- Researchers need to be viewed as the problem solvers for the department.

Other Areas

- The Frozen Four pooled fund is a great example of research collaboration. See www.frozenfour.us.
- WisDOT's research office provides peer exchange funding and planning services for other programs in the department—a valuable practice.
- North Carolina's technical assistance program provides low cost, quick turnaround work for immediate implementation.
- Mentoring is a good way to train and keep professionals.
- The *Seven Keys to Building a Robust Research Program* report provides excellent guiding principles. It may be possible to have performance indicators for each of the seven keys.

Report Out to WisDOT Board

The peer exchange team wrapped up the conference with a report-out session with WisDOT's Board of Directors. The following board members were present:

- Kevin Chesnik, Administrator, Division of Transportation System Development
- Mark Wolfgram, Administrator, Division of Transportation Investment Management
- Peg Schmidt, Director, Office of Public Affairs
- Casey Newman, Director, Office of Policy, Budget and Finance
- Bruce Matzke, FHWA-Wisconsin Division Administrator
- Rory Rhinesmith, Division Operations Manager
- Lynne Judd, Administrator, Division of Motor Vehicles

Each of the six visiting team members provided the board with their takeaways from the conference—specifically the best practices they observed in WisDOT's Research Program. Jim McDonnell presented a summary of findings from the exchange and opportunities for WisDOT. See Appendix B for the one-page report provided to the board.

Each board member had an opportunity to react to the team's findings. Below is a summary of their comments.

- Kevin Chesnik was excited about plans to reach out to the regions and local governments when identifying research needs. We need to connect more with our front-line staff.
- Brenda Brown was thrilled by the partnership effort that took place in putting on the conference. The exchange of information has been extremely valuable for WisDOT.
- Bruce Matzke was happy to see an emphasis on partnership between the states and FHWA.
- Rory Rhinesmith was pleased to hear how well WisDOT's research program is doing. He also thought it was great to hear about opportunities for expanding our collaborative efforts with the universities beyond civil engineering.
- Lynne Judd was impressed by the peer exchange process and the dedication to expanding our research customer base.
- Peg Schmidt said that there is an opportunity to reach the general public through news articles about research activities. A new AASHTO committee for public affairs may be a good group to work with.
- Casey Newman commented that it's good to incorporate research into day-to-day activities. He encouraged the group to look at other funding sources like dedicated revenue sources.

Planned Actions—Visiting Team

Ivy Harris, Alabama DOT

- Strive for more involvement of industry in research efforts through outreach and development with professional associations and industry organizations. Consider using industry as an additional funding source.
- Investigate city and county involvement in project advisory committees.
- Review and analyze indirect cost rates (standards, effects of standards, what other states are doing).
- Include the public affairs office on research advisory committees to foster research reporting/marketing.
- Include application of guidance tools as a required part of the manuals.
- Attend conferences and meetings to promote research and solicit problem statements.
- Use the Web to post problem statements for review and analysis.
- Maintain a contingency fund to cover unexpected research needs.
- Investigate project failures (causes, potential for success, etc.).
- Use tort filings and the attorney general's office as sources of research topics.
- In problem solicitation, ask "What will be the product of the research?" and "How will the DOT use it?"
- Request ideas for long-term research.
- North Carolina and WisDOT forms for research implementation and project closure, research impacts.
- Iowa's list of implementation requirements to be included in each proposal and contract.
- Require implementation follow-up a year later in the research contract.
- Link directives for use, new specifications, etc. to online library searches.
- Extend the impact of a research project by requiring DOT presentations by the investigator in the original contract. Make attendance at presentations eligible for professional development hours.
- Consider including a field on quarterly reports for recording efforts towards implementation.
- Borrow WisDOT's TRB Guide and research guide for ALDOT use.
- Include professional developing hours for training with the research award. Also require exit surveys and journal article submissions.
- Ohio DOT plan for effective research communication.
- One page technical summaries/research brief required with each research award (link to abstract and full report via web).
- North Carolina's Technical Assistance Program could be applied to ALDOT.
- WisDOT's mentoring program is a good model.

Ed Engle, Iowa DOT

- Consider conducting yearly reviews of projects awarded as a check on the diversity of projects funded.
- Monitor tort filings as a source of research topics.
- Ask division heads to name their most important long-term research need.
- Develop a research idea form.
- WisDOT's implementation forms!
- FHWA implementation phases for measuring/tracking performance.
- North Carolina's form describing examples of implementation and their initial implementation plan and their form for buy in.
- Minnesota's tying of implementation to performance measures.

- Implementation impact scoring.
- WisDOT's video briefs.
- Minnesota's direct e-mail notifications of what's new in research.
- WisDOT's TRB Guide.
- Allow professional development hours for training on completed research.

Ann McLellan, Minnesota DOT

- Respond to the research requests of field staff by directing them to completed research that meets their needs whenever possible.
- Hold an innovative projects solicitation for "out of the box" ideas.
- Consider going to the attorney general's office for research ideas.
- Use friendlier terms in project solicitation forms. For example, call the form a "Research Idea" form instead of "Problem Statement."
- Look at adopting North Carolina's preliminary proposal review form.
- From Nebraska—don't include long-term research projects in performance measures since it will lower the score.
- WisDOT's chart of progress status.
- Iowa's annual report to the legislature.
- Follow NCHRP 20-78: Communicating the Value of Research.
- Talk to Marci's strategic communications team about their marketing communications vehicles.
- Review NCHRP 08-36(51): Primer on Information Design for Effective DOT Decision-Making.
- WisDOT's use of Survey Monkey tool.
- Nebraska's executive summary format distributed to DOT management.
- Requiring submission of journal articles by contract.
- Phase II of Technology and Innovation Deployment phases for measuring/tracking performance. Hand out during implementation session.

Mrinmay "Moy" Biswas, North Carolina DOT

- Formalize a policy research initiative.
- Consider developing university system-wide master agreements.
- Check statistics of no-cost time extensions and other discrepancies.
- Engage the office of the attorney general in the research process to avoid tort cases and generate project ideas.
- Consider developing a research services brochure like the one created in Minnesota.
- Consider monitoring tort filings as a factor in project selection.
- Consider including industry representatives in strategic planning of research areas.
- Consider using focus groups, such as human factors.
- Do end-of-project debriefing and compile at project level.
- Refer to WisDOT's implementation forms for potential to improve NCDOT forms.
- Consider using closeout meeting attendance for professional development hours.
- Consider features of Alabama DOT Web site to be incorporated at North Carolina.
- Look into NCHRP 08-36(51): Primer on Information Design for Effective DOT Decision-Making.
- Look into Iowa's Web site for reports, with reference to Iowa DOT library.

Marci Kenney, FHWA – Washington, D.C.

- Document partnerships and success stories for UTCs.
- Look at Iowa DOT innovative projects solicitation process as a possible model for FHWA exploratory advanced research.
- NCHRP 08-36(51): Primer on Information Design for Effective DOT Decision-Making.
- WisDOT's TRB Guide could be adapted to other organizations or functional areas
- Prepare trading cards for new FHWA-led pooled fund projects for TRB annual meeting.
- Edward Tufte's books.
- Continue to promote the Transportation Pooled Fund Program as a mechanism for partnerships, including partnerships with industry.
- Provide WisDOT with information about NHI Course on Scientific Approaches to Transportation Research.
- North Central Pavement Research Coordination Partnership model (The Frozen Four).
- Remind state DOTs to put reports into TRIS.

Dean Sicking, Midwest Roadside Safety Facility at the University of Nebraska

- WisDOT's Traffic Operations and Safety Lab and Construction Materials Support Center models would benefit the Nebraska Department of Roads and the universities if implemented.
- The RFP process does not need to be closed to researchers outside of the state.
- We need to add educational benefits to project evaluations. Did the graduate students who completed the project move on to work in transportation?
- Include funds for implementation in research project. Funds could cover cost of developing standard plans (revise specs and guidelines) and hold meetings with contractors and suppliers, etc.
- See Alabama DOT's library and search functions online.
- Develop TRB Guide for all UNL activities.
- Review NCHRP 08-36(51): Primer on Information Design for Effective DOT Decision-Making
- Iowa and NC web sites for relevant research
- Explore research trading cards
- Obtain books by Edward Tufte and get students to read them.
- Consider developing a calendar of research activities.
- Add source of problems to quarterly summary of state questions.
- Frozen Four Web site will help our pavement researchers identify ongoing research

Planned Actions—WisDOT Research

- Expand relationship with universities beyond civil engineering.
- Explore opportunities to leverage WisDOT funds by collaborating with new UTC.
- Consider future opportunities for collaboration with local governments.
- Use the new Research Advisory Committee to identify strategic needs and opportunities.
- Expand customer base (regions, industry, etc.) to broaden research opportunities.
- Foster strong project champion(s) for every project funded.
- Diversify research portfolio to include both short- and long-term research.
- Front-end implementation planning and expectation.
- Dedicated implementation funding and resources.
- Consider expanding Web site to include searchable research database.
- Distribute a research calendar to customers for communicating key dates and showcasing results.
- Further identify our customer base and develop materials tailored to their needs.

Appendix A

WisDOT 2006 Research Peer Exchange Agenda
October 16-19 2006

Monday evening, October 16th

6:00 PM	Dinner and introductions Peer Exchange Team and Planning Committee

Tuesday, October 17th at the Red Gym - "On Wisconsin" Room

8:00 – 8:30 AM	WisDOT Welcome – Jim McDonnell and Kristina Boardman ▪ Introduction of visiting team members and planning committee. ▪ Discussion of peer exchange, theme, emphasis areas, schedule and goals.	
8:30 – 12:00	**Emphasis Area 1**: **Partnerships**	
	8:30 – 8:45	WHRP Presentation, Andrew Hanz
	8:45 – 9:00	UW-Madison UTC Presentation, Dr. Teresa Adams
	9:00 – 9:15	TOPS Presentation, Todd Szymkowski
	9:15 – 9:30	CMSC Presentation, Gary Whited
	9:30 – 9:40	WisDOT Presentation, Kristina Boardman
	9:40 – 9:55	Break
	9:55 – 10:05	North Carolina DOT Presentation, Moy Biswas
	10:05 – 10:15	Minnesota DOT Presentation, Ann McLellan
	10:15 – 10:25	Iowa DOT Presentation, Ed Engle
	10:25 – 10:35	Alabama DOT Presentation, Ivy Harris
	10:35 – 10:45	Midwest State Crash Center Presentation, Dr. Dean Sicking
	10:45 – 10:55	FHWA Presentation, Marci Kenney
	10:55 – 11:05	Break
	11:05 – 12:00	Roundtable Discussion (including feedback and takeaways)
12:00 – 1:15	Lunch. Group will eat lunch together in the UW Memorial Union.	
1:15 – 4:10	**Emphasis Area 2: Needs Identification and Project Selection**	
	1:15 – 1:30	WisDOT Presentation, Ann Pahnke
	1:30 – 1:45	Minnesota DOT Presentation, Ann McLellan
	1:45 – 2:00	Iowa DOT Presentation, Ed Engle
	2:00 – 2:15	Alabama DOT Presentation, Ivy Harris
	2:15 – 2:30	Midwest State Crash Center Presentation, Dr. Dean Sicking
	2:30 – 2:45	FHWA Presentation, Marci Kenney
	2:45 – 3:00	North Carolina DOT Presentation, Moy Biswas
	3:00 – 3:15	Break
	3:15 – 4:15	Roundtable Discussion (including feedback and takeaways)
4:15 – 5:00	Summarize discussions from the day – visiting team and planning committee	
5:00	Adjourn. Dinner on your own.	

Wednesday, October 18th at the Red Gym – "On Wisconsin" Room

8:00 – 8:10 AM	Welcome and overview of agenda for the day – Moy Biswas
8:10 – 10:45	**Emphasis Area 3**: **Implementation** 8:10 – 8:30 WisDOT Presentation, Pat Casey and Hussain Bahia 8:30 – 8:40 Iowa DOT Presentation, Ed Engle 8:40 – 8:50 Alabama DOT Presentation, Ivy Harris 8:50 – 9:00 Midwest State Crash Center Presentation, Dr. Dean Sicking 9:00 – 9:10 FHWA Presentation, Marci Kenney 9:10 – 9:20 North Carolina DOT Presentation, Moy Biswas 9:20 – 9:30 Minnesota DOT Presentation, Ann McLellan 9:30 – 10:15 Roundtable Discussion (including feedback and takeaways) 10:15 – 10:30 Break
10:30 – 2:00	**Emphasis Area 4**: **Communicating Results** 10:30 – 10:45 WisDOT Presentation, Pat Casey 10:45 – 11:00 Alabama DOT Presentation, Ivy Harris 11:00 – 11:15 Midwest State Crash Center Presentation, Dr. Dean Sicking 11:15 – 11:30 FHWA Presentation, Marci Kenney 11:30 – 11:45 North Carolina DOT Presentation, Moy Biswas 11:45 – 12:00 Minnesota DOT Presentation, Ann McLellan 12:00 – 12:15 Iowa DOT Presentation, Ed Engle 12:15 – 1:30 Lunch on your own 1:30 – 2:30 Roundtable discussion (including feedback and takeaways)
2:30 – 3:30	**Emphasis Area 5**: **Other Areas to Evaluate** Facilitated discussion of other areas the team would like to discuss, including items not fully addressed during previous sessions. 3:30 – 3:45 Break
3:45 – 4:15	Summarize discussion from the day – visiting team and planning committee
4:15 – 5:00	Begin drafting final report – visiting team and planning committee • Common themes, observations • Opportunities for WisDOT • Participant takeaways
6:00	Team dinner at Casa de Lara downtown.

Thursday, October 19th at Hill Farms State Transportation Building (Room 144B)

8:00 – 10:00 AM	Finalize draft final report: Include interesting observations, opportunities for WisDOT, and take-home items from each visiting team member.
10:00 – 10:30	Break and draft report printing.
10:30 – 11:30	Report out to WisDOT management
11:30	Adjourn

Appendix B
Resources

Seven Keys to Building a Robust Research Program, 1999
http://www.trb.org/news/blurb_detail.asp?id=3279
Identifies attributes necessary to build and maintain a robust research program.

NCHRP 20-78: Communicating the Value of Research
http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+20-78
Project getting started in 2007. Goal is to develop a guide for successfully communicating the value of transportation research projects and programs.

NCHRP 8-36(51): Primer on Information Design for Effective DOT Decision-Making, 2006
http://www.transportation.org/sites/planning/docs/NCHRP%208-36%2851%29%20Final%20Report.pdf
Educates and guides transportation professionals as they create information graphics for documents and presentations.

FHWA-NHI-123002 Course: Scientific Approaches to Transportation
http://www.nhi.fhwa.dot.gov/training/brows_catalog.aspx
Three-and-one-half day course addressing professional and ethical practices for managing, conducting, and evaluating research programs and projects. Participants will learn about the critical elements in the research process, turning research objectives into research hypotheses, testing of the hypotheses, and evaluation of the results. The course will look at the scientific method as well as the management and handling of data as it applies to transportation research.

Survey of State Research Programs
http://cms.transportation.org/?siteid=55&pageid=1832
Survey of RAC members conducted by California DOT to compare research program budgets, number of projects, staff size, etc.

Edward Tufte's Books
Edward Tufte has written seven books, including *Visual Explanations*, *Envisioning Information*, *The Visual Display of Quantitative Information*, and *Data Analysis for Politics and Policy*. He writes, designs, and self-publishes his books on analytical design, which have received more than 40 awards for content and design. He is Professor Emeritus at Yale University, where he taught courses in statistical evidence, information design, and interface design. His current work includes landscape sculpture, printmaking, video and a new book.

Envisioning Information (Winner of 17 awards for design and content.)
http://www.edwardtufte.com/tufte/books_ei

The Visual Display of Quantitative Information
http://www.edwardtufte.com/tufte/books_vdqi

Visual Explanations: Images and Quantities, Evidence and Narrative
http://www.edwardtufte.com/tufte/books_visex

Beautiful Evidence
http://www.edwardtufte.com/tufte/books_be

Appendix C
Report Presented to WisDOT Board

WisDOT Research Peer Exchange

October 16 - 19, 2006

Visiting team members

- Moy Biswas, North Carolina DOT (Team Leader)
- Ivy Harris, Alabama DOT
- Ed Engle, Iowa DOT
- Ann McLellan, Minnesota DOT
- Marci Kenney, FHWA – Washington, D.C.
- Dean Sicking, University of Nebraska

Theme of program evaluation and performance measures:

- Partnerships
- Needs Identification and Project Selection
- Implementation
- Communicating Results

WisDOT Best Practices

Partnerships

- Great working relationships with universities, particularly UW-Madison. Also with communication consultants, FHWA.
- Effectively involve representatives from broad base in technical committees—industry, universities, FHWA, DOT regional staff.
- WHRP, TOPS and CMSC models of joint DOT/university-led programs with emphasis on mutual benefits, meeting DOT needs, practical products.

Needs Identification and Project Selection

- WHRP TOCs include broad representation from DOT, industry, universities, and FHWA.
- WisDOT management involved in pooled fund selection process.
- Leveraging dollars at regional and national level.

Implementation

- WHRP implementation and impact forms.
- WHRP pilot implementation project.
- TOPS and CMSC provide further opportunities for implementation.

Communicating Results

- Communication products: briefs, video briefs, e-newsletters, annual reports/evaluations, TRB Guide.
- Transportation Synthesis Reports.
- Impact analysis and reporting.
- Extent of contribution to annual TRB meeting.

Opportunities for WisDOT

Partnerships

- Expand relationship with universities beyond civil engineering.
- Explore opportunities to leverage WisDOT funds by collaborating with new UTC.
- Consider future opportunities for collaboration with local governments.

Needs Identification and Project Selection

- Use the new Research Advisory Committee to identify strategic needs and opportunities.
- Expand customer base (regions, industry, etc.) to broaden research opportunities.
- Foster strong project champion(s) for every project funded.
- Diversify research portfolio to include both short- and long-term research.

Implementation

- Front-end implementation planning and expectation.
- Dedicated implementation funding and resources.

Communicating Results

- Consider expanding Web site to include searchable research database.
- Distribute a research calendar to customers for communicating key dates and showcasing results.
- Further identify our customer base and develop materials tailored to their needs.

Appendix D
Peer Exchange Contact List

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