

# Maryland State Highway Administration Research Peer Exchange



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Barbara Harder – Consultant, Chris Allen – FHWA Eastern Region Resource  
Center; Rodney Wynn - Research Division; Allison Hardt - Research  
Division, Jeff Smith - Research Division, Willie McCann - Kentucky DOT,  
Larry Klepner - Delaware DOT. *Not in Picture:* Donna Nelson – Maryland  
T2 Center, Barbara Adkins - Research Division, Richard Woo – OPR.

**August 8-9, 2001**

**Research Management Peer Exchange**  
**Hosted by**  
**Maryland Department of Transportation**  
**August 8-9, 2001**

**Introduction**

The Maryland Department of Transportation hosted a Research Management Peer Exchange August 8-9, 2001. The invited members of its peer exchange team included:

- Chris Allen, Technology Deployment Engineer, Federal Highway Administration - Eastern Resource Center
- Barbara T. Harder, Consultant, B. T. Harder, Inc.
- Larry H. Klepner, Director, Technology Transfer Center, Delaware Department of Transportation
- Willie McCann, Research Coordinator, Kentucky Department of Highways
- Donna Nelson, Director, Maryland Technology Transfer Center, University of Maryland
- Steve Rapley, Community Planner, Federal Highway Administration – Maryland Division Office
- James M. Sime, Manager of Research, Connecticut Department of Transportation
- Jeff Smith, Chief of Research, Maryland Department of Transportation
- Richard Woo, Director, Office of Policy & Research, Maryland Department of Transportation

Other participants from the Research Division at the Maryland State Highway Administration were: Barbara Adkins, Allison Hardt and Rodney Wynn.

The objectives of the peer exchange process were to:

- Learn how the Maryland Department of Transportation manages and conducts research;
- Provide an occasion for all members of exchange team to think about research management;
- Exchange information among members of the exchange team and others involved in the peer exchange; and
- Identify ideas that each member of the peer exchange team can practically apply in his or her own organization.

To prepare for the peer exchange, the team reviewed documentation describing the State Highway Administration's (SHA) research procedures and program. During the exchange, the team discussed Maryland's procedures and those used in other team members' respective agencies.

The exchange team conducted an extensive interview with SHA Administrator Parker F. Williams. The team also attended the Maryland State Highway Administration Third Research Workshop, which substantially added to the team's understanding of the research program's function and accomplishments. The exchange team presented a summary of its findings to the workshop attendees. Organizations represented at the workshop included:

- State Highway Administration: Offices of Environmental Design, Highway Development, Highway Information Services, Maintenance, Materials and Technology, Planning and Capital Programming, Policy and Research, Program Development, District Utilities, Traffic and Safety, CHART (ITS) Operations, Regional and Intermodal Planning; several district engineers and deputy administrators and the Administrator.
- Federal Highway Administration
- Johns Hopkins University
- Johns Hopkins University - Applied Physics Lab
- Howard County, Maryland
- Morgan State University - National Transportation Center
- University of Maryland Baltimore County
- University of Maryland at College Park

Attached are summary comments from Research Workshop focus group sessions on University Relationships and Improving Customer Service in the Research Division

### **Maryland Research Strengths**

During the exchange the team noted several evident strengths of the research program at the Maryland State Highway Administration:

- Maryland's research work program is founded on trust with top management. This trust is an indicator of a robust research program – one that is well supported throughout the whole agency.
- Under Parker William's leadership, current staff in the Office of Policy and Research have done an excellent job in revitalizing the research work program.
- The Research Division is positioned in the organization to serve the broad needs of the organization. Such location enhances the research program's ability be a strategic tool for all offices and allows greater objectivity in programming decisions.
- The research program is tied to the agency's business plan goals and objectives.
- The Research Division and the University of Maryland have made significant progress in strengthening their relationship since the last Peer Exchange.
- The Research Division is also making progress in developing its relationships with other institutions, e.g., Morgan State University, Johns Hopkins University, and University of Maryland, Baltimore County.
- The Research Advisory Board provides a real world perspective for research program decision-making. Moreover, the Research Advisory Board provides a good forum to heighten the awareness of influential people to the benefits of research.

- The prioritization process with the Research Advisory Board is working well.
- The Research Division has very good accountability processes such as: at the program level, excellent communications with and access to the executive staff and senior managers; at the project level, a well-defined system of quarterly reporting and project reviews, and retainage withheld to encourage project completion by researchers.
- The Research Division has strong relationships with the FHWA Maryland Division Office and the Eastern Resource Center.
- The Research Division has made considerable progress in meeting planned actions made three years ago at the first round Peer Exchange.
- The Research Division provides an abstracting/summary service for research reports (both internal and from other states). This is an excellent and practical service to the Research Division's internal customers, and a good marketing tool for the Research Division.
- The use of graduate interns through the Maryland Transportation Initiative provides talent for future recruitment efforts. The program appears to have great potential.

### **Observations**

Maryland requested that the peer exchange team focus on the following three areas:

1. Management of research work programs
  - Processes/databases used for tracking projects
  - Financial controls
  - Research reports
  - Project closeouts
2. Building research partnerships with universities
  - Breadth of university relationships
  - Solicitation of multiple proposals
  - Keeping research projects on schedule
3. Sharing information on Local Technical Assistance Program (LTAP) activities in Maryland and elsewhere
  - Review Maryland LTAP activities and focus
  - Learn what other LTAP centers are doing

The team's observations on these issues follow:

- Local governments are excellent candidates to bring into the process of research and share in its benefits. Research partnerships with local governments may be an appropriate means to encourage their involvement.
- There is an opportunity to use the Internet to disseminate information related to research and to market the research program.

- The National Transportation Library (NTL) now accepts full text research reports in industry standard formats like PDF. State Highway Administration research reports submitted to NTL then would be available to SHA staff in an electronic full text version.
- The research contracting processes may be streamlined by using master contracts with research organizations. Such contracts would have standardized language approved by both parties and would not need the lengthy contract review currently experienced with each new agreement negotiation. When appropriate, task order agreements would provide additional streamlining capabilities.
- The research program can build on its success by further defining the roles and responsibilities for technical leads on research projects. This focus would include encouraging technical leads in their critically important duties and providing a means for their accountability and support.
- Pooled fund projects are an important part of the research program. The agency may benefit by integrating the pooled fund studies into the research program prioritization process.
- With the research technical and management expertise at the State Highway Administration there is great potential to serve other modal areas within the DOT as their needs intersect with the mission and goals of the agency.
- It is a great advantage for the research program that their Administrator, Parker F. Williams is a member of the AASHTO Standing Committee on Research. His membership will keep him engaged in research, not only on a national scale, but this will create an additional avenue of communication and access to him for the Research Division.
- There is an excellent opportunity to create a forum for showing the benefits of research by including research activities in business plan performance measures.
- The peer exchange team members were very encouraged by the outcome of the exchange. This experience further confirms that the peer exchange process is a useful management tool to promote program excellence.
- The peer exchange discussions showed there were many opportunities to create strategies for systematic dissemination and exchange of research information within the agency and among research peer organizations.
- Developing a research project to determine performance measures for snow and ice control could be beneficial for winter maintenance efforts.
- Having the peer exchange conducted in concert with the research workshop is a very good concept. Seeing agency staff interacting at this level and participating in the discussions provided a great deal of insight to the research program. It may be even more beneficial to organize subsequent exchanges with peer exchange team meetings not only before but also after the workshop. The team could synthesize information gathered at the workshop and be in a better position to incorporate it into the team findings.
- Having the LTAP center director at the peer exchange was advantageous. Technology transfer expertise was directly available 1) to advise on how to begin the process of implementing various findings of the peer exchange, and 2) to provide a potential means to disseminate research program or project information that was discussed at the exchange.

- Research projects can benefit substantially by applying more effort at the project definition stage. This will create a higher quality scope of work and more clearly identify project expectations. For example, items to be addressed are:
  - Anticipated cost
  - Project duration
  - Progress reporting
  - Technical liaison identification
  - Principal contacts with other organizations

### **Individual Perspectives and Planned Actions**

***Chris Allen, Technology Deployment Engineer, Federal Highway Administration - Eastern Resource Center***

- I will share FHWA's draft *10 Steps to Technology & Innovation* with Peer Exchange participants (copy attached).
- I will seek database development assistance for MD SHA.
- I will share the process and ideas identified at this Peer Exchange during future exchanges.

***Barbara T. Harder, B.T. Harder, Inc.***

In the capacity I have as a consultant:

- Encourage the process of conducting quarterly discussions between research and technical staff regarding implementation status of research projects nearing or at completion of effort.
- Become more informed about how asset management concepts will affect the manner in which research is conducted in state transportation agencies. Answer the question, "How can research programs position themselves to contribute to this new way of doing business.
- As Kentucky does, promote the concept of a three-year cycle for identifying and planning projects for the research program. Once the three-year programs are determined, revisit annually to modify the upcoming year's program to reflect the then current priorities.
- As Maryland and Delaware, encourage the matching of policy and research in the same office. This enables research to be fully informed of important strategic issues as well as allows policy research to occur more readily --- good synergies leading to more focused attention of research effort on the strategic needs of the organization.
- Find forums to discuss findings of the synthesis, "Facilitating Partnerships in Transportation Research." Get the message out that key success factors are personal relationship building and mutual trust.
- As Connecticut is doing, identify opportunities where a state DOT can easily access (electronically link directly) its own full text of research project reports from the National Transportation Library.
- Promote solid business plan development for research organizations as MDSHA research has done. Refer states to the MDSHA process.

***Larry H. Klepner, Director/T2 Center, Delaware Department of Transportation***

- Use research and technology transfer activities and accomplishments in DeIDOT recruiting.
- Modify department's business plan to be more inclusive of research and T2 programs.
- Improve DeIDOT and University of Delaware web sites by including research results.
- Schedule Delaware's second research peer exchange in late 2001.
- Send research results in PDF to TRB.
- Develop 1 page executive summaries of research results for other DOTs and local governments.
- Continue close partnership among former Region 3 technology transfer centers.

***Willie McCann, Research Coordinator, Kentucky Department of Highways***

Proceed with caution! Consider the comments and suggestions of the exchange members and proceed with any changes after consulting with those directly impacted including management. Set a timeline with goals with the date of the next peer exchange in mind.

Kentucky has two suggestions.

- Plan your research three years in advance. This will provide you with a base to work from and instill a sense of security and stability in the researcher's minds.
- Develop a master agreement with the university(s), which will allow a timely and perpetual access to their resources. This will also provide an avenue to private resources.

Consider what the exchange members take back with them as strengths they have discovered and build upon them. Kentucky will take back three.

- Matching progress reports with invoices, Kentucky will attempt to do a better job of requiring accountability from the university through this process.
- Utilize research interns to perform services for the Transportation Cabinet. Data base support and web page development would be two good applications.
- Require an implementation strategy before a research proposal is accepted. This may or may not include a cost/benefit analysis as applicable.

***Donna Nelson, Director, Maryland T2 Center, University of Maryland***

- The University of Maryland and the SHA have been working together for some time to strength our relationship. We have made a lot of progress and should continue.
- We should continue to work with SHA research to evolve and fine-tune the processes we have developed to manage our projects and tasks.
- There are opportunities for the T2 Center to work with SHA to more proactively disseminate research results through the Internet, as well as other "information channels" available to the technology transfer Center.

***Steve Rapley, Community Planner, Federal Highway Administration – Maryland Division***

- Research responsibilities can be located at different levels/places in state transportation agencies. Being co-located with policy seems to encourage participation from all aspects of the organization, and to assure consideration from top-level management.
- Long-term equipment leases, rather than equipment purchase is preferred for multi-organizational research activities – it assures that all organizations are receiving their appropriate share of the overall costs and benefits.
- An executive summary may be the product of a research project, if the research is already being implemented. Need to share research products with all interested organizations, both within the state and outside the state.
- The research program supports the SHA business plan.
- The Research Program at Maryland SHA has the attention of top-level management –
  - Location of Policy and Research group on organizational chart
  - Participation of top level management in the research advisory board
  - Participation of top level management in national organizations
  - Participation in peer review
- Florida DOT requires a one-page summary of all research. They use the summaries for multiple purposes, including justifying research program expenditures.
- NCHRP Synthesis #280 –“Seven Keys to a robust Research Program” is a resource for ideas to improve research program management.

***James M. Sime, Manager of Research, Connecticut Department of Transportation***

- Consider distributing notices of newly published Connecticut research reports to all 50 states via the AASHTO Research Advisory Committee listserv. We presently distribute printed reports to the 13 northeast states of AASHTO Region 1.
- In addition to our current practice of targeted distribution for outside research report notices, offer a listserv sign-up facility on our Intranet site. Consider offering listservs for transportation subject categories like structures, traffic, safety, construction, materials, etc.
- Provide information about Maryland and Kentucky college scholarship programs to our Director of Personnel (Maryland, about 3 scholarships/year; Kentucky, 20-30 scholarships/year with 1-for-1 year work commitment and payback options)
- Suggest researchers doing cost/benefit analyses consider possible crime-reduction benefits of transportation improvement projects.
- Implement our new 5% research-agreement holdback provision by authorizing payments up to 95% of agreement total, versus withholding applied to each invoice.

***Jeff Smith, Chief of Research, Maryland State Highway Administration***

**Planned Actions:**

- Investigate using the University of Maryland to provide information and dissemination services via the Internet.
- Investigate and implement improvements to closing out the annual SPR program.

- Explore streamlining the contract agreement process by using master agreements for contract research at a particular entity, e.g. University of Maryland.
- Develop guidelines outlining the responsibilities of the technical liaison for research projects.
- Investigate the use of one-page summaries and PDF file format for research reports. Look into making this a standard research contract requirement. Submit research reports to the National Transportation Library via Barbara Post, Transportation Research Board Librarian. (bpost@nas.edu)
- Increase networking with other DOT research programs.

***Richard Woo, Director, Office of Policy & Research, Maryland Department of Transportation***

- Thank the Administrator, Deputy Administrators, research staff and research partners for their support and involvement in the research program.
- Provide support to the Administrator for his activity on the Standing Committee on Research.
- Continue to develop university partnerships (JHU/APL, UMCP, Morgan State, etc.).
- Increase personal participation in national research activities.

Attachments

cc: Peer Exchange Attendees  
Research Advisory Board Members



**Peer Exchange Dinner**