

Research Management Peer Exchange
hosted by the
Montana Department of Transportation
May 4-8, 1997

Introduction

The Montana Department of Transportation hosted a research management peer exchange May 4-8, 1997. Invited members of the peer exchange team were:

- Timothy McDowell, P.E., State Transportation Programming Engineer, Wyoming Department of Transportation
- Bill Evans, Regional Research Engineer, FHWA Region 8, Denver, CO
- Martin Foote, Ph.D., Senior Project Manager, MSE Technology Applications, Butte, MT
- Robert A. Garber, Manager, Research Management Unit, MDT
- Sue Sillick, Research Specialist, Research Management Unit, MDT
- Bob Seliskar, IS Specialist/Research and ITS Coordinator, FHWA Montana Division
- David Huft, Research Engineer, South Dakota Department of Transportation

The objectives of the peer exchange process were to:

- learn how the Montana Department of Transportation manages and conducts research;
- share information among members of the exchange team and customers of MDT Research involved in the peer exchange; and
- identify useful ideas that members of the peer exchange team can practically apply in their own agencies.

To prepare for the peer exchange, the team reviewed documentation describing the Montana Department of Transportation's research procedures and program. During the exchange, the team discussed Montana's procedures and those used in other team members' respective agencies and organizations. The exchange team also interviewed more than 50 persons representing:

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| • Preconstruction Bureau | • Transportation Planning |
| • Materials Bureau | • Motor Carrier Services Division |
| • FHWA, Montana Division | • Aeronautics Division |
| • Montana State University's Civil Engineering Department | • Engineering Division |
| • Maintenance Division | • Organizational Development Bureau |
| • Environmental Services | • Public Affairs Bureau |
| • MDT Districts | • Information Services Bureau |
| • Construction Bureau | • Bridge Bureau |

Interviews followed a free discussion format and provided the exchange team an opportunity to listen to concerns, experiences, technical accomplishments and suggestions from those interviewed. Members of the team also answered questions posed to them by persons from the Montana Department of Transportation, Federal Highway Administration, and Montana State University. Team members volunteered information pertinent to the discussions on research administration, program development, project management, and technical accomplishments.

Several common issues emerged from the interviews:

- the importance of communication in research management;
- the role of research offices and activities in fostering department-wide communication;
- methods for contracting research and establishing partnerships with researchers;
- appropriate levels of workload and number of projects in consideration of resource constraints and staffing levels;
- quality and timeliness of research;
- the definition of research and distinctions between applied and basic, short-term and long-term research;
- project selection processes, and balance and diversity in research programs;
- understanding of research process;
- strategies for establishing sustainable implementation of research results;
- methods for assessing research effectiveness and productivity;
- strategic research emphasis and alignment with departmental strategy;
- legal considerations, including contracts, intellectual property rights, and potential liability;
- opportunities for sharing innovations, standards and specifications among states, especially within our region;
- dissemination of research findings in appropriate formats and media;
- the importance of management support in fostering effective research.

The exchange team noted several significant strengths within the Montana Department of Transportation:

- strong, widespread support for research based on appreciation of its value to the Department;
- awareness, appreciation and support for research among the Department's operational units and managers;
- an active, functional Research Review Committee with Department-wide vision and balance;
- effective use of research technical panels to verify research needs, define research projects, monitor research activities, and recommend implementation activities;
- collateral benefits from technical panel activity, including professional development, expanded knowledge and awareness, and professional stimulation;
- FHWA support for research, from both division and region;
- highly committed staff and leadership within the Research Management Unit;
- an emphasis on customer service and contact that has markedly improved the research program;

- broad-based concern for staff and funding resources to sustain research;
- well defined research program and procedures;
- productive use of literature searches to target research, avoid duplication of research, and support operational activities;
- effective use of district research coordinators;
- formal procedures for encouraging research implementation;
- an established relationship with state universities to provide research staff, funding mechanisms, and agreements.

Planned Actions

David Huft
South Dakota Department of Transportation

The peer exchange provided several ideas that South Dakota can apply in its research program:

- South Dakota will continue its work to develop research performance measures. Consistent with this week's peer exchange, performance measures will address implementation effectiveness.
- To communicate research findings more effectively to Department staff, South Dakota will develop a one-page project summary emphasizing the motivation for the project, the significant findings, and implementation activities. The summary will originate at the inception of the project and will be reissued at project completion. It will target users of the research product.
- South Dakota will adopt Montana's practice of promptly and personally advising those who suggest research projects of the results of the project prioritization process.
- South Dakota will explain Montana's method for using district research coordinators to SDDOT's region engineers and determine their interest in establishing regional coordinators.
- South Dakota will contact Montana's Research Management Unit and public information officer later this summer to further discuss publicity for research activities.
- South Dakota will review Montana's home pages more thoroughly and adopt features appropriate to the South Dakota Department of Transportation.
- South Dakota will provide technical reports or videotapes to the Montana Department of Transportation on polyolefin fiber reinforced concrete bridge deck overlays and replacements.
- South Dakota will work to develop a strategic research plan this summer.

Planned Actions

Bill Evans
FHWA Region 8, Denver, CO

This peer exchange has provided a number of practices and ideas that can be used by other states in Region 8:

- There is a need to incorporate USDOT's University Transportation Center research findings into the Transportation Research Information Services (TRIS) database.
- The public information officer is often overlooked when touting the virtues of research projects and the accomplishments of DOTs in general. We need to "toot our own horns" more often to the public.
- Research can be valuable as a sales tool or to prove the validity of an idea.
- When a research proposal is rejected for funding, send back a formal reply with suggestions of other possible avenues of funding.
- There are various needs for research within a DOT; some are for "quick and dirty" studies, others are for short term needs and some are longer term project.
- Use research technical panels as a communication link among members within MDT as well as with outside members of the panel.
- Continue to encourage FHWA Division office staff to promote the value of research in the state field offices.
- It is very useful to know of the failures of projects as well as the successes. (This is not always palatable to the public.)

Planned Actions

Bob Seliskar
FHWA, Montana Division

- FHWA, Montana Division Management is committed to assisting the Research Management Unit in providing beneficial research to the Department of Transportation.
- FHWA, Montana Division, makes a renewed commitment to provide better input on technical panels. We will get others in the division involved in the research process.
- FHWA, Montana Division, will explore possibilities in assisting the RMU with dissemination of data statewide.
- Federal Highway needs to research DOT and university relationships to encourage useful strategies for successful partnerships. As promoters of university and private partnerships FHWA should provide more assistance to ensure success for all parties.

- Federal Highway or the Transportation Research Board need to provide a useable and valuable resource database for professionals to access research topics. Provide an easy medium for input of research findings from state research departments.

Planned Actions

Timothy McDowell
Wyoming Department of Transportation

Wyoming will try to implement many useful and beneficial ideas that were identified from this peer exchange:

- Develop and implement a 1-5 year Research Strategic Plan. The research strategic plan will be developed to align itself with the Department's strategic plan.
- Propose the development and implementation of a structured research solicitation process similar to Montana's. Currently a formal solicitation process is not in place.
- Develop and implement a refined research implementation policy that insures beneficial and measurable research results.
- Try to institute District Research Coordinators to expose and facilitate research with the field. This will be proposed to the Administration and to the District Engineers.
- Propose the use of Research Technical Panels. Montana and South Dakota have shown a greater benefit is achieved in research with technical panels.
- Do a Research Road Show.
- Place WYDOT's backlog of completed research on the National Research Database within the next 8 months.
- Actively pursue regional pooled fund research studies to facilitate greater interaction and idea sharing among our states.
- Use the TEL8 Video-conference system to disseminate research results. Currently there is a INFO-X program on TEL8 that is used as a forum for disseminating new processes, research results and problem sharing.

Planned Actions

Martin Foote MSE Technology Applications

While MSE-TA does not do research into transportation concepts and applications directly, the peer exchange provided a wealth of ideas and impressions that can be applied to MSE-TA's research process. Among those ideas and concepts are:

- MSE-TA will adopt the concept of a technical panel as a broad based advisory and review group to follow a research project from conception to completion.
- MSE-TA will adopt the idea of developing more than one final report—one which is technical in nature and usable by other researchers and a second which is in a format that is useable by the "lay" person. This will be done in an attempt to transfer usable technology to the general public.
- MSE-TA will investigate the possibility of including liquidated damages into its contracts with academic institutions.
- MSE-TA will investigate the possibility of including a nontransferable, no-cost, license into all research agreements being conducted with academic institutions using MSE or joint funds.
- MSE-TA will adopt the Montana Department of Transportation's practice of promptly advising those who suggest research projects of the results of the project prioritization process and the specific reasons used to develop the prioritization.
- MSE-TA will adopt the concept of "looking to the past to define the future". That is using groupings or trends of past research projects to define concepts that should be researched at the present time or in the future.
- MSE-TA will investigate the possibility of segregating some of its internal research budget to "long term" more strategic projects that fit within our strategic plan. These projects may have larger payoffs and more functionality than the "near term" projects that are presently being concentrated upon.
- At present MSE-TA conducts a lessons learned process at the conclusion of each project. The results of this process, including negatives and possible solutions will be transferred to a wider audience in an effort to avoid the mistakes of the past.
- MSE-TA will attempt to use weather information generated and compiled by the Montana Department of Transportation (aeronautics and highways) into its field research projects where applicable.

Planned Actions

Bob Garber & Sue Sillick MDT Research Management Unit

- Foster the relationship we currently have with MSU, but also develop relationships with other schools in the Montana University System. Also, competitively bid more projects and participate in more pooled-fund type projects of mutual benefit (national and especially regional).
- Expect high quality reports in a timely fashion from contractors and accept nothing less.
- Improve communications with contractors from the research proposal through the implementation of the research. (Contact person, exit review)
- Improve visibility/communication/technology transfer functions to customers both inside (to all levels) and outside of the Department: road show, seminars, newsletters, research results, news releases, monthly publication lists, processes and procedures, etc.
- Develop a research intranet site and improve the internet site.
- Publish a guide on how to get information through research, including literature searches.
- Communicate with others within the Department on their research undertakings and potentially help with the technology transfer of those research results.
- Define Field Research Coordinator's job.
- Consider the role of Research within the Department's strategic plan/vision.
- Solicit increased support from management for personnel participation in research activities: Technical Panels, and Field Research Coordinators.
- Periodically visit university administration and contractors/principal investigators.
- Conduct exit reviews with Technical Panels.
- Consider non-MDT participation for every Technical Panel.
- Increase communication between states, especially neighboring states, with regards to their experiences and research outcomes.
- Raise the possibility of additional staff with management.