ARIZONA
TRANSPORTATION
RESEARCH
CENTER

PEER EXCHANGE – 2002

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Introduction

A Peer Exchange was held by the Arizona Department of Transportation (ADOT) Arizona Transportation Research Center (ATRC) from June 25-27, 2002. The Peer Exchange was held in accordance with Federal Highway Administration (FHWA) regulation 23 CFR, Section 420.207(a)(7) which states in part:

> (a) As a condition for approval of FHWA planning and research funds for RD&T activities, a State DOT must develop, establish, and implement a management process that identifies and results in implementation of RD&T activities expected to address high priority transportation issues. The management process must include: . . .
> (7) Participation in peer exchanges of its RD&T management process and of other State DOTs' programs on a periodic basis.

This requirement was further clarified by FHWA by a 1994 guideline that these peer exchanges should be held once every three years.

A peer exchange was conducted by ATRC during 1998. Those activities were documented in a report entitled *Arizona Peer Exchange – February 23-25, 1998*.

The Peer Exchange Team was comprised of five members. The peer exchange activities included interviews with ADOT staff and management, comments and meeting participation by FHWA staff and discussions among the Peer Exchange Team. Meetings were held at the Radisson Hotel in Scottsdale, ADOT headquarters at 206 S. 17th Avenue and ADOT East at 2739 E. Washington Street, Phoenix.

The focus of the Peer Exchange and this report is to identify research program strengths and opportunities for improvement. It is important to present this information in a manner conducive to continued program improvement. This report simply documents the activities and conclusions reached by the Peer Exchange Team. The most important element of the process is follow-up action.

Review of Peer Exchange Process

A five-member team was selected by ATRC for the peer exchange. The members of the Peer Exchange Team are listed in *Table 1*.

TABLE 1
Peer Exchange Team Members

Amy O'Leary, Ph.D. - Team Leader
Virginia Department of Transportation
Virginia Transportation Research Council

Doug Brodin
Research Office
Washington State Department of Transportation

Frank T. Darmiento, P.E.
Arizona Department of Transportation
Manager, Arizona Transportation Research Center

Craig Roberts, Ph.D., P.E.
Northern Arizona University
Department of Civil & Environmental Engineering

Gordon A. Shunk, Ph.D.
Urban Analysis
Texas Transportation Institute

The Peer Exchange Team members were provided the following information prior to their first meeting:

- *Arizona Department of Transportation FY 2002 Research Program* book
- Arizona Department of Transportation organization chart
- Arizona Transportation Research Center information summary
- ATRC Program Guidelines
- Report preparation guidelines
- Research Note preparation guidelines

Frank Darmiento provided the Peer Exchange Team with a list of possible topics for consideration during the peer exchange. This list is shown in *Table 2*.

TABLE 2
POSSIBLE PEER EXCHANGE TOPICS PROVIDED BY ATRC

- Research Council and Steering Committee makeup
- Processes used by Research Council
- Process to select new research topics
- Implementation of research
- Annual & Quarterly Reports
- Other publications (*Transportation Research Digest*, *Research Notes*)
- Procurement processes
- Project management activities
- Type of research projects, e.g., using research funding to pay for development of useful procedures (that are not research) vs. funding pure research that may not have much practical application
- Self-evaluation of program (surveys, comment cards, etc.)

The agenda for the peer exchange is included in *Appendix A*.

Attendees at the opening peer exchange session included the following individuals:

- Peer Exchange Team members
- ATRC staff – Steve Owen, Larry Scofield, John Semmens, and Dale Steele
- ADOT Transportation Planning Division Director, Dr. Mary Lynn Tischer
- FHWA Staff – James Colyar, Alan Hansen, and Dennis Mittelstedt

Dr. Tischer and Mr. Mittelstedt presented opening comments about the ATRC research program. They also provided background on Arizona transportation issues, including relevant information on political and financial matters.

ATRC staff provided an overview of the research program, including the ADOT research Steering Committee and Research Council. Information on the seven research emphasis areas had been sent to the Peer Exchange Team members prior to the peer exchange. ATRC staff provided brief descriptions of select projects. Dr. Tischer and ATRC staff explained the "student" project program initiated by the Steering Committee. A review of publications prepared by ATRC was also provided. Information was also presented on the product evaluation program and the ADOT library, both a part of ATRC.

Following the opening session, the Peer Exchange Team interviewed four individuals from ADOT at the ADOT headquarters building. At the conclusion of the interviews the Team reviewed their activities for the day and planned the next day's activities.

Day two of the peer exchange began with the Peer Exchange Team attending the first hour and 15 minutes of the annual Research Council meeting at the ADOT East building. The Team then adjourned to a separate conference room to exchange information and

comment on the peer exchange topics. The afternoon concluded with four more interviews of ADOT personnel and a roundtable discussion.

The third day of the peer exchange was devoted to summarizing the information collected during the first two days. Major issues were listed along with strengths, opportunities for improvement and recommendations related to the issues. The results were summarized at a closeout meeting attended by Dr. Tischer, Alan Hansen, Dennis Mittelstedt, and James Colyar.

Background Information

Dennis Mittelstedt identified several primary issues of concern to Arizona and ADOT including freeway construction, freeway landscaping, freeway noise mitigation, asset management and improved data quality. Dr. Tischer noted that ADOT top management identified three issues for immediate research tasks; safety, customer service, and congestion management. An in depth discussion of Arizona political, geographical, and ADOT policy matters was engaged in during the opening session.

The Arizona Department of Transportation conducts research to improve all aspects of transportation in Arizona. Specific goals include evaluation of new materials and methods, development of design and analysis techniques, and study of underlying causes of transportation problems.

The Department's research effort is administered by ATRC, which has immediate responsibility for the management and conduct of research. The Research Council is comprised of 19 leading ADOT operations personnel and one representative from FHWA. It provides technical oversight of the research program. The Steering Committee provides policy guidance for the total research effort. Research projects utilize technical advisory committees (TACs) to oversee project activities. The Steering Committee and Research Council memberships are shown in *Appendix B*.

The ATRC has a staff of nine employees. The primary functions of the ATRC are:

1. Coordinate the research component of the State Planning & Research program.
2. Coordinate the ADOT Product Resource Investment Deployment and Evaluation (PRIDE) program.
3. Manage the ADOT library.
4. Publish the ADOT *Transportation Research Digest*.
5. Provide in-house (ADOT) transportation research consulting services.

The ATRC Manager, Frank Darmiento, assumed his duties in December 2001. Prior to his appointment to this position ATRC was a self-directed team within ADOT reporting to Dr. Tischer. As a self-directed team administrative duties were shared by the professional staff members and decisions were made by consensus or referral to Dr. Tischer. Mr. Darmiento's position prior to being appointed ATRC Manager was coordinator of the PRIDE program. He still continues as PRIDE program coordinator, in addition to his duties as ATRC Manager.

At the opening session the ATRC project managers described the research project selection process. Each year, ATRC solicits research problems throughout ADOT. In meetings with individual offices or in Department-wide needs assessment meetings, Department personnel are asked to suggest research pertinent to their areas. The ATRC also invites suggestions from the academia, consultants, and industry.

The product evaluation or PRIDE program involves three primary functions. These include (1) coordination with product vendors and manufacturers representatives, (2) coordination with internal product evaluation committees, and (3) maintaining a product application database and the Approved Products List.

ATRC staff described the three primary types of ATRC publications. These include reports on research projects, research notes, and document reviews. The research project reports are prepared after the completion of a project or a major section of a project. Research notes are prepared for select projects. They are typically two to four pages and provide a brief overview of the full project report. Copies of new reports and research notes are distributed in both paper and electronic form. Copies of old reports are being added to the ATRC web site. The *Transportation Research Digest* is a monthly ATRC publication that summarizes current transportation literature.

Frank Darmiento reviewed the status of ATRC's budget. He explained that recent budget's have totaled approximately $2.5 million with approximately $1.8 million dollars available for new research. The Fiscal Year (FY) 2003 budget will have drastic reductions due to three factors: (1) FHWA estimates that the Federal funding may be reduced by as much as 23 percent for FY 2003; (2) ATRC is now paying the National Cooperative Highway Research Program (NCHRP) contribution for ADOT. This contribution was previously paid from other sources. A $300,000 portion of the NCHRP payment for FY 2002 will be repaid to projects with FY 2003 funds, and the approximate $600,000 NCHRP contribution for FY 2003 will also be included in the FY 2003 budget. These impacts will be mitigated to some extent by the availability of approximately $550,000 in old State funds ATRC identified during an account review. However, the FY 2003 funds for new research will likely be less than $1.0 million.

Interviews

The Peer Exchange Team interviewed eight ADOT staff members during the peer exchange. The persons interviewed are listed in Table 3.

TABLE 3
PERSONS INTERVIEWED FOR PEER EXCHANGE

Name	Division / Department	Contact Information
Dale Buskirk	TPD [1] / Assistant Director	dbuskirk@dot.state.az.us (602) 712-8143
Jim Dorre	ITD [2] / State Maintenance Engineer	dorre@dot.state.az.us (602) 712-7410
Doug Forstie	ITD / State Materials Engineer	dforstie@dot.state.az.us (602) 712-7286
Tom Parlante	ITD / Traffic Engineering	tparlante@dot.state.az.us (602) 712-7577
Jeff Swan	ITD / District Engineer – Holbrook District	jswan@dot.state.az.us (928) 524-6801 x208
Mary Lynn Tischer	TPD / Director	mtischer@dot.state.az.us (602) 712-6872
Terry Trost	TSG [3] / Strategic Planning and Budget	ttrost@dot.state.az.us (602) 712-8981
Dick Wright	ITD / State Engineer	dwright@dot.state.az.us (602) 712-8275

(1) TPD denotes Transportation Planning Division
(2) ITD denotes Intermodal Transportation Division
(3) TSG denotes Transportation Services Group

Some of the comments and suggestions gathered from the interviews are listed below.

Background of Persons Interviewed

- Some of the persons interviewed have had direct involvement in research projects as members of technical advisory committees or participants in emphasis area workshops

Research Council and Steering Committee

- Some Research Council members are well-informed and active with respect to Research Council activities
- There is suspicion that a minority of Research Council members have limited to no involvement in Research Council activities
- The Steering Committee has provided general oversight and direction to the research program, however, it has not been involved with implementation efforts

- Presentations of research results to the Research Council are poorly attended. Those that attend focus on the topics of interest to them
- The function and role of the Steering Committee should be better defined. A meeting should be held soon with the Steering Committee to address this.

Development of Research Topics

- Research proposals should be clear and concise
- The Motor Vehicle Division should be better represented in research projects
- Research proposals are sometimes questionable as a research topic

Mix of Research Topics

- Due to the limited budget available for research lobbying for votes among Research Council members has become part of the selection process
- Materials and structures appear to receive a high percentage of the research funding
- Materials research has evolved into successful application of research

University Programs

- ADOT has a good relationship with the Arizona State University materials research program

Research Implementation

- How or whether research results are implemented is not always clear
- Implementation is often influenced by the actions of the respective technical advisory committee and whether the original research concept facilitated implementation
- The research project champion is a key individual affecting the eventual implementation of the research results
- Project results and implementation issues should be actively communicated beyond the Research Council to affected departments
- In some cases, jurisdictional issues with local jurisdictions may impede the application of research results
- ATRC Guidelines should require a project sponsor (or champion) for each project to lead the initial research and implement (if appropriate) the research results

Resources Available

- ADOT management has not adequately stressed the importance or research since the staff reductions resulting from Project SLIM
- The range of research topics is sometimes limited by budget constraints – large budget projects are difficult to program as they would consume much of the available budget

Perception of Research Program

- The District Engineers actively support the research program
- The research program has begun to broaden in the past five years

- ATRC Guidelines should be modified to add implementation and recommendations to project reports and establish a system to track the recommendations and progress of the implementation.

Comments from Peer Exchange Team

A list of some of the comments offered by the Peer Exchange Team participants during the peer exchange process are shown in this section.

Washington State Department of Transportation

In the Washington State Department of Transportation (WSDOT) research program, emphasis areas do not typically compete for funding. The research program director allocates a budget for each emphasis area. Project proposals in each emphasis area compete for that allocation. Emphasis area workshops, comprised of subject matter experts, evaluate the proposals and prioritize them within the allocation level. An executive group provides final approval on the projects selected . The WSDOT research budget is approximately $2.0 million per year. Universities perform the majority of WSDOT research.

The WSDOT research group prepares a biennial implementation report. A staff person is assigned the task of compiling information for this report. The information is gathered by contacting the project champion and project manager for each project. Some funding is set aside for implementation tasks.

Virginia Department of Transportation

The Virginia Department of Transportation (VDOT) has 12 Research Advisory Committees (RAC) within its research program. The RACs are made up of a cross section of VDOT personnel at the division head level. Research topics are generated and proposed by the RACs twice a year. The VDOT research manager has the authority to override RAC recommendations. Available staff and resources are factored into research project selection by the research manager. Most of the research at VDOT is conducted by in-house research scientists.

Project implementation is tied into the research report quality control. This insures follow up on the report recommendations. The RACs receive regular follow up reports (called *Green Sheets*).

Evaluations and Recommendations

The Peer Exchange Team identified seven key areas of the ATRC program to address. For each of the key areas program strengths and opportunities for improvement were identified. Based on these evaluations the Peer Exchange Team offered recommendations in each of the seven key areas. These topics are summarized in this section.

Research Council and Steering Committee Makeup

Strengths

- The Steering Committee can potentially address big picture issues
- Some members of the Research Council are very active

Opportunities for Improvement

- The Steering Committee purpose and roles can be better defined
- Some Research Council members don't participate actively (or at all)

Recommendations

- Clarify the membership of the Steering Committee
- Get the Steering Committee to come to life [hold a meeting soon]
- Examine the scope and membership of the Research Council
- Consider rotation of membership (for a percentage of the membership) for the Research Council or other measures to insure that all who are members of the Research Council are active participants
- Use the Steering Committee to assist with Research Council membership issues

Research Council and Steering Committee Processes

Strengths

- ATRC reaches deep into the organization to select topics
- ADOT believes the process works
- The emphasis area workshop voting process works well
- Ideas are solicited in the field directly from potential users of information
- A good cross section of topics are presented to the Research Council

Opportunities for Improvement

- Workshops are not held for all emphasis areas
- Some project statements lack clarity
- The student research voting and project presentation meeting typically has poor attendance
- Presentation of topics at the Annual Meeting sometimes lacks technical backup

Recommendations

- Require an ADOT champion for each proposed project
- Have each topic at the Annual Meeting presented by its ADOT champion
- Reduce the number of topics to be voted on at the Annual Meeting
- Target results presentations to specific groups rather than the entire Research Council
- Consider a Steering Committee directive that Research Council members must be present (or be represented by a substitute) to vote [this recommendation is not endorsed by the ATRC Manager]
- Have more ATRC staff attend various field meetings – present research results and solicit ideas for new research at these meetings
- Insure that proposed project statements are clear and concise.
- Proposed project statements should include a section addressing implementation and a statement explaining why the proposed project is research
- Evaluate alternative methods to fund multi-year projects
  - The entire budget and scope should be presented in the initial proposal
  - A project can either be funded in one budget year or spread over several years
  - In all cases the Research Council should review long-term projects annually (even if the project has been approved as a multi-year project)

Implementation

Strengths

- ADOT champion (when identified) helps project implementation
- Implementation occurs readily in some projects
- ADOT maintains a good working relationship with ASU

Opportunities for Improvement

- Projects do not always have an ADOT champion

Recommendations

- Require an ADOT champion for each proposed project
- Formally track and report project implementation to the Research Council *et al.*
- Add an implementation section (written by ATRC) to reports
- Publish electronic versions of reports

Reports

Strengths

- ATRC project managers check all reports against ATRC report publication guidelines
- The *Research Notes* offer a valuable tool to disseminate research results and increase awareness of the research program

Opportunities for Improvement

- Inconsistencies and poor presentation of results sometimes occurs

Recommendations

- Informally survey other transportation departments to evaluate quality control and report production measures
- Participate in peer exchanges
- Expand the distribution of *Research Notes*

Self-Evaluation Techniques

Strengths

- Self-evaluation is conducted on some ATRC programs

Opportunities for Improvement

- Systematic self-evaluation is not conducted

Recommendations

- Conduct e-mail surveys
- Interview key people
- Contract a professional survey

Publications

Strengths

- Some reports are published electronically
- There is a broad interest in the *Transportation Research Digest*

Opportunities for Improvement

- Long-term projects sometimes lack interim documentation

Recommendations

- Publish all reports and *Research Notes* electronically

- Add an option on the web site for people to choose to be added to the report or *Research Notes* distribution list
- Expand the distribution of the *Research Notes*

Program Evaluation Recommendations

In addition to the above evaluations the Peer Exchange Team provided these overall program recommendations.

- For the next peer exchange- send the report and evaluation results from this exchange to the new Peer Exchange Team in advance
- For next peer exchange send the Peer Exchange Team background information on the State, ADOT, political, financial and social issues that might influence the research program
- Conduct a follow-up on recommendations from this Peer Exchange in approximately one year (with copies of the information to Peer Exchange Team)
- Evaluate the Peer Exchange process
- Improve relationships with Arizona universities
- The ATRC Manager should not also have the responsibility to coordinate the PRIDE program

Appendix A
Peer Exchange Agenda

AGENDA

ARIZONA TRANSPORTATION RESEARCH CENTER
Peer Exchange
Radisson Resort & Spa
7171 N. Scottsdale Rd. • Scottsdale AZ 85253

June 25, 2002 – June 27, 2002

Tuesday, June 25, 2002

Continental Breakfast - Radisson Resort	7:30 a.m. – 8:00 a.m.
Welcome to Peer Exchange (Dr. Mary Lynn Tischer – Director, ADOT, Transportation Planning Division)	8:00 a.m. – 8:15 a.m.
Opening Comments (Frank Darmiento – Director, Arizona Transportation Research Center); Dennis Mittelstedt – Federal Highway Administration . . .	8:15 a.m. – 8:30 a.m.
Overview of ATRC (Frank Darmiento)	8:30 a.m. – 9:00 a.m.
Presentations by ATRC Research Project Managers	
Larry Scofield	9:00 a.m. – 9:25 a.m.
Steve Owen	9:25 a.m. – 9:50 a.m.
BREAK	9:50 a.m. – 10:05 a.m.
Frank Darmiento (for Tom Kombe)	10:05 a.m. – 10:30 a.m.
John Semmens	10:30 a.m. – 10:55 a.m.
ADOT Procurement Process (Frank Darmiento & ATRC Staff)	10:55 a.m. – 11:05 a.m.
Presentation about ATRC Library (Dale Steele)	11:05 a.m. – 11:20a.m.
ATRC Publications (Frank Darmiento, Dale Steele, John Semmens)	11:20 a.m. – 11:30 a.m.
LUNCH	11:30 a.m. – 1:00 p.m.
Interviews (ADOT Headquarters – 206 S. 17th Ave., Phoenix)	1:30 p.m. – 4:00 p.m.
Daily Wrap-up	4:00 p.m. – 5:00 p.m.

Wednesday, June 26, 2002

Continental Breakfast – Radisson Resort	6:30 a.m. – 7:00 a.m.
Review of day's agenda	7:00 a.m. – 7:15 a.m.
Attend opening of ADOT Annual Research Council meeting (ADOT East Building)	8:00 a.m. – 9:00 a.m.
Review and Discussion of ATRC Issues (Frank Darmiento)	9:00 a.m. – 10:30 a.m.
BREAK	10:30 a.m. – 10:45 a.m.
Research Council meeting conclusion	10:45 a.m. – 11:30 a.m.
LUNCH	11:30 p.m. – 1:00 p.m.
Interviews (ATRC Conference Room)	1:00 p.m. – 3:00 p.m.
BREAK	3:00 p.m. – 3:15 p.m.
Review and Discussion of ATRC Issues (Frank Darmiento)	3:15 p.m. – 4:00 p.m.
Daily Wrap-up	4:00 p.m. – 5:00 p.m.

Thursday, June 27, 2002

Continental Breakfast – Radisson Resort	7:30 a.m. – 8:00 a.m.
Team review of information	8:00 a.m. – 9:00 a.m.
Report preparation	9:00 a.m. – 10:15 a.m.
BREAK	10:15 a.m. – 10:30 a.m.
Review draft report	10:30 a.m. – 11:00 a.m.
Closeout	11:00 a.m. – 12:00 p.m.

Appendix B
Steering Committee and Research Council Membership

Research Council

FIRST NAME	LAST NAME	TITLE	MAIL DROP
David	Allocco	ENGINEERING TECH GROUP	215P
Dale	Buskirk	DEPUTY DIRECTOR TPD	300B
Dan	Davis	BRIDGE ENGINEER	269E
Don	Dorman	DIST. ENGINEER-FLAGSTAFF	F500
Jim	Dorre	ASST. STATE ENGINEER	176A
Doug	Forstie	ASST. STATE ENGINEER	068R
Alan	Hansen	FHWA	005R
John	Hauskins	DIST. ENGINEER-PHX. MAIN.	PM00
William J.	Higgins	DEPUTY STATE ENGINEER	102A
Steve	Jimenez	ASST. STATE ENGINEER	614E
Dan	Lance	DEPUTY STATE ENIGINEER	102A
John	Louis	ASST. STATE ENGINEER	611E
Sam	Maroufkhani	DEPUTY STATE ENGINEER	102A
John	McGee	DIRECTOR-ADMIN. SRVC.	200B
Robert	Miller	STATEWIDE PROJECT MGMT	614E
Tom	Parlante	TRAFFIC ENG. GRP	061R
Derek	Rushing	ITG	119A
Stacey	Stanton	DIRECTOR-MVD	500M
Jeffrey	Swan	DIST. ENGINEER-HOLBROOK	H700
Tim	Wolfe	ASST. STATE ENGINEER	PM02
Dick	Wright	STATE ENGINEER – COMMITTEE CHAIRMAN	100A

Steering Committee

John	Bogert	CHIEF OF STAFF	100A
Robert	Hollis	FHWA	005R
Victor	Mendez	DIRECTOR	100A
Debra	Brisk	DEPUTY DIRECTOR	100A
Stacey	Stanton	DIRECTOR-MVD	500M
Dick	Wright	STATE ENGINEER	100A
Mary Lynn	Tischer	DIRECTOR TPD	300B