



South Carolina
Department of Transportation

Research Peer Exchange

November 8-10, 2010
Clemson University
Clemson, SC



Office of
Materials & Research



Report Prepared by:
South Carolina Transportation
Technology Transfer Service



Executive Summary

The South Carolina Department of Transportation (SCDOT) hosted a peer exchange of its research program November 8-10, 2010. The peer exchange was held on the Clemson University campus in Clemson, SC. The peer exchange team included representatives from the Alabama, Georgia, and North Carolina DOTs, as well as a representative from the Kentucky Transportation Center and the Federal Highway Administration (FHWA). Other personnel from the SCDOT and the SC Transportation Technology Transfer Service (T³S) also attended.

The SCDOT selected the following focus areas for the peer exchange:

- 1. Topic Solicitation Process.**
- 2. Principal Investigator (PI) Selection and Contracting Processes**
- 3. Promoting the Research Program/Projects**

The discussions during the peer exchange identified both strengths of the SCDOT research program as well as possible opportunities for improving the program.

Some of the identified strengths include:

- ❑ There is a high level of participation in SCDOT's research program through the Research and Development Executive Committee (RDEC).
- ❑ The format of the SCDOT Research Topic Solicitation Meeting, particularly the use of breakout groups in different areas, provides the opportunity for input in the research process from all sections of the DOT as well as academia and industry.
- ❑ SCDOT's use of universities to conduct their research is effective, efficient, and economical.
- ❑ There is a good competitive process among state universities: soliciting proposals, meeting with all interested universities, selecting the best PI.
- ❑ The Research Unit emphasizes implementation with the Steering and Implementation Committee early in the project development process and throughout the life of a study.
- ❑ A Champion from SCDOT is identified for each project.
- ❑ A good problem statement format is used to describe proposed projects.
- ❑ Project summary sheets are sent to the RDEC and National RAC.
- ❑ SCDOT does not pay an invoice until corresponding quarterly progress report is received.
- ❑ The quarterly progress report and invoice are approved by the Chairman of the Steering and Implementation Committee and only 90% of total contract amount is paid until the project is completed.

Improvement opportunities include:

- ❑ During solicitation meetings, academia and industry representatives should participate in the solicitation and discussion of the topics, but not the voting to prioritize them.
- ❑ In the solicitation meetings, limit breakout participants based on their technical expertise and direct involvement with the specific subject matter.
- ❑ Add an additional screening and/or prioritization step prior to submitting potential research topics to RDEC.
- ❑ Investigate the feasibility of using appropriate directors/division heads for this additional screening/prioritizing step.
- ❑ Investigate opportunities to eliminate the negotiation process and the need to prepare cost estimates for university research contracts due to the universities having extensive audit requirements (internal and external).

A research peer exchange is a focused event that requires extensive preparation not only by the host State, but also by the participating team members. The SCDOT is very grateful to the peer exchange team for their time and efforts in this endeavor and for the professionalism exhibited throughout the process. The information gathered during this peer exchange will greatly enhance the operations of the SCDOT research program.

Research Peer Exchange

Hosted by the
South Carolina Department of Transportation
November 8-10, 2010

Introduction

The SCDOT hosted a peer exchange of its research program November 8-10, 2010. The peer exchange was held on the Clemson University campus in Clemson, SC.

The members of the peer exchange team were:

- ❑ Moy Biswas, Team Leader, North Carolina DOT.
- ❑ Jeff Brown, Alabama DOT.
- ❑ Joe Crabtree, University of Kentucky Transportation Center
- ❑ Georgene Geary, Georgia DOT
- ❑ Jim Garling, FHWA.
- ❑ Mike Sanders, SCDOT.

Others who participated in the peer exchange included:

- ❑ Milt Fletcher, SCDOT.
- ❑ Terry Swygert, SCDOT.
- ❑ Eric Carroll, SCDOT.
- ❑ Jim Burati, South Carolina T3S.
- ❑ Sandi Priddy, South Carolina T3S.
- ❑ Shaun Gaines, South Carolina T3S

Contact information for the peer exchange participants is included in Attachment 1.

Focus Areas

The focus areas that the SCDOT selected for the peer exchange were:

1. Topic Solicitation Process
2. Principal Investigator (PI) Selection and Contracting Processes
3. Promoting the Research Program/Projects.



Peer Exchange Participants. *Back Row, L to R:* Jeff Brown, Eric Carroll, Terry Swygert, Joe Crabtree, Jim Garling. *Front Row, L to R:* Georgene Geary, Moy Biswas, Milt Fletcher, Mike Sanders.

1. Topic Solicitation Process

SCDOT would like answers from the other states regarding:

- How do you solicit topics?
- How often do you solicit topics?
- Who is included in the solicitation process?
- How do you prioritize and select topics?

2. Principal Investigator (PI) Selection and Contracting Process

SCDOT would like answers from the other states regarding:

- What is your process for selecting PIs?
- What is your contracting process?

3. Promoting the Research Program/Projects

SCDOT would like answers from the other states regarding:

- ❑ How do you promote your research program and projects?
- ❑ Do you use your DOT's Public Relations Unit and, if so, how?

Peer Exchange Format and Activities

To prepare for the peer exchange, the team reviewed documentation describing the SCDOT's research procedures and program. In addition to the printed documentation, SCDOT research personnel presented a 30-minute overview of the SCDOT's organizational structure, research budget, and the research management process. Each member of the peer exchange team also made short presentations of his/her agency's research program. During the peer exchange, the team discussed South Carolina's procedures, as well as those used in the other team members' respective agencies. The agenda for the peer exchange is shown in Attachment 2.

A general format for the peer exchange was agreed upon at the beginning of the meeting. It was decided that each of the three SCDOT focus areas would be addressed using the following procedure:

- ❑ SCDOT presented its interests, concerns, and expectations regarding the focus area.
- ❑ Each member of the peer exchange team then described how the focus area is addressed in his/her agency and provided any additional comments that he/she felt were appropriate to the topic.
- ❑ A brainstorming process was then used to identify both existing strengths of the SCDOT program as well as potential opportunities for improving the SCDOT program.
- ❑ Each team member then identified items that he/she will take home for consideration in his/her own agency.
- ❑ The items identified in the previous steps were then reviewed and discussion on the focus area was concluded.

At the last session, the peer exchange team reviewed a draft of the peer exchange report. The team discussed the draft report and made suggestions for additions and modifications. The final report was then prepared for distribution.

The findings of the peer exchange regarding current SCDOT strengths as well as potential opportunities for improvement are presented for each of the focus areas in the following sections. These findings will be presented to the SCDOT Research and Development Executive Committee (RDEC).

Summary of Peer Exchange Findings

Focus Area 1. Topic Solicitation Process

Current Strengths:

- ❑ Summary report after the solicitation selection process.
- ❑ Academia and industry are invited in breakout groups.
- ❑ Sit-down meeting with Directors to determine who will attend.
- ❑ Consistent voting process (multi-voting, 10-4 voting).
- ❑ Standard form for Problem Statements.
- ❑ Two-year solicitation cycle has value.
- ❑ Involvement of many DOT personnel in the selection process.

Improvement Opportunities:

- ❑ Academia and industry should participate in solicitation and discussion, but not in voting.
- ❑ Limit breakout participants based on their technical expertise and direct involvement with subject.
- ❑ Provide opportunity to submit research topics prior to the solicitation meeting.
- ❑ Provide a simple form to pre-submit these topics.
- ❑ Limit breakouts to a manageable size with respect to number of participants.
- ❑ Add an additional screening and/or prioritization step prior to submitting topics to RDEC.
- ❑ Investigate the feasibility of using appropriate directors/division heads for this additional screening/prioritizing.



Hard at Work: The team brainstorms potential opportunities for improvement.

Focus Area 2. Principal Investigator (PI) Selection and Contracting Process

Current Strengths:

- ❑ SCDOT's use of universities to conduct their research is effective, efficient and economical.
- ❑ Good competitive process among state universities: soliciting proposals, meeting with all universities, and then selecting the best PI.

Improvement Opportunities:

- ❑ To expedite and to reduce paper work in the award process to universities, consider using a master agreement.
- ❑ Investigate opportunities to eliminate the negotiation process and the need to prepare cost estimates for university research contracts. Universities have extensive audit requirements both internal and external.
- ❑ SC is the only state present that must calculate cost estimates for university research contracts. This seems to be inherently inefficient.

Focus Area 3. Promoting the Research Program/Projects

Current Strengths:

- ❑ Poster promotion is good.
- ❑ Public Relations Department assists with Newsletter.
- ❑ Promotions SCDOT are currently doing are done well and in a professional manner.
- ❑ Summary page of each study is good.
- ❑ Semi-Annual newsletter.
- ❑ The website provided by T3S is an excellent resource and professionally done.

Improvement Opportunities:

- ❑ Highlight the word "Research" – e.g., Research Digest in project summaries, etc.
- ❑ Utilize electronic media – e.g., Facebook, Twitter.
- ❑ Use posters at Solicitation Meeting and Engineering Conference, etc.
- ❑ Switch from hard copy to electronic when applicable.
- ❑ Investigate other ways to utilize the research website.

Observations and Planned Actions to Take Home

In the following sections, each of the peer exchange team members present some general observations and list actions that they may try to implement in their home agencies.



Jeff Brown

Alabama Department of Transportation

Observations:

I would like to thank the South Carolina DOT Research unit for inviting me to participate as a team member in their 2010 Peer Exchange. From all indications, the unit is operated in a very efficient and professional manner, though there are opportunities to improve the areas of project approval and contracting. Their attentiveness of how other states' research programs are operated and eagerness to consider other state DOTs' research program practices was outstanding. They should be commended for having a model program from which I will benefit by using some of their techniques as well as what I learned from the other participating states. The research products being produced by their research universities are superior and of great benefit to their DOT as well as other states' DOTs. I observed the working relationship between the research unit and FHWA to be sound and cohesive, resulting in the production of quality and beneficial research products.

That the T³S Center is very supportive of the Research Unit was another observation that was very clear. Also, I would like to thank T³S for the hospitality and logistical support shown during my visit.

Planned Actions to Take Home:

- ❑ Research Newsletter.
- ❑ Research solicitation includes members from industry/ academia.
- ❑ Use a research unit newsletter to market the research program.
- ❑ Visit districts to promote the research program.
- ❑ A summary report of the selection process.
- ❑ Customer-focused email.
- ❑ General meeting with the participants in the research process.
- ❑ Posters promoting research program projects.
- ❑ Research road show promoting research program.
- ❑ Speaking at Association meetings to promote the research program.
- ❑ Summary page for each project.



Georgene Geary
Georgia Department of Transportation

Observations:

SCDOT's program and processes are very mature and clear. They have obviously grown their process and have used the input of previous exchanges in their pursuit of continuous improvement.

As a whole it was interesting to see how similar and different the various programs in the region are. History and outside influences clearly have shaped some of the states.

In particular, we have seen recent increased emphasis on the contracting processes, but our state has recognized that universities are an essential part of research, with their own auditing processes that allow us to treat them differently than for-profit consultants.

SCDOT is fortunate to have four in-state civil engineering universities which gives them a breadth of university experience to mine and develop, also allowing them to bring on board a variety of academic backgrounds to the DOT without going out of state.

SCDOT has many ongoing beneficial activities (biannual solicitation meetings, newsletters, number of projects managed) with a very minimal staff level.

Planned Actions to Take Home:

- ❑ Quarterly payments tied to quarterly reports.
- ❑ 10% held until final report is received.
- ❑ Quick response studies.
- ❑ Newsletter.
- ❑ Chair of Implementation Committee (Steering plus Implementation Committee) reviews and signs off on quarterly invoices.
- ❑ Formal voting process in the solicitation process.
- ❑ Alabama's training for researchers to educate them on process.
- ❑ Get facilitation training for Georgia research engineers.
- ❑ Electronic polling devices for prioritization.
- ❑ Consider formally putting RTAG liaison (Division Director) in solicitation ranking process/buy off on projects.
- ❑ 1 page statement for quick studies with clear language.
- ❑ Consider two different sessions about a month apart – one for Brainstorming and one for Ranking.
- ❑ Add Funding to BOA to help get projects moving faster.

- ❑ Focus on deliverables in proposal development.
- ❑ “PRE-BID” meeting for universities.
- ❑ Require posters from PI on projects.
- ❑ News releases on research accomplishment.
- ❑ Annual report highlighting one project in each area.
- ❑ Tri-fold brochure highlighting research area of projects.
- ❑ Talk with communications office to see how they can assist in promoting program/projects.



Joe Crabtree
Kentucky Transportation Center

Observations:

Excellent peer exchange. Extremely well organized and well run. The facilities, accommodations, and meals were excellent. Participants were all pleasant and helpful.

South Carolina appears to have a solid research program, run by talented, conscientious, and motivated people. They have a strong emphasis on implementation. Their project approval and contracting processes seem overly cumbersome, which creates inefficiency, so I think some improvement is possible there. Overall, I was highly impressed by the individuals responsible for the South Carolina program.

Planned Actions to Take Home:

- ❑ Change name of Study Advisory Committees to Steering and Implementation Committees, and emphasize implementation as a key part of responsibility.
- ❑ Include single-sheet summary as a deliverable for each project. Disseminate these widely.
- ❑ Develop and implement a standard form to be used for all submittals of research ideas (i.e., research problem statements).
- ❑ Identify opportunities throughout the year (key meetings) to solicit research ideas from Transportation Cabinet people.
- ❑ Prepare a report each year to document the process we followed for research idea submission and selection.
- ❑ Develop a tri-fold brochure and other handout items (including a folder/notebook to put them in) highlighting our research and T2 program.
- ❑ Investigate setting aside funds each year to pay for publication costs and travel costs associated with publishing and presenting research results.
- ❑ Investigate setting up an electronic display in KTC's building and/or KYTC's building to highlight our research.



Mrinmay Biswas

North Carolina Department of Transportation

Observations:

Utilizing SPR II funding, SCDOT has an established transportation research program that serves the needs of SCDOT customers well. Participating in the FHWA-mandated research peer exchange allows continual improvement in the research management process. The peer exchange also allowed the participating states to “take away” research management “nuggets” that will improve their own respective research programs.

Planned Actions to Take Home:

- ❑ Consider using a collaboration meeting to include multiple universities as used by Alabama DOT.
- ❑ Consider using Sharepoint site as used by Georgia DOT.
- ❑ Consider using Research Road Show as used by Georgia DOT, but present to field divisions.
- ❑ Consider engaging NCDOT customers in face-to-face or web-link format to develop new research need statements.
- ❑ Use research summary sheet to publicize in NCDOT employee electronic newsletter.
- ❑ Use public relations office to disseminate information to the public.
- ❑ Use tri-fold brochure to promote research program.
- ❑ Be on the agenda of the NCDOT customer meetings.
- ❑ Contribute to FHWA internal electronic newsletter.
- ❑ Use electronic media.



Jim Garling
Federal Highway Administration

Observations

The LTAP/T3S Team at Clemson organized an outstanding Peer Exchange. There were many great ideas generated during the discussions, especially in the Solicitation of Research Ideas, the Contracting Process, and Promoting Research. This enlightening learning opportunity will give SCDOT's Research Team many great ideas to consider regarding how they can improve on their excellent research program.

Planned Actions to Take Home

- ❑ Check on Federal requirements to set aside some SPR funds for “on-call” or quick response research projects/initiative—disaster/emergency.
- ❑ Reduce the number of final research project reports to FHWA (Going Greener).
- ❑ Promote through FHWA’s Turner Fairbanks channels—weekly reports.
- ❑ Promote SCDOT’s research efforts—flyers, handouts.
- ❑ Use electronic media—Powerpoints on TV/Video monitors.
- ❑ Track status of the implementation of recently completed research projects.

**Mike Sanders**

South Carolina Department of Transportation

*Host State***Observations:**

First of all, I would like to thank the participants from other states and the FHWA for their time and efforts in making this a very successful peer exchange. The observations and suggestions made by team members during discussions of the focus points will aid us in improving the quality of our research program.

The T³S Service at Clemson should also be commended for doing an excellent job of facilitating this event.

Planned Actions to Take Home:

- ❑ Investigate methods to streamline the research project contracting process to better serve all our customers.
- ❑ Meet periodically with executives to discuss the research program.
- ❑ Consider meeting with in-state universities to discuss the research program and how to be involved (similar to Alabama).
- ❑ Investigate making changes to breakout groups at the topic solicitation meeting to limit size and participants' involvement, particularly with respect to expertise and direct involvement with the specific subject matter.
- ❑ Investigate including an additional screening/prioritization step prior to submitting topics to RDEC.
- ❑ Provide the opportunity for participants to identify research topics prior to the solicitation meeting.
- ❑ Include projects in "Research Pays Off."
- ❑ Require posters on selected research projects, not all projects.
- ❑ Consider electronic versions of posters.
- ❑ Investigate reducing number of paper copies of final reports and summaries.
- ❑ Highlight "Research" in the title of summaries and other documents highlighting research projects.
- ❑ Investigate "opportunities" noted by Peer Exchange participants.

Attachment 1: Participant List

Peer Exchange Team

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Attachment 2: Agenda

Monday, November 8

3:00 – 3:10	Welcome and Introductions	Jim Burati, Milt Fletcher
3:10 – 3:20	Focus Points, Goals, Expectations, & Game Plan	Moy Biswas
3:20 – 3:50	South Carolina Research Program Overview	Terry Swygert Mike Sanders
3:50 – 4:50	Brief Overview of Participants' Organizations Alabama Georgia Kentucky North Carolina	Jeff Brown Georgene Geary Joe Crabtree Moy Biswas
4:50 – 5:00	Wrap-up and Announcements	Moy Biswas Jim Burati

Tuesday, November 9

8:30 – 10:30	Focus Point 1: Topic Solicitation Process	Moy Biswas, Team
10:30 – 11:00	Break	
11:00 – 11:45	Report Preparation	Jim Burati, et al
11:45 – 1:00	Lunch	
1:00 – 2:00	Focus Point 2: Principal Investigator (PI) Selection and Contracting Process	Moy Biswas, Team
2:00 – 2:30	Report Preparation	Jim Burati, et al
2:30 – 3:00	Break	
3:00 – 4:00	Focus Point 3: Promoting the Research Program/Projects	Moy Biswas Team
4:00 – 4:30	Report Preparation	Jim Burati, et al
4:30 – 5:00	Wrap-up and Announcements	Moy Biswas, Jim Burati

Wednesday Morning, November 10

8:30 – 10:00	Review and Comment on the Draft Peer Exchange Report	Team
10:00 – 10:15	Break	
10:15 – 10:45	Travel Expenses, Other Admin Activities	Sandi Priddy, Jim Burati
10:45 – 11:00	Closing Remarks	Milt Fletcher



