

Databases & Information Tools for Transportation Research Management

**Connecticut Transportation Research Peer Exchange Report
of a Thematic Peer Exchange**

Authored by the Peer Exchange Team

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Connecticut Department of Transportation
Transportation Research Peer Exchange
May 16-18, 2006



2006 Connecticut Transportation Research Peer Exchange Report May 16-18, 2006

Introduction

The Connecticut Department of Transportation (ConnDOT) hosted a Transportation Research Peer Exchange on May 16-18, 2006, to comply with federal regulatory requirements. The Peer Exchange focused on two themes: firstly, computer software and/or databases developed and used by the research staff of various state transportation agencies to administer the state transportation agency research programs; and, secondly, methods of research implementation tracking, with an emphasis on understanding the reporting needs of the Federal Highway Administration (FHWA) and how the state transportation agencies can gather/provide information relevant to the needs of the FHWA as well as their own.

Specific objectives of the Peer Exchange were:

- Discuss and exchange information about databases and other software used to support the program-cycles managed by state transportation research offices. Elements of the program cycle include:
 1. solicitation of research needs;
 2. developing research work programs;
 3. research project management;
 4. managing the dissemination of research findings; and,
 5. tracking and reporting on implemented research.

2006 Connecticut Transportation Research Peer Exchange Team Members



Top Row (left to right): Richard J. Lakata, Stanley R. Sasor, Frank T. Darmiento, Camille Crichton-Summers Bottom row: James M. Sime, Barbara Breslin, Ann M. Pahnke, Mrinmay Biswas (Team Leader)

For Team members detail contact information, see appendix A.



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Tuesday, May 16, 2006



1. General Background Session (9:45 AM - 12:15 PM)

Achievements

- A good effort is made to disseminate research findings.
- A noteworthy effort has been made to track five levels of service: international; national; regional; state; and, local.
- ConnDOT has quality staff.
- ConnDOT is addressing multi-modal transportation areas.
- Current schedule of routine face-to-face contact with executive-level agency personnel includes: CASE 1-hour meeting every August; quarterly JHRAC meetings; and, TRB annual visitation. In addition, this year research technical briefs have been added to monthly meetings held by the construction administrator.
- An attempt has been made to identify and utilize specialized software to better manage the research program. Examples are the use of EasyReach, an E-Mail search tool, and InfoRecall, a freeform database.

Opportunities

- Full-time computer (IT) personnel are needed for application development and support.
- Consider engaging universities for application development.
- Attempt to create additional routine contact with executive-level personnel by establishing a presence at one or two executive-level meeting(s) per year.
- Explore options such as contracted services, like Kelly temps, to fulfill temporary specialized needs.
- Engage in national initiatives (travel).

Observations (Program-Wide)

- Internally, the research program is well-placed and well-connected.
- Externally, ConnDOT is under-represented in international, national, and regional research initiatives (travel).

Take-Home Items for Peer Exchange Members

AZ

- There are opportunities to improve the appearance and capabilities of the project database.
- The New Jersey "pipeline" definition of project types may be a good way to organize research proposals.



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- There are opportunities to improve the relationship with universities performing research for AZDOT.
- CT
- Explore the 'screen design' of WisDOT, which is a clean, minimalist interface.
 - Continue to work with DOIT/Charles Dew to get computer software/application development personnel.
 - Explore the possibility of annual or bi-annual 'presence' for research in executive-level meeting.
 - Explore the use of a database to generate work program documents, like NJDOT and WisDOT, through additional application development.
 - Invite Barbara Breslin, FHWA-CT, to participate in the RNS Screening meeting held each year in February.
- FHWA-CT
- Discuss opportunities to become more aware/involved in state research (JHRAC/CASE).
- NC
- From CT: Look into utilization of such software tools as Easy Reach, Info Recall, and Oracle.
 - From NJ: look into their strategic plan and pipeline concept
 - From various states: Look into library resources and usage.
 - From WI: Communication responsibilities.
 - Can we, like CTDOT and others, explore using our database to track more than just SPR, others?
 - Would it help to use the database to track our NCHRP involvement?
 - Would it help to use the database for work program development? Perhaps the database can be used for "Work Program" reports (as does Wisconsin and New Jersey!)?
- NJ
- CT - 1. Explore maximization of exposure of senior leadership to the Research Program.
 - Explore establishing more opportunities, e.g., Connecticut Academy of Science and Engineering (CASE) meeting with senior leaders.
 - CT - 2. Investigate the creation and use of implementation resource % breakdown (Slide 12 ConnDOT pie chart and 39 points handout).
 - NC - Strongly encourage competition with universities, i.e., NC does not allow collaboration, so universities know they must develop all capabilities, thus strengthening their program.
 - AZ - Explore the possibility of hiring part-time students.



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- Meeting w/3x per year with Research Council. Senior leaders must want to be on the Council.
- WI - RiP linkage to WI research database.

WI

- Implementation resource breakdown.
- Look into IT support options.
- Interested in other tools shown (EasyReach and InfoRecall).
- Reinforce need to value people's time.

2. Solicitation of Research Needs - Managing the Conversations with RNS Submitters (1:15 PM - 4:15 PM)

Achievements

- Quarterly meeting for JHRAC, annual meeting with CASE, and the TRB visitation are all good methods of interacting with executive management on research needs.
- The Research Needs Bulletin is informative and attractive.
- A formalized method to assign the RNS to various funding sources has been developed.
- The database links to track the actual E-Mails for the RNS forms is helpful.
- Communication with original submitters is informative and serves to better engage the interest of the submitters.
- The database is used for tracking solicitations.
- The database is used for tracking pooled funds solicitations and activities.

Opportunities

- The reestablishment of an Intranet Research website would be helpful.
- Consider the additional use of the database to track "Action Items" for activities other than RNS, e.g., project-specific actions, such as meetings.
- Explore a process to associate each RNS process to ConnDOT policy/strategic objectives.
- Keep a consolidated list of RNS that are not selected, for reference.
- Make personal contact, including visits with RNS submitters, to assist them personnel with RNS preparation.

Observations (Program-Wide)

- Currently, not all research ideas are entered in the database, e.g., CASE proposals that are not selected.



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Take-Home Items for Peer Exchange Members

AZ

- Several states use a database to track research solicitations and proposals.
- The database can be linked to backup documents.

CT

- At AASHTO National Research Advisory Committee meetings, explore interest of other states in establishing a collaboratively-funded national project to develop and support databases for state transportation research management functions.
- Review database structures of Peer Exchange states for design elements we can use in Connecticut.
- Send a copy of the new MOU format to AZDOT, NCDOT, NJDOT and WisDOT, when available.
- When the Intranet Web pages for Research are available again, explore the possibility of putting up an RNS Solicitation Input Form, with automated reply/receipt capabilities.

FHWA-CT

- Work with ConnDOT to identify the "Strategic Plan" and tie the Research Needs Statements to it.
- Explore the concept of a Research Showcase, including Brainstorming ideas with non -traditional customers.

NC

- From CT: Formalize the pooled-fund solicitation process, selection and tracking process.
- From CT: Use an MOU for doing business with the universities.
- From FHWA-CT: Include MPO input for planning research ideas.
- From WI: Investigate the use of a Synthesis Request Form.
Create a Listing of Solicitation Activities Graphics.
- Explore better-organized database tables for entering and tracking research ideas, pre-proposals and full proposals.

NJ

- CT - The "Research Bulletin" solicitation format looks more appealing than a memorandum.
 - Send a letter, or E-Mail, back to the customer on the status of the request.
 - Formalize the process for identifying various funding sources.
 - Use an MOU rather than a Master Agreement.
 - Create a project, entitled "Project Implementation," with dedicated funds.



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- AZ, CT and NC - Solicit Problem Statements from the universities.
- AZ, NC and WI - Send a targeted E-Mail solicitation.
- NC - Aggressive follow-up may include follow-up visits.
- WI - Help facilitate Peer Exchanges or other units within NJDOT.
 - What would be the source of funding?
 - Create a Solicitation Activities Graphic with funding and schedule. (See Annual Report.)

WI

- Incorporate links into the database to related Word documents, E-Mails, other files, contract documents, invoices, etc.
- Maximize effectiveness of the solicitation requests by utilizing customer-focused E-Mail, phone calls and personal visits.
- Experiment with Web Forms.
- Explore the use of an MOU instead of Agreements between State agencies.

3. Program Development (4:15 PM - 4:30 PM)

Wednesday, May 17, 2006



3. Program Development (Continued) (8:40 AM - 11:00 AM)

Achievements

- Travel Approval from chain of command is required before TPF funds are committed. It demonstrates a commitment to the TPF project.
- The personnel time allocation of each PI is tracked using Excel and Word to ensure that the PIs are not overloaded.
- Proposed pooled-fund pledges, to ensure full participation status, are based on the size of the federal fund allocation.
- Links between Word and Excel in the annual Work Program.
- The database is good for managing the pooled-fund studies.

Opportunities

- Consider a more formal approach to finding champions (individuals within or outside the agency who are interested in the project) and sponsors (individuals within the organization who will promote implementation of the project).



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Take-Home Items for Peer Exchange Members

AZ

- Consider developing reports from the MS Access project database for quarterly progress reports.
- Consider using the database to track or record proposal evaluations.
- Consider using the database to facilitate preparation of the annual program report.

CT

- Explore borrowing from AZDOT tabbed screen designs.
- Explore NCDOT's database and evaluation forms to possibly borrow features for JHRAC and NETC.
- Explore WiSDOT's and NJDOT's database-generated work programs for possible adaptation.
- Explore whether Excel will link to MS Access for database-generated work program.

FHWA-CT

- Explore possibility of NETC using database for soliciting, ranking, and tracking projects.

NC

- From AZ: Screen design (tab usage).
- Look into automating annual work plan development.
- Generate annual progress report.
- Revisit the use of Excel and/or Word to summarize all we do in one year. It will help us organize our time better and know what's coming up next week or next month.
- Investigate the use of "TAB" feature/appearance for showing project information on the screen in Access.

NJ

- AZ - Investigate user-friendly screen design.
- AZ and NC - Conduct meeting with subcommittees grouped by category (Planning & Environment, Structures & Construction, Traffic & Safety, Maintenance and Pavement Management).
 - 2 tier ranking subcommittee then exec - committee once narrowed down
 - Include listing of Technical Advisory Committee (our RSIP) in database.
 - Consider more emphasis on fostering project champion concept.



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- CT - Investigate greater utilization of annual NJ Budget Implementation Plan (BIP).
 - Customers must demonstrate level of commitment and involvement for funding consideration of pooled fund studies (i.e., customer has prior approval to travel to meetings).
- NC - Consider revisions to the Proposal Evaluation Form revisions for simplification, perhaps with yes/no questions and check boxes.

WI

- Look into CT's tiered participation document for pooled funds both as a lead state and as a participating state.
- Look into using the database more in the selection process; look at NC forms.
- Look into workload analyses for investigators, project managers and unit activities.

4. Project Management (1:20 PM - 3:40 PM)

Achievements

- TPF project documentation/tracking uses both Excel and MS Access.
- Quarterly Reports - Good format: Word to PDF (posted to Web Server) to E-Mail with URL's to documents.
 - Good barcharts.
- Use of electronic versions of draft and final Agreements in administrative correspondence.

Opportunities

- Consider using a database in lieu of large Excel spreadsheets.
- Have lead principal investigator at the university "initiate" their own Quarterly Reports (or else face penalties).
- Consolidate some of the data management formats.
- Consider MS Access training for research staff.
- Revisit the Pooled-Fund database management process.

Observations (Program-Wide)

- Needs are well met by documenting/tracking/identifying/color-coding key project information using a variety of tools.

Other/Parking Lot

- None.



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Take-Home Items for Peer Exchange Members

AZ

- Quarterly reports can be linked to, and generated from, the database.
- Search features can be built into the database.
- Graphs can be incorporated into the database.
- Customized reports can be automated with drop-down lists.
- Meeting attendance, or sign-in sheets, can be generated from the database.
- Databases can be linked to MS Word to create project letters.
- Reports can be E-Mailed from the database.

CT

- Revisit the TPF tracking process versus what is on the TPF national website to eliminate duplication, where possible.
- Explore MS Access report layouts using expandable fields, which may make some administrative-document generation viable for our needs.
- Review database features and techniques demonstrated by AZDOT, NCDOT, NJDOT and WisDOT. Select desirable features for incorporation into plans for future database development. Access exports of Excel files that can link to Word files looked useful, as were features like creation within MS Access of E-Mails to Technical Committee members, etc.

FHWA-CT

- Explore possibility of using electronic-based Quarterly Reports, including during the Quarterly Review Meetings.
- As part of the database development, consider the possibility of electronic sign-off on amendments and direct purchases directly through the database.

NC

- Formalize the RiP process and link to the URL.
- Explore better use of the database "User Interface" features to improve ease of use.

NJ

- CT - Investigate the Pooled-Fund Tracking Report.
- Increase the staff's comfort level with the use of the database or improve the user-friendliness of the database to increase database usage.
- Consider electronic provision of the draft Agreement.



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- Investigate creation of the Quarterly Report in a different format using more graphics and inclusive of all projects (i.e., Excel file, sorted by the universities).
- Investigate more a more convenient RiP data transfer process.
- NC - Consider a database-produced sign-in sheet.
- WI - Consider the creation of a Completed Implementation/Closure Form.
 - Investigate the creation of a 1-1.5-year snapshot of Research Impacts Post-Project Closeout.
- FHWA-CT - Consider electronic FHWA Approval.
 - Investigate the consolidation/merge of the PROMPTS and Document Tracking databases.

WI

- CT -Explore the use of the web server to hold documents.
 - Incorporate assigned tasks into the database.
- NC - Incorporate invoice log information into the database.
- NJ - Explore the use of modification history.

5. Outreach and Implementation (3:40 PM - 4:45 PM)

Thursday, May 18, 2006



5. Outreach and Implementation (Continued) (8:50 AM - 9:15 AM)

Achievements

- Implementation summaries are included in the annual Summary of Activities Report.
- The Trading Cards and the two-page "Highlights of Research" handout are attractive publications.
- The Trading Cards are unique.
- The Implementation Log is a good record of activities.



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Opportunities

- Use the database to store implementation information.
- Include implementation statements in reports and database.
- Make the Summary of Activities more attractive (e.g., visuals, color, etc.).
- Highlight more recent work and accomplishments and less background in the Implementation Section of the Summary of Activities.
- Make more customer-oriented research summaries.
- Record and track marketing efforts in a database to target specific offices (e.g., Bridge Design, Construction, etc.).
- Identify additional marketing opportunities with the potential to support the mission of the research program.

Take-Home Items for Peer Exchange Members

AZ

- Consider expanding the database to track marketing.
- Consider developing a standard implementation tracking form.
- Include a list of recently completed projects in the quarterly newsletter.

CT

- Explore adding photographs to the research Implementation Section of the annual "Summary of Activities" report.
- Look at a format for the Implementation Section of the annual "Summary of Activities" report that could be reproduced as a stand-alone document.
- Explore storing implementation information, linked to projects, in the database.
- Look at using a database to organize implementation information and highlights into customer segmentation categories.
- Review with FHWA-CT the general outline for research project final reports with respect to implementation, accomplishments and plans (SPR and NETC).

FHWA-CT

- Explore avenues to evaluate the impact of research projects on ConnDOT practices; is there any measurable difference that can be reported?

NC

- Develop comprehensive implementation documents on an annual basis; also, enter project information, post-mortem.
- Check out the AZ annual implementation report, 2003 and thereafter. (Also, see the TXDOT website.)



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- Check out the NJDOT research website.
- Establish an Implementation Strategic Plan.
- Consider adopting some of the WI documents and plans.
- Review the Wisconsin Impact document (Research Pays Off).
- Consider targeted implementation documentation and distribution by discipline.
- Revisit our intentions for holding one Annual Implementation Meeting for each customer group. Consider the following, for example:
 1. Incorporate "check box" items in our "Follow-Up Interview" Form in the research database.
 2. Use the "Follow-Up Interview" Form as a guide for the meetings.
 3. Use the laptop at the meetings to record the meeting results directly into the database.

NJ

- AZ - Make the Annual Research Implementation Report available on the web.
- CT - Create effective visuals of research findings.
 - Consider the creation of trading cards and the one-page handout.
- NC and WI - Consider an Implementation tracking Form and/or a Closeout Form to encourage the collection of follow-up information on projects for incorporation into the Research Implementation database.
- WI - Select a method of research results dissemination using a targeted approach based on level of interest, relevance or importance in the organization.
 - Consider the Research Impacts Form, utilized 1-1.5 years later.

WI

- Record and track marketing efforts in the database, including links.
- Explore separating implementation efforts from other management tracking and evaluation efforts.
- Review NC Follow-Up Interview Form and Closeout Form.



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Appendix A: Contact Information for 2006 Connecticut Research Peer Exchange
Team Members and Key CT Research Personnel for the Exchange

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Appendix B: List of Acronyms

AASHTO	American Association of State Highway Transportation Officials
AZ	Arizona
AZDOT	Arizona Department of Transportation
BIP	Budget Implementation Plan
CASE	Connecticut Academy of Science and Engineering
CCHRP	Connecticut Cooperative Highway Research Program (also known as JHRAC)
ConnDOT	Connecticut Department of Transportation
CT	Connecticut
DOIT	Department of Information Technology
FHWA	Federal Highway Administration
FHWA-CT	Federal Highway Administration - Connecticut Division
IT	Information Technology
JHRAC	Joint Highway Research Advisory Council (also known as CCHRP)
MOU	Memorandum-of-Understanding
MPO	Metropolitan Planning Organization
MS	Microsoft
NC	North Carolina
NCDOT	North Carolina Department of Transportation
NCHRP	National Cooperative Highway Research Program
NETC	New England Transportation Consortium
NJ	New Jersey
NJDOT	New Jersey Department of Transportation
PDF	Portable Document Format
PI	Principal Investigator
RiP	Research-in-Progress
RNS	Research Needs Statement
RSIP	Research Selection and Implementation Panel
SPR	State Planning and Research
TPF	Transportation Pooled Fund
TRB	Transportation Research Board
URL	Universal Resource Locator
WI	Wisconsin
WisDOT	Wisconsin Department of Transportation