



*Technical communications for transportation professionals*

# Managing Transportation Research with Databases and Spreadsheets: Survey of State Approaches and Capabilities

Pat Casey

AASHTO Research Advisory Committee meeting

Baton Rouge, Louisiana

July 18, 2013



# Survey of State DOT research managers

## □ Goals

- Learn how RAC members are currently tracking their research project data
- Update key information from a 2008 RAC survey conducted by Washington State DOT
- Identify common needs and goals, opportunities for collaboration

# How to Access the Survey Results

- ❑ A complete data set of survey results is available as a handout and will be posted on the RAC website
- ❑ This presentation details key findings

# 43 Agencies Responded to 2013 Survey

Agency	2013	2008
Alabama		x
Alaska	x	x
Arizona	x	x
Arkansas	x	
California	x	x
Colorado		
Connecticut		
Delaware		x
District of Columbia	x	
Florida	x	x
Georgia	x	
Hawaii	x	x
Idaho	x	x
Illinois	x	x
Indiana	x	
Iowa	x	
Kansas	x	x
Kentucky	x	x

Agency	2013	2008
Louisiana	x	x
Maine	x	x
Maryland	x	x
Massachusetts		
Michigan	x	x
Minnesota	x	x
Mississippi	x	x
Missouri	x	x
Montana	x	x
NCHRP	x	
Nebraska	x	x
Nevada		x
New Hampshire	x	x
New Jersey	x	x
New Mexico	x	x
New York		
North Carolina	x	
North Dakota	x	

Agency	2013	2008
Ohio	x	x
Oklahoma		x
Oregon	x	x
Pennsylvania	x	x
Rhode Island	x	
South Carolina	x	
South Dakota	x	
Tennessee		x
Texas	x	x
Utah	x	
Vermont	x	
Virginia	x	
Washington	x	x
West Virginia	x	x
Wisconsin	x	x
Wyoming	x	
<b>Total</b>	<b>43</b>	<b>33</b>

# Spreadsheets vs. Databases

2. Which primary software tool do you currently use to keep track of information related to the research projects you manage?

	Percent of respondents	Total respondents	2008 Survey
Spreadsheet	40%	17	9
Database	60%	26	25

# Follow up with Spreadsheet Users

3. Are you satisfied with your current spreadsheet tool or would you be interested in exploring use of a database system?

	Percent of respondents	Total respondents
Satisfied with spreadsheet tool	24%	4
Interested in exploring a database system	77%	13

# Spreadsheet Users Free Response

17. Please provide any other comments you wish to share about research management database systems. (Abbreviated below.)

- ❑ Just a better spreadsheet approach. Our program is not very large.
- ❑ We've considered developing something using Microsoft Project (2)
- ❑ Each state has such a unique system for planning, approving, managing, and evaluating projects it would be a great challenge to address this issue at a national level.
- ❑ Moving towards databases developed in SQL Server, developed by our department's IT group.

# Follow up with Database Users

## 4. What database software do you use?

	Percent of respondents	Total respondents	2008 Survey
Microsoft Access	46%	12	14
Microsoft SQL Server	12%	3	0
Oracle	12%	3	2
Lotus Notes	0%	0	1
FileMaker Pro	8%	2	1
Other (see below)	23%	6	1 (Compiled VB)

- Currently use Access but developing Oracle
- Access database for some information; also use shared drive for storage and Lotus spreadsheet
- None specific to research program; Oracle department databases for project and contract management
- Rational Portfolio Management (RPM), an IBM product
- Two databases: DotNet and Microsoft Access
- SharePoint (MS SQL-Server front-end)



# Follow up with Database Users

5. Whichever database software you use, please choose one of the following to characterize the degree of customization of your system.

	Percent of respondents	Total respondents
Basically off the shelf	27%	7
Light customization	8%	2
Moderate customization	23%	6
Heavy customization	8%	2
Essentially developed from scratch	35%	9

# Follow up with Database Users

6. How transferable do you think your database system would be to another DOT research program? (Possible considerations include openness of architecture, mainstream vs. specialty software, etc.)

	Percent of respondents	Total respondents
Very transferable	12%	3
Moderately transferable	39%	10
Not very transferable	23%	6
Don't know	27%	7

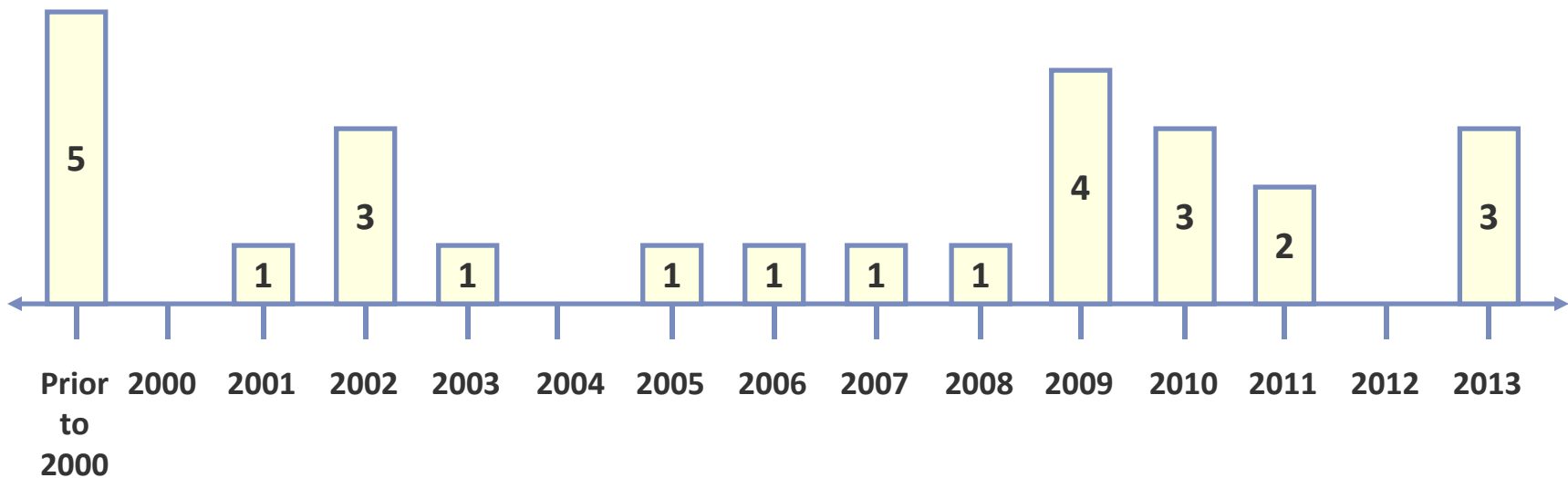
# Follow up with Database Users

7. Do you have system documentation for your database, such as a specification or user's manual?

	Percent of respondents	Total respondents
Yes	31	8
No	69	18

# Follow up with Database Users

8. When did you begin using your current research project management database system?



# Follow up with Database Users

9. What type of read and write access to your database do different types of individuals have? Choose all that apply.

	Input information	Read all project information	Read limited project information	Read financial info and contracts	Run reports
DOT research project manager	21	22	7	18	21
DOT research staff	19	21	8	15	21
DOT accounting staff	7	9	1	9	9
DOT administrative or executive staff	3	7		5	6
FHWA or other funding agency		1	2		1
Principal investigator	2	2	2	1	1
University partners	2	1	2		
Research consultants	2	1	2	1	1
General public	1				

# Follow up with Database Users

10. Who typically provides technical support for your database?  
Choose all that apply.

	Percent of respondents	Total respondents
Research staff	69%	18
Other agency staff, such as management information system or IT	39%	10
Consultants	16%	4

# Follow up with Database Users

11. Is your research management database integrated to any extent with other databases of your agency, such as financial and accounting databases?

	Percent of respondents	Total respondents
Yes	27%	7
No	73%	19

If you answered "Yes" to this question, please specify. (Abbreviated below.)

- Oracle database intended to be accessible also to universities as a web-based system.
- Financial information is downloaded into system...
- Use Department project management and contract management databases.
- SWIFT -accounting system
- Linked to Accounts Payable.
- Expect to be able to integrate with the agency's databases later this year.
- The agency Financial/Expenditure information is downloaded into our Access Database
- Research contacts database

# Follow up with Database Users

12. To what extent is your database system accessible online (through an Internet/intranet connection)?

	Percent of respondents	Total respondents
Not a Web-based system at all	65%	17
Accessible online but only to research office staff	23%	6
Accessible online to research staff and also to partners	12%	3
Accessible online to anyone	0%	0



# Follow up with Database Users

13. Which research project types are included in your database?  
Choose all that apply.

	Percent of respondents	Total respondents
SP&R	96%	25
State-funded	85%	22
Pooled fund studies	77%	20
Innovative Bridge and other FHWA-funded projects	39%	10
New products	15%	4
Experimental features	8%	2
UTC	42%	11
Other (please specify) See full data set.		

# Follow up with Database Users

14. What project-related information is included in your database? Choose all that apply.

	Percent of respondents	Total respondents
Problem statements	58%	15
Requests for Proposal	32%	8
Proposals submitted	27%	7
Oversight committee names	81%	21
Research topic area	81%	21
Investigator contact information	81%	21

	Percent of respondents	Total respondents
Contracts and amendments	73%	19
Quarterly reports	58%	15
Invoices	62%	16
Detailed financial information	54%	14
Implementation information	62%	16
Email notifications	19%	5

Other (please specify) See full data set.

Implementation brochures, executive/legislative fact sheets, performance measures, satisfaction surveys, distribution lists, mass mailings, contact information, to-do items

# Follow up with Database Users

15. Which of the following reports can be generated from your database? Choose all that apply.

	Percent of respondents	Total respondents
Problem statements	39%	10
Project summary	54%	14
Annual FHWA Work Program (planned research for the upcoming year)	35%	9
Annual report of completed and in-progress research projects	58%	15
Quarterly progress reports	54%	14

	Percent of respondents	Total respondents
Summary at-a-glance tables for all projects	54%	14
Detailed financial information by project	50%	13
Detailed financial information across entire program	47%	12
Implementation status	39%	10

Other (please specify) See full data set.

# Follow up with Database Users

16. Are you satisfied with your current database system or would you be interested in alternatives?

	Percent of respondents	Total respondents
Satisfied with current database system	19%	5
Interested in exploring improvements or added features to our current database	39%	10
Interested in exploring a new database	42%	11
Please explain. See full data set.		

# Database Users Free Response

17. Please provide any other comments you wish to share about research management database systems. (Abbreviated below.)

- ❑ Each state is different. Pooled fund trial may work in future but initial try was unsuccessful due largely to IT issues.
- ❑ I cannot express the amount of efficiency improvement and time saved due to this database.
- ❑ We want to tie it to the financial system at some point and have it on the intranet site and some of it on the internet site.
- ❑ Due to necessary alignment of a research management database with our DOT's research process I do not expect we would benefit from, or be willing to participate in, any pooled fund and/or joint development of a system.
- ❑ Each state would have to be custom to some degree.

# Thank you to all who responded!

❑ Questions?

Pat Casey

[pat.casey@ctcandassociates.com](mailto:pat.casey@ctcandassociates.com)

(608) 345-8601