

Memorandum

To: Steve Sissel, FHWA Office of Policy

From: Paul D. Thompson

Date: Tuesday, July 11, 2006

Re: Summary report: survey of Bridge Management System decision support

Under Contract DTFH61-97-C-00078, Task Order 05-006, “Modification of National Bridge Investment Analysis for the National Highway System Bridges Serviceability Study,” this researcher contacted the state Departments of Transportation to ascertain their bridge management system (BMS) implementation status, focusing on the use of decision support models. The researcher obtained questionnaire results, or a suitable substitute, for all 50 states.

Most of the states use Pontis, the bridge management system component of the American Association of State Highway and Transportation Officials (AASHTO) bridge software suite, BRIDGEWare. A few have developed their own systems. Four states have no BMS decision support software at all. A one-page questionnaire (Appendix A) was sent to all states using Pontis. States not using Pontis were contacted by phone and asked questions analogous to those in the Pontis questionnaire.

Figure 1 shows the status of bridge management decision support nationwide, in spring 2006. From the 50 survey responses, 26 states are currently using Pontis for decision support for one or more business processes. An additional 5 (including Alaska and Hawaii) are actively developing deterioration models, cost models and other inputs so that they will be able to use the decision support features in the future.

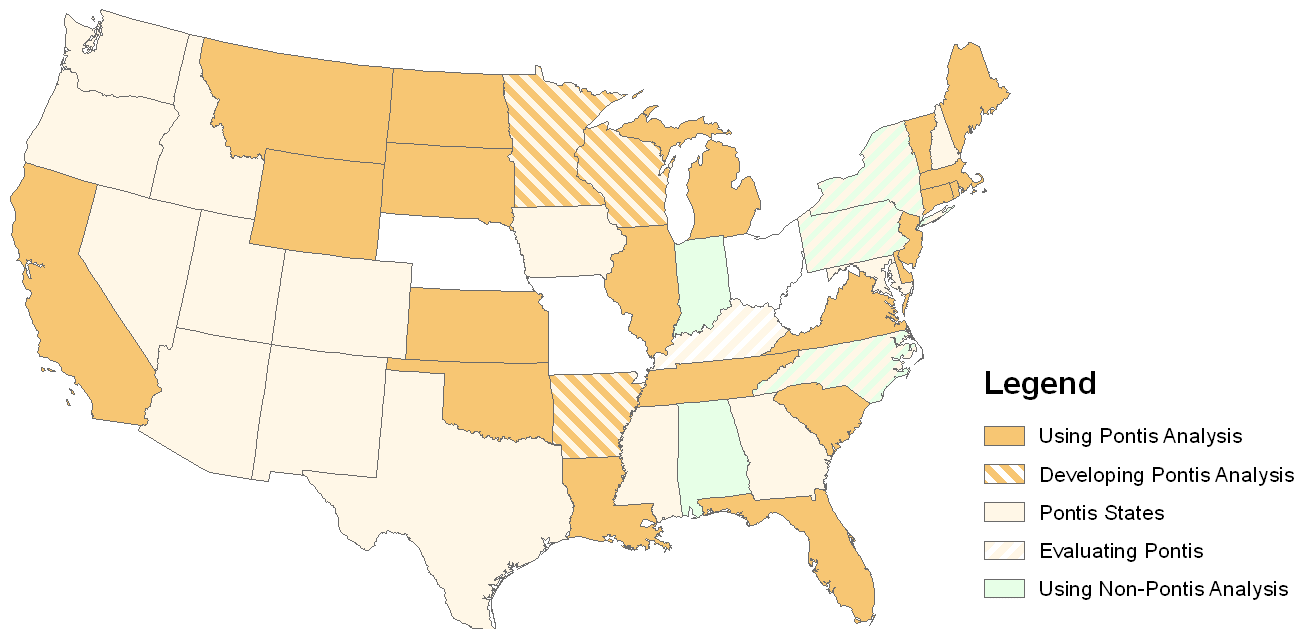


Figure 1. Implementation status of bridge management decision support

Forty states currently consider themselves to be Pontis states, and four more are evaluating Pontis. Three of the latter states, New York, Pennsylvania, and North Carolina, are currently using non-Pontis decision support models. Only four states lack any sort of bridge management decision support software, and three of these do not have a BMS at all. Of these four, three are among the largest state inventories in the nation.

Only two states, Indiana and Alabama, are developing their own decision support models and not considering Pontis. Florida is also developing its own decision support models but they work on top of Pontis.

Most of the states using decision support models are using them for project-level analysis, as shown in Figure 2. Seventeen states use their BMS for other kinds of planning; eleven for long-range planning or budgeting.

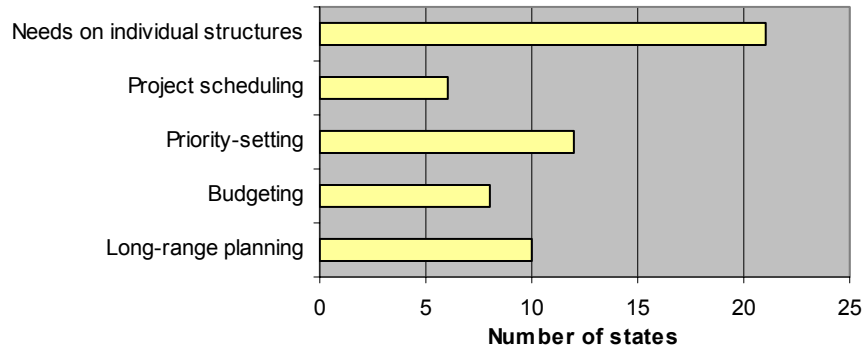


Figure 2. Business processes supported by BMS

Among action categories, the use of bridge management systems is about evenly distributed among replacement, rehabilitation, and repairs. Functional improvements are analyzed in only nine of the states, and programmed maintenance is analyzed in only seven states. Figure 3 shows this breakdown.

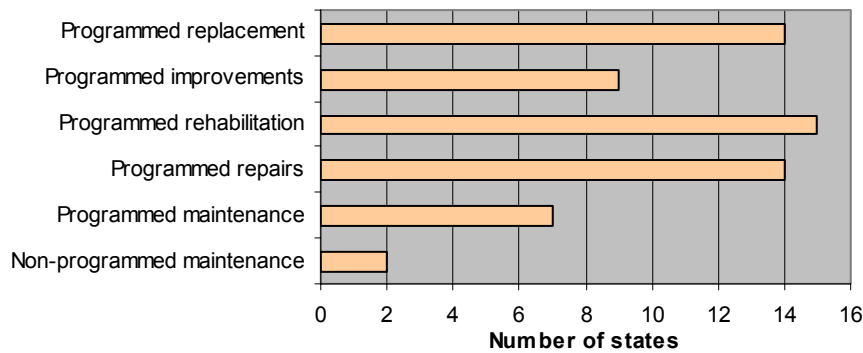


Figure 3. Categories of actions planned using BMS

Figure 4 presents the number of states that have customized each type of bridge management analysis input, as opposed to using the default Pontis models or models developed in other states. Nearly all the states that are using their analytical functionality have developed their own deterioration models, and most have also developed their own preservation cost models. Thirteen states have customized their Pontis scoping rules.

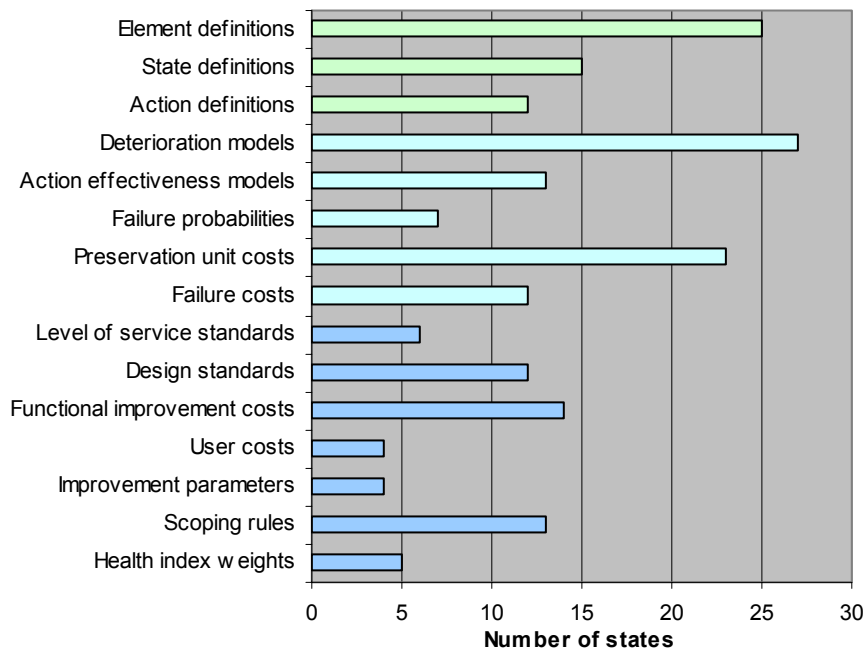


Figure 4. Types of customizations made

Appendix A. Cover letter and questionnaire

Date

Name

Title

Agency

Address

City, State Zip

Re: Enhancement study for the FHWA National Bridge Investment Analysis System

Dear Salutation:

The Federal Highway Administration Office of Policy is undertaking a study to enhance the National Bridge Investment Analysis System. This will improve the accuracy of its estimates of national bridge investment needs, and will better reflect the diversity of needs across the nation.

This study is being performed by AECOM Consult, Inc. under contract DTFH61-97-C-00078. I am a sub-consultant to AECOM and manager of this task.

One of our first activities is to identify a group of 4-8 states that are implementing AASHTO's Pontis bridge management system, who can provide their perspectives on the customization of Pontis analytical models for budgeting, programming, and project planning.

To make best use of your time and the study's resources, we have prepared a very short multiple-choice poll, overleaf. We would appreciate it if you could take a moment to indicate your agency's status in Pontis implementation, and your interest in assisting us with our study.

You can respond by mailing or faxing the sheet back to me, or you can reply by email or telephone, whichever is easier for you. We understand your time is in great demand, so we have tried to make this as quick as possible. Thank you very much for your help.

Sincerely,

Paul D. Thompson

Pontis Questionnaire

FHWA uses the National Bridge Investment Analysis System (NBIAS), which is based on the analysis framework of AASHTO's Pontis, to develop estimates of current and future investment requirements for all public highway bridges in the United States. We are now conducting a study to refine the modeling parameters used in NBIAS.

We very much appreciate your help with this study. Please answer the following three multiple-choice questions and return this questionnaire to Paul Thompson at the address below.

For what purposes do you use Pontis' decision support functionality? *(please check all that apply)*

- Long-range planning
- Budgeting
- Priority-setting
- Project scheduling
- Analysis of needs on individual structures

- Routine, non-programmed maintenance
- Programmed maintenance
- Programmed repairs
- Programmed rehabilitation
- Programmed functional improvements
- Programmed replacement of structures

- Project-level or bridge level
- Network level
- Program level

- In-house or day labor work
- Contract work

- Work on structures other than bridges (e.g. signs, light poles, walls, tunnels)
- Work on assets other than structures

- Other uses: _____
- We do not use this functionality

Which of the major Pontis inputs has your agency customized with its own values? *(please check all that apply)*

- Elements (e.g. non-CoRe or sub-elements)
- Condition state definitions of CoRe elements
- Preservation actions for CoRe elements

- Deterioration models (transition probabilities)
- Action effectiveness probabilities
- Failure probabilities
- Preservation unit costs
- Failure costs

- Level of service standards
- Design standards
- Functional improvement costs
- User costs
- Other functional improvement parameters
- Scoping rules
- Health index weights

Would you be willing to cooperate with us on this task to improve NBIAS inputs, by supplying Pontis data, participating in a telephone interview and a possible site visit, and answering occasional questions by phone or email, with the proviso that we will be respectful of your time and will agree not to disclose your bridge data in any way that identifies your state or any individual bridge, to any party beyond FHWA and its consultants on this project?

- Yes
- No

Preferred contact person:

Name: _____

Title: _____

Office: _____

Agency: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone: _____

Email: _____

Please return this questionnaire to, and direct any questions to:

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FHWA Project Manager:

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