Assessment of AASHTO Needs for an Information Clearinghouse on the Principles and Programs of Continuous Quality Improvement

FINAL REPORT ON THE OPERATIONS OF THE AASHTO QUALITY CLEARINGHOUSE

Prepared for
National Cooperative Highway Research Program
Transportation Research Board
National Research Council
and
The Texas A&M Research Foundation

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TTI Subledger 473020-01

June 1999
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ABSTRACT

This report summarizes the background of NCHRP Research Project 20-7 (80), *Assessment of AASHTO Needs for an Information Clearinghouse on the Principles and Programs of Continuous Quality Improvement*, and discusses the procedures involved in maintaining the AASHTO Quality Clearinghouse databases and web site. It provides a listing of the paper and electronic files compiled in the course of the project and makes recommendations for the continuation of project. The end result of this project is the AASHTO Quality Clearinghouse web site <http://tti.tamu.edu/quality/>, which has searchable databases of quality initiatives, awards, performance measures, communications and organization, contact persons, and publications.
SUMMARY

In 1996, the National Cooperative Highway Research Program (NCHRP) contracted with the Texas Transportation Institute (TTI) to design an electronic information clearinghouse on continuous quality improvement.

The contractor surveyed potential users to learn what quality programs were on-going in their departments, what programs were being developed, and who their contact people were. The information from this survey (discussed in detail in the Task Four Report) was used as the basis of the AASHTO Quality Clearinghouse databases and web site.

The clearinghouse consists of 16 linked databases. Nine of these databases are available for searches on the AASHTO Quality Clearinghouse web site; the remaining seven databases are for internal use. The web site can be searched by subject as well as by state or individual.

Responses to the initial survey showed that the U.S. state transportation agencies have a strong interest in learning about the quality initiatives undertaken by other states and in any information, regardless of the source, that will help them accomplish their own quality-related goals. The clearinghouse developed through this project has allowed state highway agencies to obtain information about quality initiatives underway in other states and to more easily find contact people and to discuss issues of concern.

The previous reports on this project—the Task One Report, Analysis of Issues and Options for Information Clearinghouses, and the Task Four Report, Summary of 1997 Survey Results—describe the issues and evaluate options related to the major aspects of information clearinghouse operation and summarize the results of the survey. This report discusses the conclusions and results of the operations of the AASHTO Quality Clearinghouse web site and databases.
CHAPTER 1:

BACKGROUND

By establishing the Standing Committee on Quality (SCoQ), the American Association of State Highway and Transportation Officials (AASHTO) made a commitment to advocate, advance, investigate, and share information about principles and programs of continuous quality improvement among member departments. The committee’s first responsibility was to develop strategies in at least four key focus areas:

- institutionalization of quality in member departments,
- marketing and communications,
- recognition, and
- training.

An additional responsibility was to serve as a clearinghouse for member departments by continuously collecting and disseminating information on current and emerging quality initiatives and successes. This involved working in partnership with the U.S. Department of Transportation, the National Quality Initiative (NQI), the National Cooperative Highway Research Program (NCHRP), and quality efforts in the private sector.

The SCoQ found that its clearinghouse responsibilities demanded more time and effort than SCoQ members were able to devote to them. Therefore, in order to accomplish its goal of serving as a clearinghouse on quality issues, the SCoQ initiated NCHRP Project 20-7, Task 80, *Assessment of AASHTO Needs for an Information Clearinghouse on the Principles and Programs of Continuous Quality Improvement*. The project’s objectives were to describe the issues and technologies related to information clearinghouse operations, to gather information on the continuous improvement activities of AASHTO member departments, and to design an electronic information clearinghouse on continuous quality improvement.
Potential users were asked to complete a survey that asked what quality programs were on-going in their departments, what programs were being developed, and who their contact people were. Researchers at the Texas Transportation Institute's Information & Technology Exchange Center (TTI-ITEC) established the organization of the database and physical files and designed a World Wide Web site. The information from the surveys was reviewed for accuracy, indexed, and made available to potential users on the web site.

At the end of the initial funding period, arrangements were made to continue the operation of the clearinghouse. This included maintaining the databases, responding to telephone requests for information, and updating the databases on a weekly basis. Clearinghouse staff at TTI-ITEC streamlined procedures and expanded services. Staff examined the existing information to make sure it was up to date and made follow-up contact with participants to ensure a stream of new information. The clearinghouse staff also examined several related or similar clearinghouses for potential links.

In January 1998, NCHRP Project 20-7, Task 80, the initial development of the AASHTO Quality Clearinghouse database and web site, ended. The project was combined with NCHRP 20-7, Task 82, Enhancements for the Special Products Evaluation List (SPEL), as NCHRP 20-7, Task 80. This combined project provided for the maintenance of the web site and databases.
CHAPTER 2:

PROCEDURES

TTI-ITEC has administered and staffed the clearinghouse since its inception in November 1996. Various staff members have been trained to enter and maintain quality data received from the states, to enter bibliographic data, and to maintain the web site.

Monthly activities include

- entering state quality information,
- contacting the states to update quality contact information,
- monitoring the SCoQ list serv,
- backing up the databases,
- dealing with requests for information, and
- general administrative activities.

These general administrative activities include compiling monthly web site usage statistics for monthly status reports, maintaining the web pages and updating links, and managing the web site during a transfer to another server. For the months of January 1999 through May 27, 1999, the pages with the most activity were the Search Menu page (337 hits), the Publications Search page (203 hits), the Contact Person Search page (188 hits), the About page (161 hits), and the Links page (151 hits).

As part of the requirements of the original research proposal, clearinghouse staff wrote two research reports—the Task One Report, Analysis of Issues and Options for Information Clearinghouses, and the Task Four Report, Summary of 1997 Survey Results. The Task One Report described the issues and evaluated options related to the three major aspects of information clearinghouse operation: gathering, organizing, and disseminating information. The Task Four Report summarized the results of the continuous quality improvement survey sent to U.S. highway entities in 1997. The results of this survey formed the basis of the clearinghouse databases and web site.
In addition to handling administrative and managerial duties, clearinghouse staff also attended the NQI conference in November 1998 in Dallas, Texas, to stay abreast of quality initiatives. In addition, the staff conducted marketing activities, primarily by e-mail, to increase awareness of the clearinghouse and its resources. The webmaster also solicited external links through MSN LinkExchange™ located at <http://www.submit-it.com/>. Through this service, the Quality Clearinghouse web site was added to various search engines and directories, making it easier for users to find the web site.
CHAPTER 3:

EXISTING DATABASE STRUCTURE AND FIELDS

The current database was developed using Inmagic® DB/Textworks™, which allows for direct searching of the database through a World Wide Web interface. The underlying structure consists of 16 linked databases. Nine of these databases are available for searches on the AASHTO Quality Clearinghouse web site; the remaining seven databases are for internal use. A menu of the available search pages is located at <http://tti.tamu.edu/quality/search.htm>. The Quality Programs search page is located at <http://tti.tamu.edu/quality/progsrch.htm>. These search pages are presented as Figures 1 and 2.

The names and functions of the databases used for the Quality Clearinghouse web site are listed in Table 1. Additional databases are either for internal use or represent the history of the project. They are listed in Table 2.
AASHTO Quality Clearinghouse

Quality Clearinghouse search menu

- Give us your opinion about this site
- View database search tips
- Search database of quality initiatives (program overviews)
- Search database of quality award programs
- Search database of performance measures
- Search database of contact persons
- Search database of publications
- Search database of quality organization structure and internal communications
- Back to home page

This page updated 10/6/1997.

Figure 1: Search Menu
Figure 2: Quality Programs Search Page
Table 1: Web Site Databases

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Database Title</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conlinks</td>
<td>Contact Links</td>
<td>This database assigns individual identification numbers and cross-references them with areas of expertise. Each contact person is listed only once in this database so that it can function as a directory. It uses data from Q2 and Terms.</td>
</tr>
<tr>
<td>Meas</td>
<td>Performance Measures</td>
<td>This database includes information about performance measures. It has links to Qualcomm and Terms.</td>
</tr>
<tr>
<td>Q2</td>
<td>Quality ID Numbers</td>
<td>In this database, a contact identification number is assigned to each organization. The number consists of two digits for the agency.</td>
</tr>
<tr>
<td>Qualcat</td>
<td>Quality Bibliography</td>
<td>This database consists of bibliographic records for published and unpublished materials related to quality, especially in relation to state departments of transportation. It has links to Qualcomm and Terms.</td>
</tr>
<tr>
<td>Qualcomm</td>
<td>Quality Communication and Organization</td>
<td>This database contains responses to questions related to communication about quality and how quality fits within the organization. It links to Q2 and Qualcomm.</td>
</tr>
<tr>
<td>Qualcomm</td>
<td>Quality Contact Persons</td>
<td>This database is for names, addresses, e-mail addresses, and other contact information for agency quality contacts.</td>
</tr>
<tr>
<td>Qualprog</td>
<td>Quality Programs</td>
<td>This database incorporates “positive” responses to survey questions on general quality characteristics, training, and business process reengineering. It contains links to Terms, Q2, and Qualcomm.</td>
</tr>
<tr>
<td>Quaward</td>
<td>Quality Awards</td>
<td>This database contains information regarding award programs. It contains links to Terms, Q2, and Qualcomm.</td>
</tr>
<tr>
<td>Terms</td>
<td>Quality Terms</td>
<td>This is a short thesaurus in which code numbers are assigned to a list of terms. The code numbers are loosely grouped by subject.</td>
</tr>
</tbody>
</table>
### Table 2: Internal Databases

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Database Title</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qbpr</td>
<td>Business Process Reengineering Projects</td>
<td>Used for data entry. Merged with Qualprog for web site.</td>
</tr>
<tr>
<td>Qrequest</td>
<td>Quality-Related Information Requests</td>
<td>Tracking information requests.</td>
</tr>
<tr>
<td>Qtrain</td>
<td>Quality Training Programs</td>
<td>Used for data entry. Merged with Qualprog for web site.</td>
</tr>
<tr>
<td>Qualdata</td>
<td>Inventory of Quality Characteristics</td>
<td>This was data entry from Part II of the survey. Only positive responses were included in the Qualprog database.</td>
</tr>
<tr>
<td>Qualeval</td>
<td>Quality Web Site Evaluations</td>
<td>Data entry for web site evaluations.</td>
</tr>
<tr>
<td>Quality</td>
<td>Quality Survey Mailing List</td>
<td>Mailing list for survey done in 1997.</td>
</tr>
<tr>
<td>Report</td>
<td>Report Evaluations</td>
<td>Data entry for evaluation of final report for project.</td>
</tr>
</tbody>
</table>

Figure 3 details the links between the on-line databases. The other databases link to the central databases (Terms, Qualcomm, and Q2). However, the central databases do not link to each other or to any of the other databases. The Terms database provides the other databases with a term code, allowing the web site to be searched by subject as well as by state or individual. The Qualcomm database provides the contact names, addresses, and phone numbers for individual programs or offices, while the Q2 database provides the official agency name.
Figure 3: On-line Links
The core contents of the clearinghouse databases are responses to the survey administered in 1997. New information and updates are occasionally received through the electronic forms found on the clearinghouse web site. However, the majority of the updates are received in response to e-mails sent out by the clearinghouse staff. If the e-mail “bounces back,” indicating that the address is invalid, phone calls are made to pursue the necessary updated information.

The following is a list of the files and electronic data that have been developed and acquired as a part of this project. These materials will be transferred to NCHRP, or as directed, at the end of this project.

Paper files:
- Survey responses and attachments
- Collection of quality-related documents provided by the states and NQI members
- Web site evaluation responses

Electronic files:
- Static web pages in HTML format
- Electronic correspondence and other files, including summary report
- Databases in DB/Textworks format

The accumulated databases include those that are used on the AASHTO Quality Web Site, plus additional files that contain mailing lists and survey responses. If the decision is made to move the AASHTO Quality Web Site from TTI-ITEC, delimited text files with a list of fieldnames will be provided to make that transition smoother. The Webpublisher™ product from Inmagic has been used to create searchable World Wide Web pages. The DB/Textworks and Webpublisher products are licensed to the Texas Transportation Institute (TTI) and will not be included in the material transferred.

Since the TTI web site address has been widely communicated, TTI-ITEC will create a temporary link page from its web site either directing potential users to the new location or notifying them that the project has ended.
CHAPTER 4: RECOMMENDATIONS

NCHRP Project 20-7, Task 80, Assessment of AASHTO Needs for an Information Clearinghouse on the Principles and Programs of Continuous Improvement, formally ends June 30, 1999. However, a no-cost extension has been granted through August 31, 1999. Should further funding for the continuation of this project be provided, or the databases and web site be moved to another location, the continuation of the project would provide the opportunity for revising the web site and the procedures for gathering and processing data for inclusion in the databases. Suggestions for enhancing the database and the related web site include the following:

- Conduct another survey to update existing information and obtain new data. The previous survey should be redesigned. A new survey of the quality program information could take place every three years, with corrections being made to the database to reflect changes in program availability and progress. Quality contact information should be updated every six months.

- Work closely with the Standing Committee on Quality in redesigning the survey and to keep the list of quality contacts current.

- In the process of redesigning the survey, re-examine the existing database file structure. Specifically consider how changes in the file structure would affect the data entry, data analysis, display, and searching capabilities of the database and web site.

- Archive the previous databases when the results of the new survey have been processed. Maintain these archived databases for internal use and analysis of quality trends, and for use in future comparative summaries.
• Based on evaluations of the previous survey and summary document, we recommend that the comparative document include some discussion and analysis of survey results, rather than just summarizing the results. This comparative summary and analysis should be posted on the web site.

• Build in marketing time for any future incarnation of the Quality Clearinghouse. This marketing effort could serve as a reminder to the states to periodically update their information, as well as notifying potential users about the clearinghouse and its resources.
CHAPTER 5:

CONCLUSIONS

Responses to the survey conducted as Task 1 of this project showed that the U.S. state transportation agencies were and intended to remain active in the implementation of continuous quality improvements in their states. The data also showed that these agencies have a strong interest in learning about the quality initiatives undertaken by other states and that the states are interested in any information, regardless of the source, that will help them accomplish their own quality-related goals.

This project, which provides World Wide Web access to the databases compiled through it, has allowed state highway agencies to obtain information about quality initiatives underway in other states and to more easily find contact people and to discuss issues of concern. The disposition of the Quality Clearinghouse has not been formally announced, but the TTI-ITEC clearinghouse staff will assist in any necessary transition of the databases and web site once a decision is made.