South Carolina
Department of Transportation

CLEMSON
UNIVERSITY

U.S. Department
of Transportation
Federal Highway Administration

SUMMARY REPORT

Report No. FHWA–SC–00–05
October 2000

South Carolina
Department of Transportation
955 Park Street
P. O. Box 191
Columbia, SC 29202

Development of a Quality Assurance Program for Asphalt Paving Mixtures in South Carolina

Summary of the Process

The development of the specification followed a process designed to educate a joint SCDOT/Industry/FHWA QA Committee about Quality Assurance (QA) specifications and prepare them to make the decisions necessary to develop a specification for South Carolina. Requests were mailed to all State Highway Agencies (SHAs) for copies of their QA specifications. While the responses were being received and summarized, the members of the Committee were chosen by the SCDOT. Summaries of the SHA responses were presented to the Committee along with an introduction to QA. The principal investigator (PI) then conducted a brief training session on the elements of a QA specification.

At this point the Committee selected several SHAs for personal interviews. Here the process developed into two simultaneous paths. Meetings continued to be held while the SHA interviews were being set up and conducted. At some of the meetings, the Committee broke up into two separate groups, with the contractors in one group and the SCDOT and FHWA personnel in the other. They discussed some of the necessary elements of a QA specification separately and then compared their answers. This was a helpful process because it allowed both sides to get their viewpoints out in the open. It was also a measure of how far apart the two viewpoints were and how much time and effort it would take to reach a consensus.

These meetings helped get the Committee functioning as a team. It allowed the members time to become comfortable with expressing their opinions and discussing issues without feeling like it was one side against the other. These meetings allowed time for the QA committee to begin breaking down the traditional adversarial barriers that could cause the specification development to fail.

The SHA interviews were conducted during the same time as the initial Committee meetings. The most useful aspect of the interviews was the experiences carried back by the Committee members who attended them. They were able to gauge the relationship that the SHAs had with their contractors, which told them better than anything else how well that QA specification was working and whether South Carolina should use something similar.

Once some of the interviews were completed, the Committee began to reach consensus on some of the more important items. The Committee still could not decide, however, on the method of acceptance to use in the QA specification. The PI was asked to hold another brief training session explaining in more detail the advantages and disadvantages of PWL and AAD acceptance methods. Based on the information received from the training, the Committee decided to try a PWL acceptance method for the initial draft specification. There was some friction over this decision since the contractors preferred the AAD method, while the SCDOT preferred the PWL method. This issue was addressed by having the individual Committee members express their concerns and viewpoints on the matter. The SCDOT resolved the issue by agreeing to try both the PWL and AAD methods on pilot projects, and to wait till these results were available to make a final decision. After the pilot projects were completed, the Committee was able to reach a consensus on the use of PWL for acceptance.

Findings

The SHA interviews were an important part of the process. They allowed the Committee to see how different QA specifications work in practice and to hear opinions from various contractors and state personnel about the advantages and disadvantages of different specifications. The actual data gained from the SHA interviews seemed to be less important than the perceptions the Committee members formulated from the individuals they interviewed. The early and full involvement of the contractors and material suppliers was an important part of the development process. This involvement helped the contractors to overcome the potential fear of change. Another part of the development process that was very useful was the use of breakout groups. Breaking the Committee into two potentially adversarial groups ran the risk of preventing the Committee working together in the long run, but it also allowed some of the major differences to crystallize and be brought out in the open for discussion. The ability to objectively talk about these differences was essential to reaching consensus. The training requested by the Committee was an unforeseen but vital part of the process. For the Committee to be able to decide on some issues, they required specialized knowledge that was provided by the training sessions.

Conclusion

While the process took approximately five years from start to finish, and at times yielded some tension and frustration at meetings, the final specification that was implemented had the support of both the SCDOT and contractor members of the Committee. The process therefore appears to have been a success.

Recommendation

Any specification, but particularly a QA specification, must be an evolutionary process. Since new information is constantly becoming available in the form of additional test results, and as new construction or testing processes are employed, the specification must be continually monitored to see if modifications are needed. This first QA specification, in particular, will need to be monitored in its early years. This is true because actual test results from projects need to be evaluated to determine if the assumed standard deviation values, based on the FHWA historical data, are appropriate. If the actual values are different than the assumed values, then it may be necessary to modify the specification limits. Other procedural modifications may also be identified as a result of the widespread use of the new specification. It is important that the SCDOT provide or make arrangements for this monitoring effort.

James L. Burati, Jr., Ph.D. and Travis Patrick conducted this research project at Clemson University.
For further information, contact Terry Swygert at SCDOT: 803.737.6652; swygerttl@dot.state.sc.us