

# The State of Practice in Quality Assurance Program in Design-Build Highway Projects

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Urbanization and growth in population have led to an increase in impervious surfaces, which results in an As Achieving high-level of quality assurance (QA) program is essential for project success within a specific time period and for a specific price. With increasing design-build (DB) contracting method in highway projects, conducting QA programs represents new challenges for state departments of transportation (DOTs). Although quality-related tasks are similar for both traditional design-bid-build (DBB) and DB projects, the roles and responsibilities are differently assigned to the stakeholders depending on the requirements indicated in solicitation documents.

This study examines the state of practices in quality management to achieve the main objective, which is to capture the underpinning of materials quality management as utilized by DOTs in development of DB highway projects. This study also determines decision-making factors that drive DOTs to implement different practices in the QA program. This study conducts a content analysis that involves reviewing federal regulations, quality manuals, and state DOT solicitation documents. To obtain a deeper understanding of the state of the practice in state DOTs and to identify best practices in handling the variations of implementing QA program for DB projects, this study conducted structured interviews of DOT personnel and industry experts.

The findings of this research show four key differences in practical components of materials QA program in DB highway programs: (1) agency acceptance approaches, (2) non-conformance reports, (3) selection criteria, and (4) cost mechanisms. Some DOTs use a consistent approach to QA program, and other DOTs tend to change their approach based on their previous experience in implementing QA program. The major contributions of this research to the body of knowledge are determining differences in the practical components of the QA program currently in use by various DOTs in their DB programs. This study attempts to identify the factors that influence the selection of a quality management approach for DB highway projects.

**Keywords:** Quality assurance, design-build, highway projects, DOT