

Exploring Performance-Based Contracts: A Good Option to Address Long-Term Road Maintenance in California?

Project 2359

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Introduction

The 2019 Report Card for California's infrastructure indicates that California has the second worst roads in the country: "(55%) of the major urban roads in California are in poor condition." This report indicates that S.B. (1)—which aims to "fix neighborhood streets, freeways, and bridges in communities across California" provides the revenue needed for maintenance, but more must be done. In 2018, roads faced an \$85 billion funding gap over the next ten years. To address this issue, it was recommended that the state explore new and innovative funding models, including increased participation from the private sector. This research identifies the benefits and challenges of using performance-based contracts (PBCs) compared to traditional contracts and explores the main aspects of PBC implementation for road maintenance and relates them to California's context. Performance-based contracts, in contrast with traditional contracts, consider payments for the construction, management, and maintenance of road assets explicitly linked to the contractor that successfully meets or exceeds a clearly defined number of performance indicators. In other words, these types of contracts use performance specifications that do not direct the contractor on what, how, or when to do the work, but they clearly specify the required performance that needs to be achieved. California might benefit, as other states have done, from

using PBCs in the facilitation of applying new materials, design, and technology to address long-term road maintenance.

Study Methods

The research followed a three-step process. First, a structured literature review was performed to gather peer-reviewed articles that represent academic research on the use of PBCs in Departments of Transportation (DOTs) worldwide. Next, a deductive-inductive content analysis was performed on 98 peer-reviewed articles published between 1998 and 2023 to draw out common threads and develop answers to the research questions. Finally, answers to the research questions were elaborated. The content analysis of the 48 selected articles resulted in five main themes: benefits, challenges, procurement, performance indicators, and incentives/disincentives.

Findings

Key findings from this research are as follows:

- A) The main benefits of using PBCs include:
- cost savings,
 - improved work/service quality, and

- reduction in risk to the transportation agency through the transfer of responsibility to the contractor.
- B) The main challenges of using PBCs relate to
- the need for training and a shift in mindset from traditional contracting forms to PBMCs,
 - the need to establish trust between contracting agencies and contractors, and
 - the temptation for contractors to abuse the system.
- C) Other main aspects to consider in the implementation of PBCs include:
- procurement,
 - performance indicators and,
 - incentive/disincentive clauses.

Regarding incentives and disincentives of PBCs, the selection of incentives that reward performance beyond the contractual specifications and penalties that withhold payment for work that fails to meet contractual minimums is a key component of performance-based contracts and must be considered in the precontract phase of the project. Additionally, to avoid disputes over payment, contract language regarding incentives and disincentives must be specific, and performance indicators must be “objective, quantifiable, and easily measurable”.

Policy/Practice Recommendations

The results of this study provide recommendations about the procurement and implementation of PBCs that may benefit their use in the state, especially as an option to fix neighborhood streets, freeways, and bridges in communities across California.

About procurement in PBCs: Although one of the primary benefits of PBCs is lower costs than traditional contracting methods, the low-bid method should be avoided when procuring PBCs. Best-value procurement is recommended.

About performance indicators in PBCs: Performance indicators need to be clear, specific, and measurable. Nonspecific or ambiguous qualitative performance indicators can lead to disagreement or contractual disputes between the contractor and the road department. Performance indicators need to be set once the DOT has a clear understanding of the baseline condition of the road to be maintained.

About Incentives/Disincentives clauses in PBC: While all PBCs incorporate penalty clauses, the use of incentives to reward exceptional work is less common. With a properly implemented incentive structure, contractor work may extend the life of the asset and provide a better experience to users.

In summary, PBCs use performance specifications that require precise performance targets, and they leave the means and methods to achieve those targets open to the contractor. Although California does not have a history of using performance-based contracts for road maintenance, results from this research may be the first stepping stone to initiate the decision-making process to use these types of contracts for road maintenance. Applying new materials, design, and technology to address long-term road maintenance might be successfully facilitated using PBCs.

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2359



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