Title

Evaluating Alternative Public-private Partnership Strategies for Existing Toll Roads: Toward the Development of a Decision Support System

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Abstract

Many claim that, with regard to transportation infrastructure, only partnerships between public and private entities, which draw on the strengths of both, can achieve the goals of enhancing operational efficiency, increasing service delivery, improving asset maintenance, and stretching scarce federal, state, and local tax dollars. While some completed public-private partnership (P3) agreements on existing toll roads in the United States have seen a measure of success, others have raised critical questions pertaining to the true costs and benefits associated with these agreements for all stakeholders. Of particular concern is an apparent reliance on monetary calculations alone to determine toll road lump sum value. This primary focus on monetary considerations appears to neglect a number of non-monetary variables associated with potential costs and benefits. Four distinct groups of variables to consider in the decision process are presented in the dissertation: Monetary, Monetizable, Quantitative, and Qualitative. The last two groups represent variables of a non-monetary nature, which can reflect the much larger stewardship role that government plays in our society. The objectives of this research are twofold: to formulate a conceptual framework for a decision support system (DSS); and to propose an approach, including a set of analytical methods, that assesses the costs, benefits and other impacts associated with alternative P3 strategies. The primary user of the conceptual framework is identified as the public sector decision maker who has been asked to make recommendations regarding different strategies of toll road operation. Two analytical methods are presented. The first uses cash flow diagrams to calculate the net present value (NPV) for each of three core P3 strategies. The second, weighs the relative importance of quantitative and qualitative (non-monetizable) variables. When used as part of a sevenstep process, these two analytical methods help create a decision support system framework that provides stakeholders with a more complete analysis of the costs and benefits associated with the P3 toll road decision process.

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