



| UTC Project Information – National Transportation Center @ Maryland (NTC@Maryland) | |
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| Project Title | Impact of Project Delivery Systems on the Long-Term Performance of Transportation Projects – A National Economic Study |
| University | Arizona State University |
| Principal Investigator(s) | Mounir El Asmar, Shane Underwood, Kamil Kaloush |
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| PI(s) and Co-PI(s) Photo(s) Image should be 80width x 120height pixels. Allowed file types: png gif jpg jpeg . |  |
| Funding Source(s) and Amounts Provided (by each agency or organization) | ASU: \$61,221 |
| Total Project Cost | \$61,221 |
| Agency ID or Contract Number | DTRT13-G-UTC30 |
| Start and End Dates | 1/1/16 – 12/31/16 |
| Project Image (for website) Should be 233width x 155height pixels. Allowed file types: png gif jpg jpeg . |  |
| Brief Description of Research Project | Transportation is a key element to advancing the economic competitiveness of regions and the nation as a whole. Scarce public resources have to be spent most effectively to deliver the best transportation projects to the public, in order to reduce congestion, enhance the economic value afforded to travelers, and facilitate more efficient movement of goods and services. |

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| | <p>Project delivery systems govern the way in which these facilities get delivered to the public. They indicate the roles and responsibilities of the different stakeholders involved to design and construct a facility.</p> <p>The traditional delivery system, called design-bid-build (DBB) has been supplemented by more recent alternative delivery systems. The use of alternative project delivery systems has been growing nationally over the past two decades, specifically for design-build (DB) and Construction Management at Risk (CMR). The cost and schedule performance of projects delivered using alternative delivery have been studied extensively. However, the resulting long-term performance impacts of alternative delivery have not been quantified. In particular, it is relatively unknown how alternative delivery processes affect the performance of the constructed materials, and hence the overall quality of the infrastructure component (eg., highway, bridge, etc.) and the long-term economic impact of that infrastructure. In the highway construction literature, it is well known that the manner in which the materials are designed and constructed can impact their performance substantially. Therefore, the quality of the overall infrastructure installation will be highly related to project delivery factors. It is likewise unknown how the stakeholders' new roles and responsibilities may impact the material choices, construction methods, and requisite effect on long-term performance. In the early 1990's, the Federal Highway Administration (FHWA) began a program to allow for the use of alternative project delivery methods on public projects. Most agencies now use alternative delivery to procure some of their large and complex projects, and therefore research is needed to quantify the effects of alternative delivery on the long-term performance of these transportation facilities.</p> |
| <p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>May Place Any Photos Here</p> | <p>The objective of this proposed study is to fully investigate the effect of the traditional delivery (e.g., DBB) and alternative project delivery systems (e.g., DB and CMAR) on the long-term performance of the National Highway System (NHS). Highway projects delivered using alternative project delivery methods will be compared to those delivered with the traditional Design-Bid-Build (DBB) method, and statistical testing will be completed to quantify the differences in performance. The definition of performance may include ride quality and safety measures such as roughness, distress, and skid resistance, along with maintenance cost data.</p> |

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| Impacts/Benefits of Implementation (actual, not anticipated) | Project has not begun yet, so no impacts have been realized. |
| Web Links <ul style="list-style-type: none">• Reports• Project website | |