

**ADOPTION AND IMPLEMENTATION OF PROJECT MANAGEMENT  
PLANS (PMPs) FOR ABC PROJECTS: BENEFITS AND CHALLENGES**

**Quarterly Progress Report  
For the period ending November 30, 2022**

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**ACCELERATED BRIDGE CONSTRUCTION  
UNIVERSITY TRANSPORTATION CENTER**

Submitted to:  
ABC-UTC  
Florida International University  
Miami, FL

**Program Progress Performance Report**  
**University Transportation Centers**

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# **1. Background and Introduction**

There are about 600,000 bridges on public roads spread out across the US. Maintaining these assets represents a sizable investment of resources. The ABC approach is currently being utilized in some states for rapid construction of the bridges. However, not all DOTs are using the ABC approach. This can be linked to the hesitation of contractors to implement the ABC approach due to lack of training, incentives, and culture of respective DOTs to rely on traditional methods. Having a formal Project Management Plan (PMP) crafted specifically for the ABC projects will guide contractors during the life of the projects and encourage higher adoption of the approach.

Per the 23 U.S. Code 106(h), projects designated as major projects (with estimated total cost of \$500 million, or more) and funded by federal assistance are required to submit a Project Management Plan (PMP) to the Federal Highway Administration (FHWA). The major projects are always complex in nature and involve significant resources. To manage the resources and successfully deliver the projects, the PMP provides critical guidance during the planning and execution phases of the projects. The PMP helps define the roles of the stakeholders, processes, and procedures for successful completion of the projects. The PMP also helps in articulating the decision-making processes, identifying, and documenting strategies to mitigate/eliminate uncertainties, and in maintaining trust and support through the life of the project.

The Strategic Highway Research Program 2 (SHRP 2) R10 did not specifically address the implementation of PMP in Accelerated Bridge Construction (ABC) projects. Each of the five dimensions outlined in the 5DPM are equally important and relevant for the ABC projects. ABC is relatively new in comparison to the traditional approach to bridge construction and will be benefited from adopting formal PMP. Rapid construction is largely dependent on refined technical design that demands active involvement from all the stakeholders in the planning and execution. Thus, a formal PMP outlining the roles of the stakeholders is critical for the successful implementation of ABC projects.

## **2. Problem Statement**

Without the requirement to submit a Project Management Plan (PMP) to the Federal Highway Administration (FHWA) for most of the ABC projects (as they don't meet the threshold of \$500 million), it is left on the project team to prepare a formal PMP. As ABC projects are fast track projects, having a PMP is even critical for the project team to make decisions that keep the project moving smoothly. Having developed the template to create PMP *for* ABC in the last phase, the researchers are set to identify the benefits and challenges of using the template to create PMPs in real projects. Generic information on the benefits of PMP is available, however, there is lack of information on the benefits of PMPs specifically to ABC type projects.

## **3. Objectives and Research Approach**

The research team will build on the team's previously completed framework of PMP *for* ABC project for use by project teams to develop PMPs specifically for ABC projects. In this proposed

project, the completed template will be piloted by the DOTs and contractors that the researchers will partner with. The resulting analysis will describe effective ways to use the previously developed PMP *for ABC* framework and, more importantly, effective ways to use the PMP as a reference for the successful completion of a project.

## 4. Description of Research Project Objectives

The goal of the proposed project is to document the benefits and challenges of implementing the PMP *for ABC* framework. As this framework is the first of its kind tailored for ABC projects, there will be challenges associated with its adoption. It is critical to document the challenges and take corrective actions to modify the PMP *for ABC* framework for wide-spread adoption in the future. There are documented benefits of using PMPs in construction projects; however, documenting explicit benefits of using PMP *for ABC* is equally critical as it will encourage more DOTs and contractors to adopt the framework. The research team will meet with project teams as they are in the planning phase of the pilot projects and will work with them as they use the new PMP *for ABC* framework to develop the PMPs for the projects. The research team will track along with the project teams as their projects progress and will gather information on how the PMP is used in various stages of construction.

The following is a description of tasks carried out to date.

### **Task 1 – Work with partner(s) to identify projects suitable for pilot studies**

***Proposed Task Description:*** The objective of this task is to identify ABC projects suitable for the use of the framework on the pilot basis. The research team will work closely with the project team members to develop the PMPs for their respective projects. The research team will attempt to accomplish the following:

- Identify ongoing or upcoming ABC projects that can be used to pilot for this research project
- Familiarize the members of the pilot project team with the PMP *for ABC* framework
- Guide the pilot project team to develop the PMP using the framework

***Progress to Date:*** This is the most critical step of this research project as identifying ABC projects that can be used to pilot the PMP *for ABC* framework is key. Once the projects are identified the subsequent steps of familiarizing the project team members will commence. So far, the research team has faced challenge with identifying suitable project. All the DOTs who participated in the last phase while developing the framework have been contacted. So far, only one DOT has been responsive and willing to participate in piloting the framework. However, the research team came to know that this DOT does not have any upcoming ABC project. Hence, the team has decided to modify the approach and use a recently completed ABC project to pilot the framework.

### **Task 2 – Develop project PMPs using the template and guide developed specifically for ABC projects**

***Proposed Task Description:*** After identifying ABC projects suitable for the use of the framework on the pilot basis, the research team will work closely with the project team members

to develop the PMPs for their respective projects. The research team will offer workshop to the team members of the pilot projects to familiarize them with the framework of PMP for ABC and guide them develop the PMP for their projects. As the PMP requires input from multiple stakeholders, all the relevant members will be recruited to attend the workshops and guidance sessions for developing the PMPs.

**Progress to Date:** The prerequisite for this task is Task 1, which is still undergoing.

### **Task 3 - Track projects during construction to assess use of PMPs**

**Proposed Task Description:** Data from the pilot projects will be collected from two sources: examination of project documents and interview of project team members. Project documents such as cost report, schedule updates, safety report, and similar will be examined to measure the project performance. Semi-structured and open interviews will be conducted of the project participants to gather their feedback on the efficacy of the PMP for ABC framework.

**Progress to Date:** The prerequisite for this task, Task 2. Once task 2 is complete, then Task 3 will begin.

### **Task 4 - Analyze data gathered from projects and project teams**

**Proposed Task Description:** Collected data will be analyzed using mixed method. The performance of the pilot projects will be measured using established and vetted metrics such as cost, schedule, safety, rework, scope change and compared with that of the other ABC projects without formal PMPs using quantitative methods. The collected interview data will be analyzed using thematic analysis to identify the emerging themes related to benefits and challenges to adopt PMP for ABC.

**Progress to Date:** The prerequisite for this task, Task 3. Once task 3 is complete, then Task 4 will begin.

## **5. Expected Results and Specific Deliverables**

Quarterly reports are due.

Final report is due on August 31, 2023.

## **6. Schedule**

Progress of tasks in this project is shown in the table below.

<b>Project</b>	<b>15% Completed</b>
Task 1 – Identify projects to pilot the framework	15%
Task 2 – Develop PMP for pilot project	0%
Task 3 – Track pilot project performance & interview participants	0%

Task 4 – Analysis and Final Report	0%
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AS OF 11.30.2022

RESEARCH TASK	2022									2023								
	M	J	J	A	S	O	N	D	J	J	F	M	A	M	J	J	A	
Task 1 - Identify Projects to Pilot	Planned Task			Task Accomplished						Task Accomplished								
Task 2 - Develop PMP for Pilot			Planned Task		Task Accomplished				Task Accomplished									
Task 3.1 - Track Performance of Pilot Projects					Planned Task		Task Accomplished											
Task 3.2 - Interview Project Personnel							Task Accomplished		Task Accomplished									
Task 4.1 - Analyse the Interview Data								Task Accomplished	Planned Task		Task Accomplished							
Task 4.2 - Finalize and Develop Final Report									Planned Task		Task Accomplished							

