PROJECT OVERVIEW REPORT

1. UTC Identifying Number
   69A3551847102

2. Center Identifying Number
   CAIT-UTC-REG68

3. Project Title
   A Machine Learning Decision-Support System for Selecting Optimal Innovative Project Delivery Methods for Bundled Transportation Projects

4. Principal Investigator & Contact Information
   Rayan H. Assaad, Ph.D.
   Assistant Professor
   New Jersey Institute of Technology
   University Heights, Colton Hall, Room 207
   Newark, NJ, 07102

5. Rutgers/CAIT Project Manager
   Patrick Szary, Ph.D.

6. Customer Principal
   Nisharg Dalwadi, Project Management Specialist
   New Jersey Department of Transportation
   1035 Parkway Avenue
   Trenton, NJ 08625

7. Project Description
   One of the earliest and most essential decisions that must be made in any infrastructure project is the selection of which project delivery method (PDM) to use. Since the choice of the PDM will dictate the language in the contract and the timing of its signing; state DOTs, local agencies, and tribal governments must make such decision early on during the pre-planning phase of the project. The primary goal of this proposal is to develop a data-driven decision-support system to help state departments of transportation (DOTs), local agencies, and tribal governments select the best project delivery method (PDM) for each bundled contract by leveraging machine learning algorithms, while also taking into consideration the specific goals of each bundle.

8. Implementation of Research Outcomes (or why not implemented)
   The intended outcome of the project is to assist DOTs, local agencies, and tribal governments in utilizing alternative, innovative contracting methods in the development of project bundling projects, programs, and initiatives to reduce

costs and streamline design, construction, and maintenance activities. It is expected that the research outcomes will present a structured approach to assist agencies in making project delivery decisions, assist agencies in determining if there is a dominant or optimal choice of a delivery method, and provide documentation of the selection decision.

9. Impacts/Benefits of Implementation (actual, not anticipated)
   To Be Determined

10. Dates and Budget
    Start date: 7/1/2022
    End date: 6/30/2023
    UTC (CAIT) Dollars: $90,000
    Cost Sharing: $90,001
    Total Dollars: $180,001

11. Keywords
    Project Bundling, Innovative Project Delivery Methods, Decision-Support-System, Decision-Making, Project Planning, Artificial Intelligence and Machine Learning

12. Web Links (Reports and Project Website)
    https://cait.rutgers.edu/research/a-machine-learning-decision-support-system-for-selecting-optimal-innovative-project-delivery-methods-for-bundled-transportation-projects/