



ACCELERATED BRIDGE CONSTRUCTION
UNIVERSITY TRANSPORTATION CENTER

UTC Project Information	
Project Title	Development of Rapid In-Situ Testing for Concrete Deck Durability
University	FIU
Principal Investigator	Amer Awwad
PI Contact Information	awwada@fiu.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT through ABC-UTC \$60,000 (\$50,000 for FIU and \$10,000 for Rowan University)
Total Project Cost	\$60,000
Agency ID or Contract Number	69A3551747121
Start and End Dates	06/01/2022 - Active
Brief Description of Research Project	<p>Assessing durability on-site is a challenging task. An interesting quality check test for the durability of concrete has been developed at FIU which could be modified for “in-situ” assessment of the durability concrete elements (column, beam, abutments, bridge deck, etc.) in less than 20 minutes. This which would allow for a quick quality control assessment of the concrete components used in Accelerated Bridge Construction (ABC). Following is a very brief description of this novel method. The method quickly assesses the durability of hardened concrete material against liquid ingress, at very high pressure. This proposal aims at relating this behavior to standard durability tests, such as Freeze/Thaw, Rapid Chloride Permeability, Bulk Resistivity and Surface Resistivity tests that are expensive and take a very long time. The entire test lasts 20 minutes. In the developed method, liquid at high pressure is applied to the surface of hardened concrete and time vs. pressure response is obtained.</p> <p>This project is aiming at establishing a relationship that might exist between routine Freeze/Thaw, Rapid Chloride Permeability (RCP), Bulk Resistivity (BR), and Surface Resistivity (SR) tests and the novel method developed. If such a relation exists, the durability assessment of concrete bridge elements can be achieved in less than 20 minutes.</p>

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The outcomes will be tracked and reported once they are identified.
Impacts/Benefits of Implementation (actual, not anticipated)	The impacts will be tracked and reported once they are identified.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/research-projects/development-of-rapid-in-situ-testing-for-concrete-deck-durability/