

UTC Project Information	
Project Title	Macroscopic Fundamental Diagram Approach to Traffic Flow with Autonomous/Connected Vehicles (Project O2)
University	Jackson State University
Principal Investigator	Robert W. Whalin, Ph.D., PE Professor Department of Civil & Environmental Engineering
PI Contact Information	Robert.w.whalin@jsums.edu 601-979-1809
Funding Source(s) and Amounts Provided (by each agency or organization)	STRIDE: \$57,500 JSU: \$57,500
Total Project Cost	\$57,500
Agency ID or Contract Number	69A3551747104
Start and End Dates	September 1, 2018 – March 31, 2020
Brief Description of Research Project	The introduction of connected and autonomous vehicles (CV/AV) will bring changes to the highway driving environment. Connected and autonomous vehicle technology provides real-time information about the surrounding traffic condition and the traffic management center's decisions. Setting the parameters of VISSIM driver behavior model by calling the VISSIM Component Object Model (COM) in Python/Matlab, the project will build an AV/CV simulation framework to conduct a pilot study of the features, and management and control strategies for traffic flows with AV/CV vehicles. Based on this simulation framework, the macroscopic fundamental diagrams (MFDs) of an AV/CV traffic network will be developed and analyzed, and compared with the MFDs in a traditional traffic circumstance. Using MFD as an evaluation index, mathematical models will be built to optimize network design, measure the network vulnerability, and evaluate the effectiveness of traffic management and control strategies for AV/CV and traditional traffic flows. Also, the perimeter control in an AV/CV network will be investigated.

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Not available. Research is in progress.
Impacts/Benefits of Implementation (actual, not anticipated)	Not available. Research is in progress.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://stride.ce.ufl.edu/project-o2/