

UTC Project Information	
Project Title	Integrated Implementation of Innovative Intersection Designs Part 2 (Supplement to Project F)
University	North Carolina State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	STRIDE: \$30,026 NCDOT: \$30,026
Total Project Cost	\$30,026
Agency ID or Contract Number	69A3551747104
Start and End Dates	November 16, 2018 – November 15, 2019
Brief Description of Research Project	<p>The proposed research is a continuation and extension of the ongoing STRIDE research project “Integrated Implementation of Innovative Intersection Designs”. In the current project, pedestrian and bicycle accommodations on an alternative intersection design are being tested in a simulation environment, and their impact on mobility measures for both motorized and non-motorized users assessed. About three different crossing treatments have been developed and are currently in the testing phase. For clarity, we refer to the original funded work as Phase I.</p> <p>Because currently standard and alternative intersections in the HCM6 release have different LOS service measures for motorized traffic, one based on control delay and the other on extra travel time (ETT), it is difficult to contrast the mobility effect of converting a standard to an alternative intersection on both motorized and non-motorized traffic. In addition, and specific to the CFI or Displaced Left Turn (DLT) design which is the focus of Phase I, HCM6 in Chapter 23 mentions that “DLT pedestrian crossings differ significantly from the pedestrian crossings at conventional intersections and these differences can affect both</p>

	<p>pedestrian and vehicular delay. As a result, the Chapter 19 analysis procedures for pedestrians and bicycles are not applicable to DLT intersections”. While a couple of treatments are proposed in HCM 6 for this case, no methodology exists to quantify the effects of those treatments at CFI’s on all intersection users. This will be the focus of Phase II of the research.</p> <p>In order to contrast the effect on pedestrians and bicyclists at both standard and alternative intersection configurations, the intent is to normalize the standard intersection geometric configuration and its optimal signal timing to yield the same quality of service for motorized traffic. This will be done through a careful design of experiments that takes into account all explanatory variables. The methods employed in this Phase include a combination of macroscopic modeling using CAP-X, a linear programming-based signal optimizer and a microscopic simulator VISSIM. The outcome will be recommendations on best practices for handling pedestrian and bicycle traffic both at CFI’s and equivalent standard intersections.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>Not available. Research is in progress.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>Not available. Research is in progress.</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	<p>https://stride.ce.ufl.edu/project-f/</p>