This research evaluated the implementation of Transit Signal Priority (TSP) on a test corridor along International Drive (I-Drive) in Orlando, Florida to see if it was successful and justifies expansion for regional implementation of TSP. TSP is a technology that provides preferential treatment to buses at signalized intersections. This research demonstrated the effectiveness of TSP in improving bus corridor travel time in a simulated environment using real world data for the I-Drive corridor.

Evaluation was conducted by using statistical analysis and micro-simulation to compare Unconditional and Conditional TSP with the No TSP scenario. This evaluation looked at performance metrics (for buses and all vehicles) including average speed profiles, average travel times, average number of stops, and crossing street delay. Different Conditional TSP scenarios of activating TSP when a bus is 3 or 5 minutes behind schedule were considered. The simulation demonstrated that Conditional TSP significantly improved bus travel times with little effect on crossing street delays. Unconditional TSP resulted in significant crossing street delays at some intersections with only minor improvement to bus travel time compared to both Conditional TSP scenarios.

Major: Civil Engineering

Educational Career:
Bachelor's of Geology, BS, 1979, University of Miami
Master's of Civil Engineering, MS, 1984, University of Florida

Committee in Charge:
Dr. Haitahm Al-Deek, Chair, CECE
Omer Tatari, CECS
Amr Oloofa, CECE
Nizam Uddin, Statistics

Approved for distribution by Dr. Haitahm Al-Deek, Committee Chair, on September 28, 2014.

The public is welcome to attend.