

Project Summary



I-STREET

TRANSPORTATION INSTITUTE
UNIVERSITY OF FLORIDA

Data Analytics & Evaluation of the Gainesville Trapezium Connected Vehicle Signal Phasing & Timing (SPaT) Deployment Project

FDOT Project: BDV31- 977-117

OVERVIEW



Dedicated short-range communication (DSRC) and connected vehicle (CV) technology can ease traffic and boost safety at signalized intersections. These technologies were tested on the Gainesville signal phasing and timing (SPaT) Trapezium, part of the I-STREET Living Lab near the University of Florida campus. Studies were done before and after to see how well DSRC worked, and drivers using on-board units (OBUs) were interviewed for their experiences with the system. The impacts of COVID-19 on traffic patterns were also evaluated.

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METHODOLOGY

- Data collected at seven intersections covering geometric, traffic flow, and signal timing and analyzed for safety, traffic operations, and travel time considerations.
- Software developed with Siemens Mobility, Inc., to facilitate data collection from road-side units (RSUs)
- Data such as Basic Safety Messages and Personal Safety Messages were analyzed and processed.
- Data related to DSRC and vehicle technology analyzed, comparing information collected before and after implementing these technologies.



GOAL

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The main goal of this project was to evaluate if a special technology called DSRC could help make traffic run smoother and safer at specific traffic points in the Gainesville SPaT Trapezium, which constitute four roads bordering the University of Florida (UF) campus.



KEY FINDINGS

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- Safety - Vehicle, bicyclist, and pedestrian crashes decreased in after studies
- Traffic Operations - Automated process created to generate intersection delays
- OBU User Experience - Users found signal timing messages useful but warnings need to be fine-tuned, including auditory warnings and integration with a navigation system on OBUs.

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REAL WORLD APPLICATIONS

The information in this report provides public agencies and other transportation professionals useful knowledge about the potential of connected vehicle technologies (such as CV2X) and drivers' perceptions and information needs.