

Grant Deliverables and Reporting Requirements for UTC Grants

UTC Project Information	
Project Title	Safety Effects of the Yellow Light Border (YPB) Pedestrian Signal: An Evaluation
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Principal Investigator	Michael Zhang
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$ 0 Caltrans: \$31,716
Total Project Cost	\$ 31,716
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	<ul style="list-style-type: none"> • Start date: 2/1/2017 • End date: 9/30/2018
Brief Description of Research Project	<p>The conflict between pedestrians using the crosswalk and turning traffic at intersections poses a safety risk for pedestrians. To mitigate this safety risk, Caltrans engineers conceived a new safety feature for pedestrian signal by adding a yellow LED border on the pedestrian signal. The benefits of this LED border on pedestrian safety were demonstrated in a preliminary study in the city of Redding. This project will assess the safety benefits of the yellow LED border in comparison to a more diverse set of locations and conditions. Five locations across California are identified for this assessment exercise. Data sets concerning pedestrian and vehicle conflicts, driver and pedestrian awareness of the new signal feature shall be defined before the project is implemented in the field, and driver and pedestrian compliance criteria will be defined before the new device is installed and collected thereafter at the selected intersections. The defined data sets will be analyzed to evaluate the effect of the Yellow LED Border on pedestrian safety. Data sets may be revised with the written agreement of Caltrans, but material revision of the data sets is greatly discouraged.</p>

Forty prototype YPB modules were manufactured to conduct the evaluations at the five intersections and data for each location was collected by video and reviewed for before and after condition for seven consecutive days, 16 hours each day. Our study reveals that YPB signals have significant impact on the pedestrians' behavior by reducing the overall no-push, extra-push, and violation events. The cumulative average of no-push, extra-push, and violation with respect to pedestrian volume showed a decrease of 22%, 34% and 45%, respectively. Thus, from the pedestrian safety perspective, the addition of YPB significantly improves pedestrian behavior.

Describe Implementation of Research Outcomes (or why not implemented)

Place Any Photos Here

YPB is a new traffic control device intended to improve pedestrian safety at signalized intersections developed by Caltrans. Our study confirmed that the YPB has a positive impact on traffic safety in the sense that it significantly reduced signal violations by pedestrians. As a result, Caltrans made a decision to adopt the use of YPB in California.



Impacts/Benefits of Implementation (actual, not anticipated)

Based on our study, Caltrans is pursuing to have YPB included in the Manual of Uniform Traffic Control Devices, a national standard for traffic control devices used throughout the nation.

Web Links 

- Reports
- Project website

<http://ctech.cce.cornell.edu/final-project-reports/>