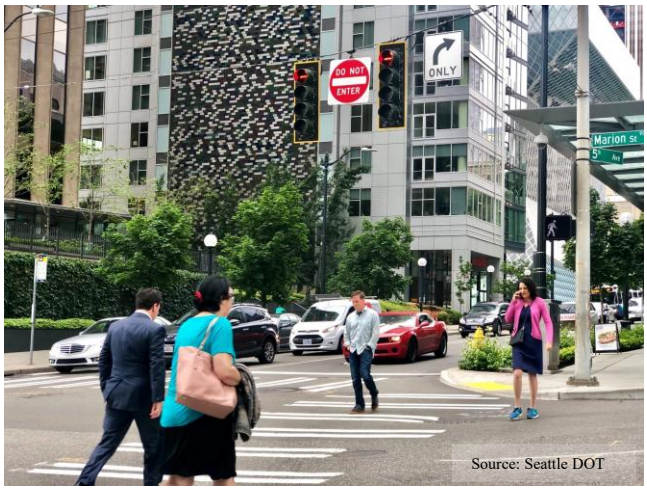
Evaluating the Impact of Leading Pedestrian Intervals and Curb Extensions on Conflict Frequency



MS Defense

Sophia Semensky

Advisor: Dr. Miguel Figliozzi

January 23, 2026, 1 PM PT, EB 310

Zoom: https://pdx.zoom.us/j/88622892513

Leading Pedestrian Intervals (LPIs) and curb extensions are widely used pedestrian safety countermeasures at signalized intersections, yet limited research has examined their combined effects using surrogate safety measures. This thesis evaluates how LPIs, with and without curb extensions, influence pedestrian–vehicle conflicts using approximately 600 hours of video data collected at eleven signalized intersections in the Portland, Oregon metropolitan area. Pedestrian and vehicle volumes, turning speeds, and conflicts were manually extracted, with conflicts measured using Post Encroachment Time (PET) and classified by severity based on PET and turning-speed thresholds. Across descriptive analyses, statistical tests, and regression models that control for exposure and site characteristics, LPIs were consistently associated with lower pedestrian–vehicle conflict frequencies compared to untreated conditions. Intersections with both LPIs and curb extensions generally exhibited lower proportions of high-severity and high-speed conflicts, though evidence for severity reductions was weaker. Results varied by intersection context, underscoring both the potential benefits and limitations of surrogate safety measures for evaluating pedestrian countermeasures at a fine spatial and temporal scale.

Portland State UNIVERSITY