Evaluating pedestrian safety at signalized intersections in San José, Costa Rica

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The research

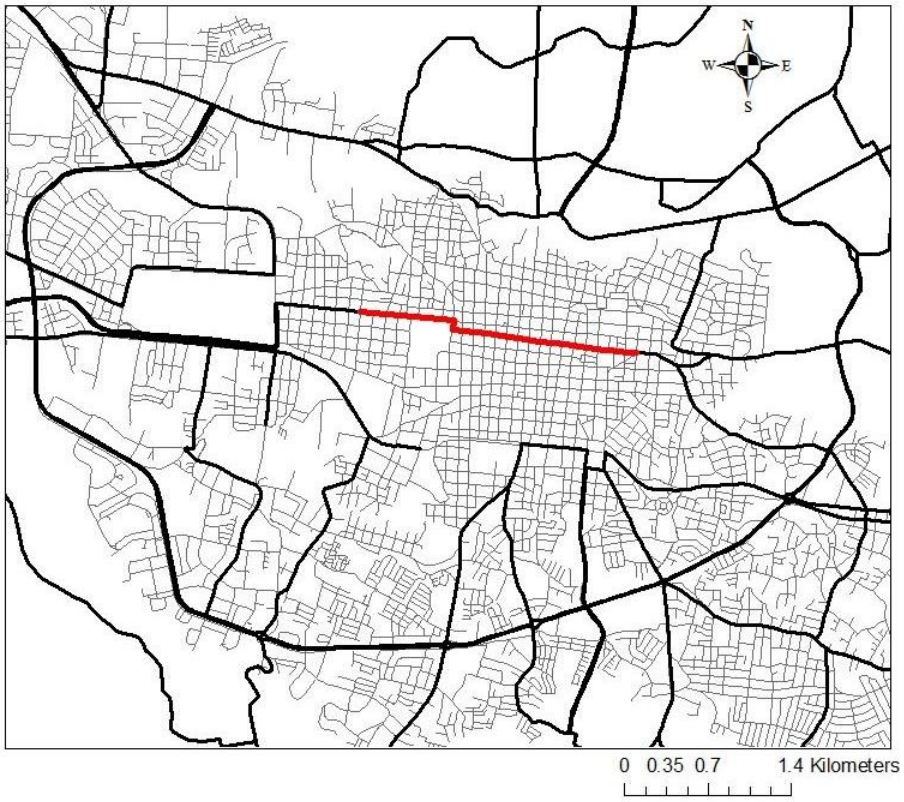
Evaluate pedestrian safety and accommodation at urban signalized intersections using surrogate safety measures, the built environment, and operational characteristics

- Conflicts and signal compliance

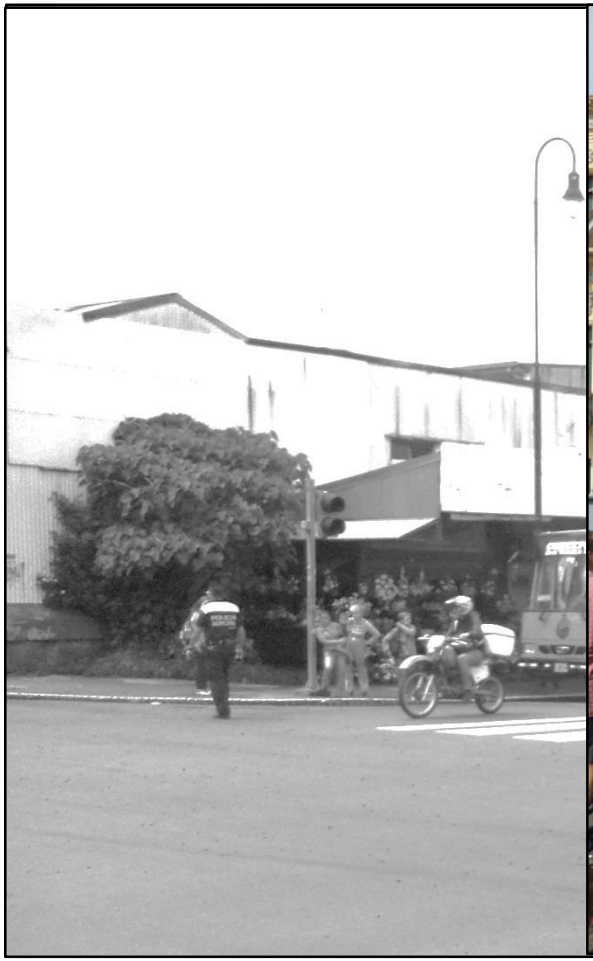
Objectives of the paper

1. Understand the surrounding context of the study corridor
2. Develop and apply a data collection program
3. Evaluate the characteristics of the intersection with the poorest pedestrian signal compliance

Study Segment



Study segment



Methodology

- Data collection
- Conflict studies
- Signal compliance studies
- Infrastructure and operational inventory

Data collection

9:30 am – 11:30 am
Weekday

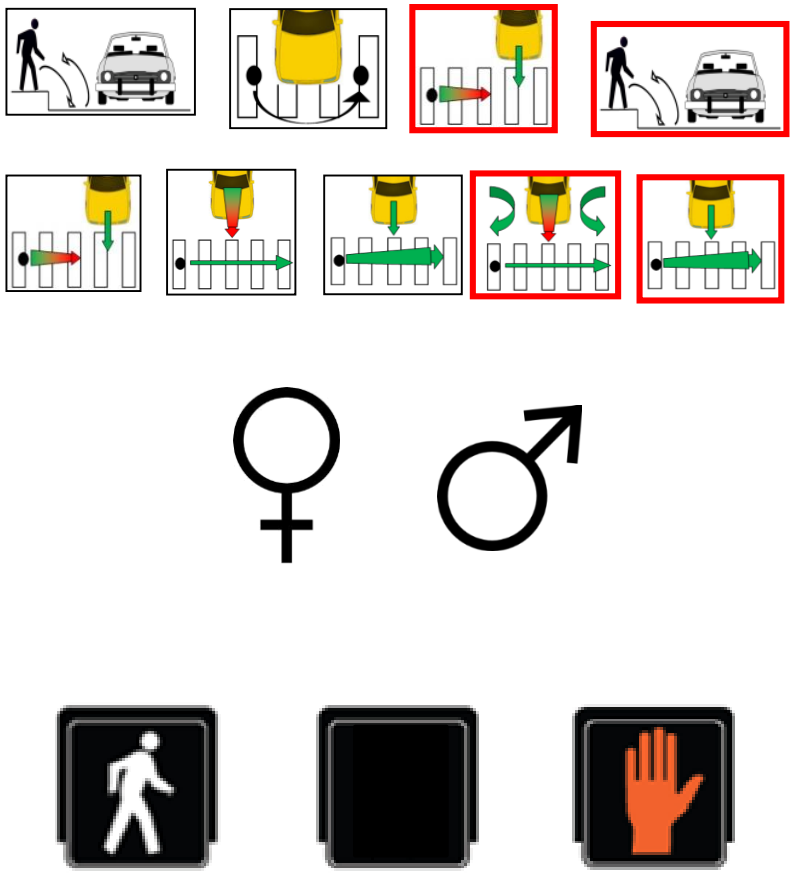
13 716 pedestrians

Conflict studies

Severity & Type

Gender

Interval

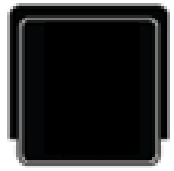


Signal compliance studies

Green-walker

Amber-walker

Red-walker



Infrastructure and operational inventory

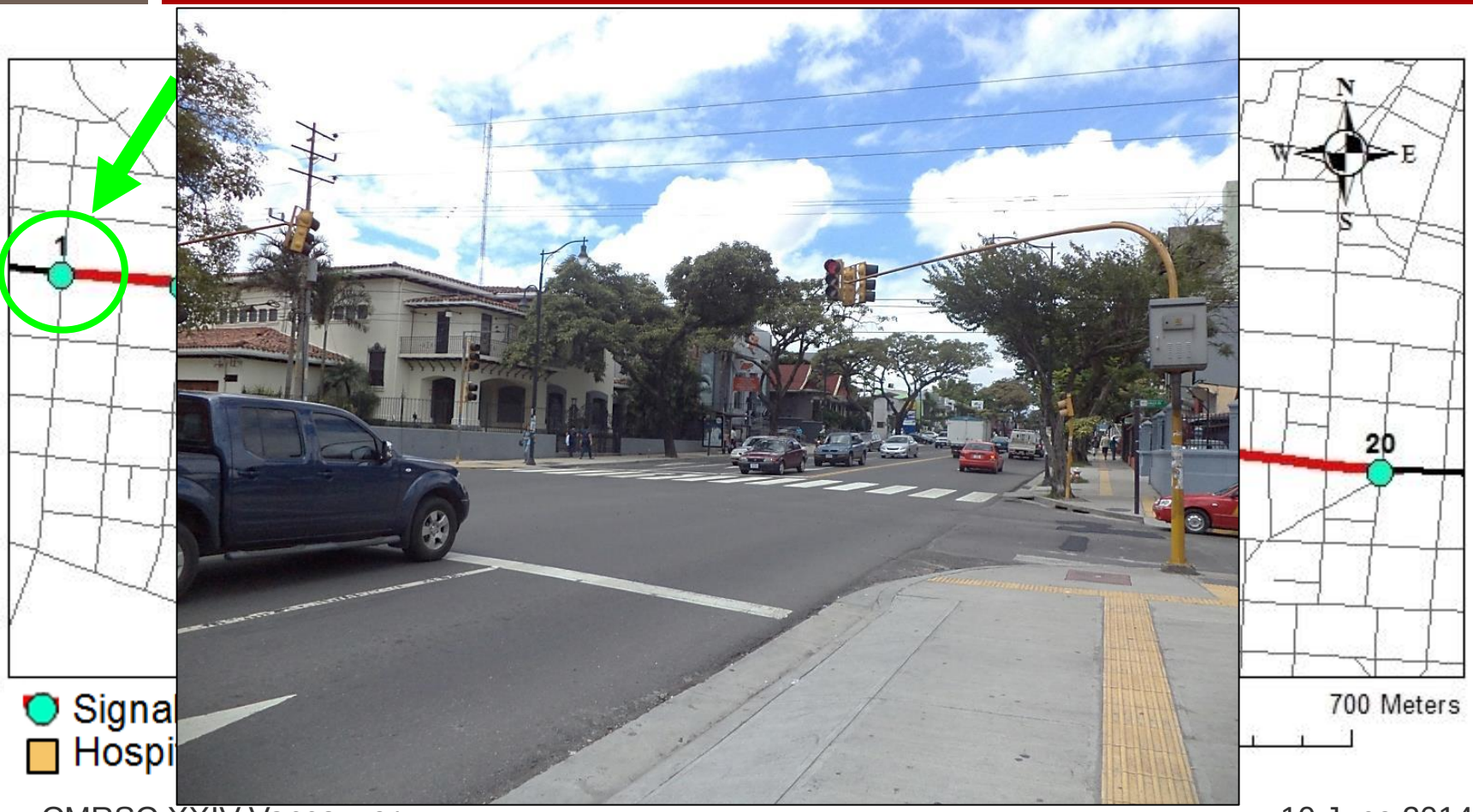
General site characteristics

Pedestrian signal timing and design

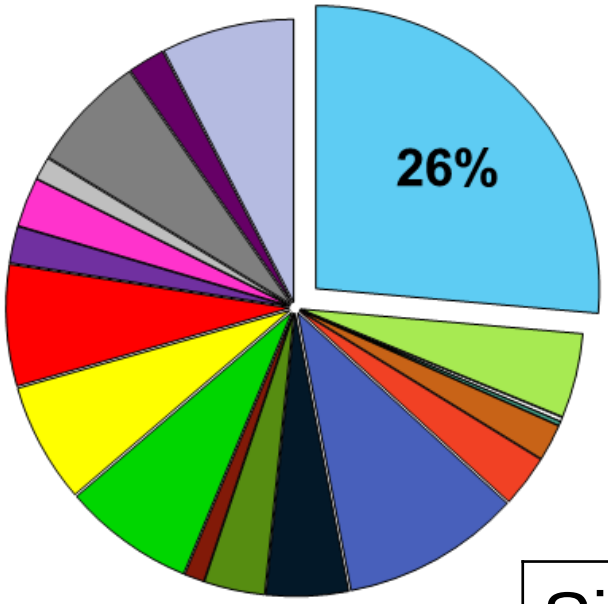
Signage and pavement markings

Accessible features

Evaluation Results



Red-walking by intersection

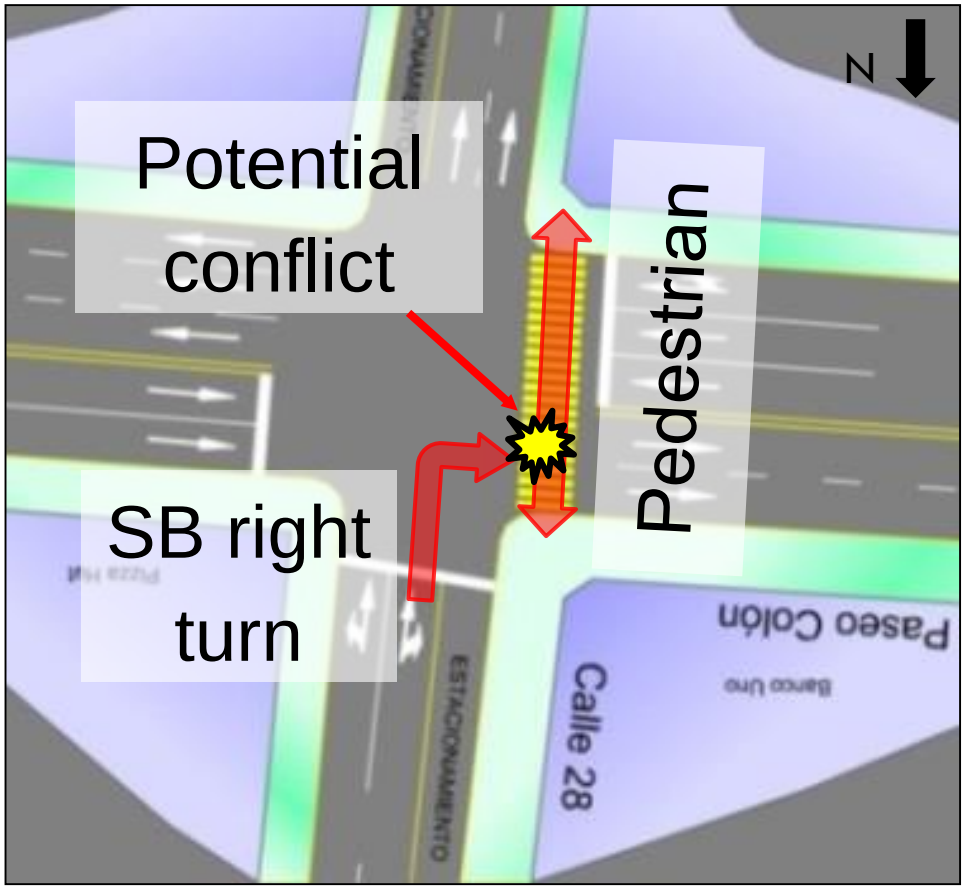


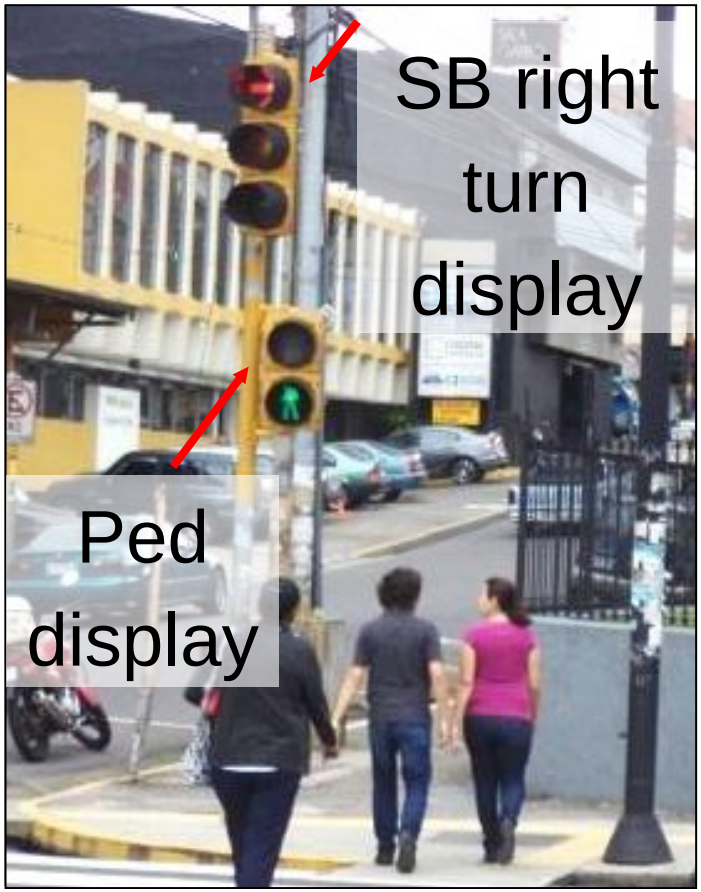
N = 1243

Signal 1 contributed 26% of total red-walking on the Study Segment

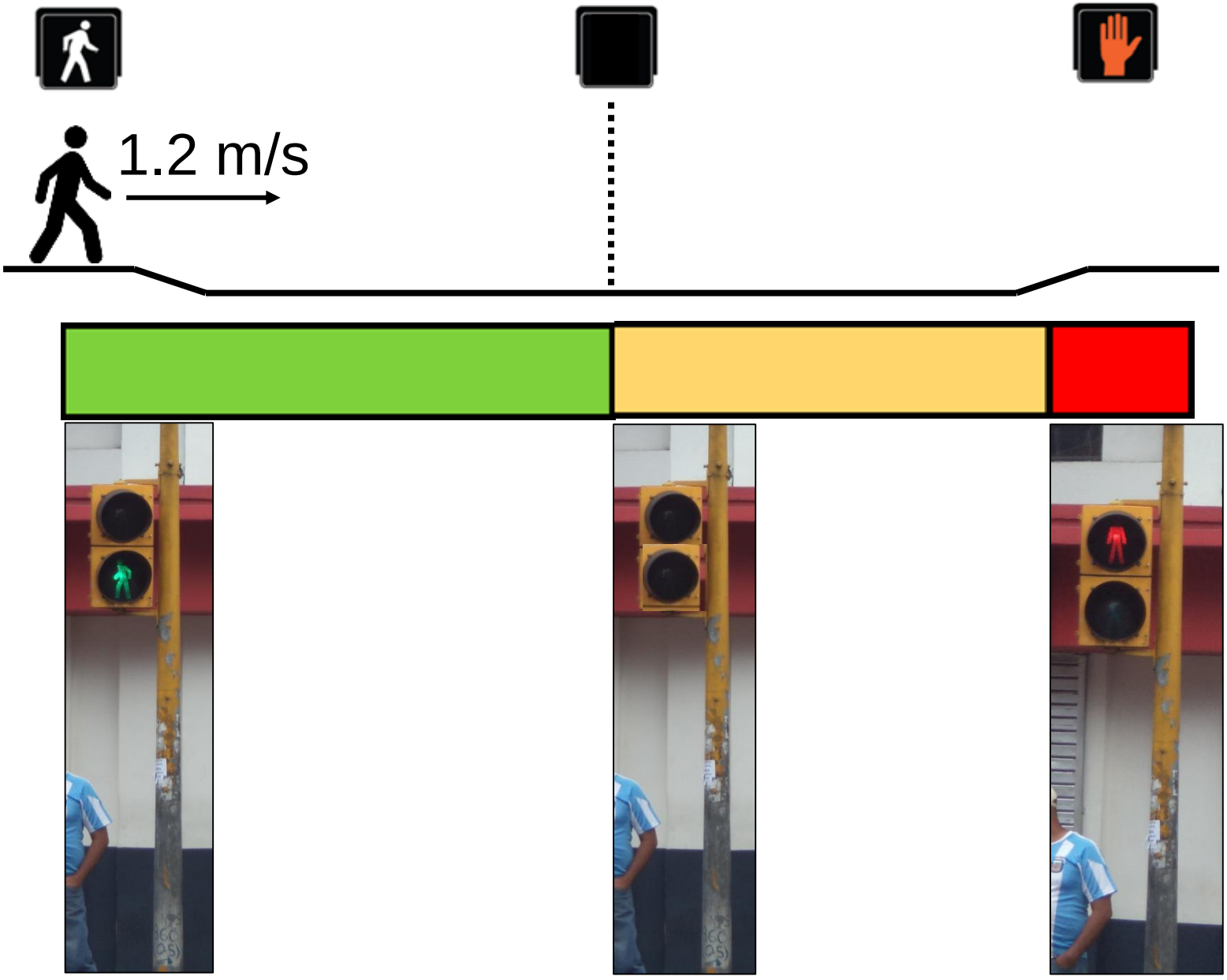
			
Signal 1	42%	1%	57%
Study Segment	88%	2%	10%

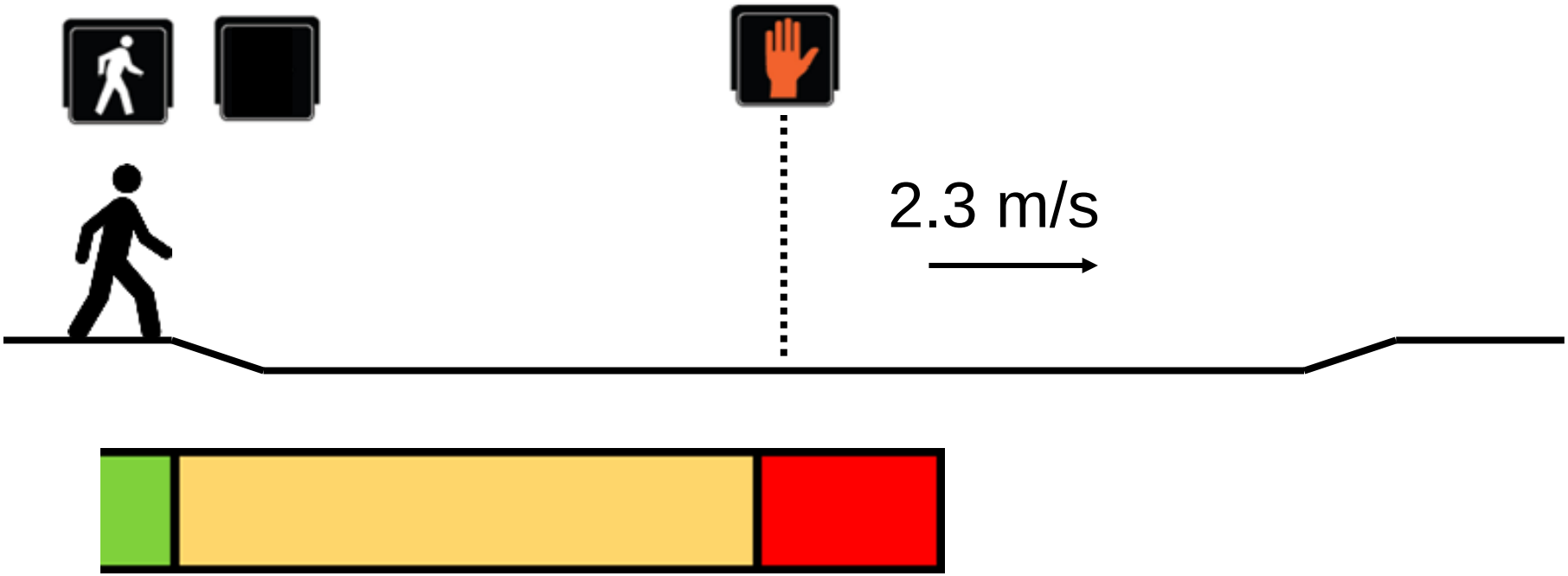
Signal sequence and timing





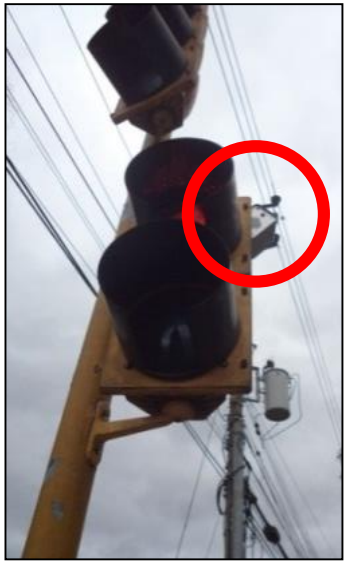
Most conflicts occurred while the DON'T WALK interval was displayed


1.2 m/s


2.3 m/s


TOTAL

Pedestrian signal heads



Summary

- Developed and applied methodology for evaluating pedestrian safety using surrogate measures
- Intersection with the poorest signal compliance observed less than half of crossing pedestrians green-walking
- Most conflicts occurred during the DON’T WALK interval

Recommendations

- Implement of a longer and more accommodating pedestrian clearance interval (walking speed)
- Improve road user education (pedestrian and driver)
- Consistently apply and maintain traffic control devices

Thank you

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Future research

- Further link safety performance data (conflicts and signal compliance) with infrastructure and operational inventory
- Identify associations and develop diagnostic tool for civil engineers to identify problematic intersections
- Identify countermeasures