YELLOW LED BORDER ON THE PEDESTRIAN SIGNAL
PROBLEMS IN AN INTERSECTION

- Pedestrians waiting at a crosswalk become impatient and cross anyways violating the Hand Signal.
- Before the Walk Signal is displayed there is not visible indication for Cars that a Pedestrian will be crossing.
- Pedestrians do not have feedback if the Walk-Button Works.

**Solution:** Add a Yellow Border Light to the Pedestrian Signal. YPB.
- We tested the YPB on five different intersections throughout California.
- We can model how differently the general population responds to these changes.
PROCEDURE

- Before and After Study
  1. Install cameras at the intersection and record for 7 days.
  2. Add YPB. Wait for at least one month.
  3. Record again for another 7 days.
  4. Return to conduct Survey.

(Recording period was 6AM-10PM)

Caltrans helping to remove cameras at Fort Bragg.
The YPB indicates that the Walk Signal is pending, pedestrians who see the YPB will wait for the Walk Signal.

Cars that see the YPB will know that a Pedestrian is going to cross. This increases a Pedestrian’s Visibility so cars will yield to Pedestrians more.

The YPB is an indicator that the push button works. Pedestrians will push the button fewer times.
Percent of Pedestrian Violations in Napa Valley

- 12/24/2017: 7.34%
- 12/18/2017: 3.78%
- 12/19/2017: 7.85%
- 12/20/2017: 5.83%
- 12/21/2017: 3.54%
- 12/22/2017: 5.04%
- 12/23/2017: 5.80%
- 9/3/2018: 4.37%

Day: Sun, Mon, Tue, Wed, Thu, Fri, Sat

Legend:
- Before YPB
- After YPB
Percent of Pedestrian Violations in Eureka

BEFORE YPB
AFTER YPB
Percent of Pedestrian Violations in Fort Bragg

BEFORE YPB

AFTER YPB

VIOLATIONS-FORT BRAGG
CONFLICTS

NAPA VALLEY BEFORE
- Ped Yield: 6%
- Car Yield: 94%

NAPA VALLEY AFTER
- Ped Yield: 12%
- Car Yield: 88%

EUREKA-BEFORE
- Ped Yield: 19%
- Car Yield: 81%

EUREKA-AFTER
- Ped Yield: 30%
- Car Yield: 70%

FORT BRAGG-BEFORE
- Ped Yield: 0.90%
- Car Yield: 99.10%

FORT BRAGG-AFTER
- Ped Yield: 0.46%
- Car Yield: 99.54%
EXTRA PUSHES

Percent of Pedestrians who Push the Button More than Once

- NAPA VALLEY: 0.32%
- FORT BRAGG: 0.24%

National Center for Sustainable Transportation
SURVEY RESULTS

Average Survey Results from Eureka, Fort Bragg, Napa Valley, and Irvine. Of 67 Pedestrians

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SUMMARY

- Why the YPB Worked
  - Pedestrians know that the button has been pressed and the Walk Signal is pending.
  - Highlighted the No Walk Signal.
  - Cars know in advance that a Pedestrian is going to cross. Useful at night.

- Why the YPB did not Work
  - Lack of spreading awareness to the public, no flyers.
  - Cars and Pedestrians did not understand the purpose of the YPB.
  - Cars and Pedestrians could not see the YPB.
SUMMARY

- Pedestrian Feedback and Improvement
  - Many Pedestrians would prefer adding a flashing and illuminated crosswalk because it is more visible to cars.
  - Better illumination and feedback for the Blind and Nearsighted.
  - Add signage and information on the crosswalk.
  - Consider Cost-Effectiveness.
THANK YOU!

At Laguna Beach