

Pedestrian Crosswalk Safety: Evaluating In-Pavement Flashing Warning Lights

Accidents involving pedestrians in crosswalks are a common cause of road fatalities. In-pavement flashing warning lights have been proposed as a means of increasing the conspicuity of a crosswalk when a pedestrian is using it. These systems, however, are more expensive to install than striping—the conventional way of identifying crosswalks. The Lighting Research Center (LRC) did a study of the effect on pedestrian safety of an in-pavement flashing warning light system compared to conventional striping.

The site chosen for the study was in Denville, New Jersey. The site was evaluated three times under different conditions:

- Evaluation 1: one marked crosswalk, badly eroded striping
- Evaluation 2: two crosswalks, freshly painted striping
- Evaluation 3: in-pavement flashing warning lights and striping on both crosswalks

Outcomes

Clear striping of a crosswalk

- Enhances the conspicuity of the crosswalk to drivers who are not familiar with the location
- Reduces conflicts between pedestrians and vehicles
- Does *not* reduce the mean speed at which vehicles approach the crosswalk, or the mean number of vehicles passing over the crosswalk while a pedestrian is waiting to cross

Adding an in-pavement flashing warning light system to a crosswalk that is already clearly striped

- Further enhances the conspicuity of the crosswalk to drivers who are not familiar with the location
- Does reduce the mean speed at which vehicles approach the crosswalk
- Does reduce the mean number of vehicles that pass over the crosswalk while a pedestrian is waiting

These effects diminish over time.

Recommendations

- In-pavement flashing warning lights are most suitable where there is competition for drivers' attention.
- Manual triggering of the in-pavement flashing lights is preferred over automatic triggering.
- Drivers and pedestrians must be educated about appropriate behavior when in-pavement flashing warning lights are used.



Crosswalk at the time of the first evaluation



Crosswalk with newly painted striping at the time of the second evaluation



Crosswalk with in-pavement flashing warning lights installed and operating at the time of the third evaluation



An in-pavement flashing warning light



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