

The typical reaction of most drivers to the activated in-roadway flashing lights is to let off the accelerator, slowing or braking as they approach the crosswalk.



Mean Streets on Campus

BY PETER FLOODMAN

Crossing the street on or around a college or university campus is a dangerous assignment. Statistics indicate that about 6,000 pedestrians are killed each year in the United States. In most of those accidents, motorists say they just didn't notice the pedestrian until it was too late to stop.

If motorists have a hard time seeing pedestrians in daylight hours, imagine what happens when it's dark. According to the National Safety Council, pedestrians are 1,100 times more likely to be hit by motorists during nighttime hours. Other studies show that eight out of 10 drivers who struck people at night didn't see them in time.

In an effort to address this ongoing problem, a new traffic warning system has been developed to notify motorists of a pedestrian in a crosswalk. One of the colleges where it has been put in place is on a one-mile campus loop roadway surrounding Foothill College's campus in Los Altos Hills, CA. There are six student parking lots with a capacity for several thousand vehicles on the far side of the loop roadway from the campus.

When college officials changed the roadway from two-way to one-way traffic a few years ago, they looked at additional measures that might be taken to enhance pedestrian safety at the 13 marked crosswalks that serve the parking areas surrounding the campus. The crosswalks serve a population of more than 20,000, most of which must cross the loop roadway in order to access and leave the campus proper. The campus is in the vicinity of several other colleges, including DeAnza College and Stanford University in the San Francisco Bay Area.

A review of existing conditions by the Foothill DeAnza Community College District Police Department determined that traditional signage and markings were not sufficient to

adequately warn motorists of pedestrians. Observations indicated that motorists in one lane would routinely stop for a pedestrian to cross while an approaching motorist in the second lane would not react until the pedestrian in question walked past the stopped vehicle in the adjacent lane. Obviously, this presented a potentially dangerous situation.

In December 2000, the use of LED In-Roadway Warning Lights at crosswalks became a new federal standard in the Manual on Uniform Traffic Control Devices (MUTCD).

The police chief inquired about a new traffic warning system that uses LED in-roadway warning lights at crosswalks to warn approaching motorists to the possible presence of a crossing pedestrian. As a result, six new in-roadway crosswalk-warning systems are now installed along the campus loop road surrounding the Foothill College campus.

During initial inquiries back in 1997, college officials were notified that the crosswalk warning system was experimental and not yet approved for use in California. The College District Police Department made an application to Caltrans and the Federal Highway Administration for authorization to install and test the new devices. In December 2000, the use of LED In-Roadway Warning Lights at

crosswalks became a new federal standard in the Manual on Uniform Traffic Control Devices (MUTCD) and Caltrans issued Interim Guidelines for its use in California.

The crosswalk warning system installed at Foothill College was developed by Mike Harrison, a corporate pilot who had a friend who was the driver involved in a pedestrian fatality. In seeking ways to prevent similar accidents, Harrison devised an in-roadway LED flashing crosswalk device durable enough to withstand the rigors of the roadway. Harrison worked with private companies such as Hewlett-Packard to develop the light source and the crosswalk device for experimental field-testing.

How it works

The system is designed to alert approaching motorists in vehicles upon activation of the device by a pedestrian. The in-roadway warning light system consists of a series of LED (Light Emitting Diode) flashing light modules, which are embedded about 1 inch into the pavement adjacent to a marked crosswalk. The lights protrude about a half inch above the roadway surface.

The lights reflect out towards the oncoming traffic to warn approaching drivers of a pedestrian's presence. The system is activated automatically by a pedestrian detection device or manually by a pedestrian push-button mechanism. Foothill College uses a mix of manual activation and automatic activation systems.

In a typical crosswalk installation across a roadway, the LED in-roadway warning lights are embedded in the roadway surface on the outside edges of the crosswalk and aimed toward the approaching driver viewing-approach-path. On a one-way roadway, only the approach side of the crosswalk is outfitted with the in-roadway lights.

Placement of the devices on the roadway surface is configured to be outside the normal traffic tire travel-wearing pattern to reduce the wear abuse on the LED signal head module housings. Any crosswalk pattern markings on the roadway surface are offset from the LED signal head locations. Pedestrian symbol signs enhanced with flashing LED modules provide additional warning on each side of the roadway at the crosswalk. The flashing signs are also automatically activated upon demand in conjunction with the in-roadway warning lights.

When activated, the crosswalk system does not require the motorist to stop. The pedestrian is to be as cautious as if there were no signals or markings. The pedestrian is to stop, look, and start crossing only after they know that the motorist can see them and is stopping. It is the driver's responsibility to obey the primary law to yield to a pedestrian in a crosswalk.

Motorists approaching an activated crosswalk system will see an array of flashing amber lights in the pavement and a pedestrian symbol sign flashing in unison with a strobe-like flash rate designed for maximum recognition. The typical reaction of most

According to the National Safety Council, pedestrians are 1,100 times more likely to be hit by motorists during nighttime hours.

drivers seeing the activated in-roadway flashing lights is to let off the accelerator, slowing or braking as they approach the crosswalk. This creates a heightened state of driver awareness for the approaching motorist to come to a safe stop for a pedestrian or pass safely through the crosswalk with minimal impact to the traffic flow. The flashing lights automatically shut off after a set period of time, usually 10-20 seconds.

To minimize the possibility of creating a false sense of security for a pedestrian, the system is purposely designed so as not to be easily observed

while operating by the pedestrian waiting to cross. Regardless of the installation or activation of the crosswalk warning system, pedestrians and drivers are not to deviate from following the crossing safety rules and motor vehicle laws.

Field study evaluations conducted by W-Trans Transportation, Inc.; the University of North Carolina Highway Safety Research Center; the City of San Jose; the University of Hawaii Dept. of Civil Engineering; and other cities over the past several years demonstrate that in-roadway warning lights cause drivers to brake sooner when approaching the crossing, and significantly increase the percentage of drivers who yield to pedestrians.

Motorists say it's an attention-getting device seemingly impossible to ignore. The compelling data and study conclusions were the basis for the creation of federal standards for In-Roadway Warning Lights in the MUTCD traffic manual.

Peter Floodman, senior vice president of LightGuard Systems, can be reached at pmf@lightguardsystems.com. LightGuard has more than 120 of its Crosswalk Warning Systems installed across the country, including at Seattle University, the University of Florida, the University of Georgia, the Modesto College District, Millikin University, and Amgen Corporate Campus. For more information, visit www.crosswalks.com.

