

Using Lighting and Visual Information to Alter Driver Behavior

Inappropriate driving speeds are a major cause of traffic fatalities. Since driving requires a substantial contribution from vision, the use of lighting and visual information such as signage could provide cues to encourage appropriate speeds.

Visual Information in Sharp Curves

LRC researchers investigated the use of visual information in sharp roadway curves, where a reduction in speed is desirable to prevent rollover crashes. Through modifying the size and spacing of chevron signs along a curve, the researchers were able to create a perception of increasing curvature sharpness. The modified chevron signs were field tested in a controlled driving experiment as well as in real-world installations on two highway curves in New York State. Results of both the field tests and the real-world installations showed that when the signs were modified, driving speeds in the curves significantly decreased.



Chevron signage increases in size and spacing through the curve to give drivers the perception of a sharper curve as it is approached.

Sponsor

New York State Department of Transportation through the University Transportation Research Center



Speed-dependent signs helped reduce speed variance in this field experiment.

Conditional Speed Display Messages

Locations prone to congestion, such as interchange ramps and work zones, are also areas where visual information and lighting can help improve traffic safety. In these areas, uniformity of speeds is desirable to optimize safety and traffic flow. LRC researchers developed conditional speed display messages on changeable message boards, which were dependent on the speed of oncoming traffic. In controlled field experiments and real-world installations, drivers modified their speeds and overall speed variance was reduced.

Results

The results of this research project indicate that chevron size and spacing modifications can be readily implemented to improve traffic safety. Additional trials of the conditional speed displays at different types of congested areas would be recommended, but these initial results are promising.

