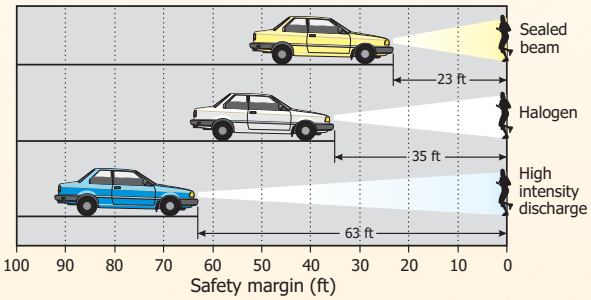
Improving Pedestrian Safety Margins with HID Headlamps

The driving public has voiced several complaints about the glare and "bluish" color of high-intensity discharge (HID) headlamps, but could they actually help make roadways safer?

A recent LRC study examining stopping distances under different headlamp illumination conditions suggests that HID headlamps have a greater "safety margin," or mean stopping distance ahead of pedestrians, than halogen headlamps.

In the study, funded by the Transportation Lighting Alliance, the researchers conducted a field experiment using halogen and HID headlamps for the detection and recognition of roadside pedestrian targets. They measured the relative ability of drivers to stop in time when detecting pedestrians about to enter the roadway, as opposed to pedestrians about to exit the roadway. The researchers then compared the results to a mathematical response time model.



The results of the LRC's study were featured in the "Drive On" section of the *USA Today* Web site.

In the study, LRC researchers mounted different headlamp systems to the test vehicle.

Research Results

- HID headlamps allowed drivers to see pedestrians in or near the road as much as 30 feet sooner than with halogen headlamps, allowing them to come to a stop sooner.
- The increased safety margin with HID headlamps corresponded very closely to predictions made with the LRC-developed mathematical model.

While drivers may find the bluish tint of HIDs "annoying," a previous LRC glare study showed that two-thirds of a sample of more than 200 passenger vehicles had at least one misaligned headlamp, which may result in increased incidence of glare experienced by oncoming drivers. If properly aligned, HID headlamps show promise for improvements in pedestrian safety.

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