The driver’s direct field of view in a truck is significantly more restricted than that in other vehicles, especially in passenger vehicles. The federal standard that regulates mirror systems on trucks is Federal Motor Vehicle Safety Standard (FMVSS) 111, which requires only a planar mirror on each side of the cab with an area of at least 323 square centimeters. This report analyzes currently available data to examine the traffic safety problems that may be related to truck mirror systems. Analysis of crash data, measurements of fields of view, and observational data on the variety and distribution of mirror configurations in the truck population suggest a need for improved driver vision to address specific truck crash types.

“Mirror-relevant” crash types are defined, identifying crashes in which the truck driver would likely need to use mirrors to maneuver safely. These crash types include lane change/merge (LCM) left, LCM right, left turn with the conflict vehicle approaching from the rear, right turn with the conflict vehicle approaching from the rear, start-up with a pedestrian/nonmotorist in front of the vehicle, and backing. Mirror-relevant crashes account for almost 20 percent of all truck crash involvements. LCM right crashes occurred over four times more frequently than LCM left crashes. Similarly, turn-at-intersection crashes in which the conflict comes from the rear are over four times more frequent as right turns than as left. These results illustrate a safety problem in the area where the driver’s view is more restricted.

Observational data indicate that about 70 percent of trucks with conventional cabs have right fender mounted mirrors, which can fill in the driver’s view along the front right side. Preliminary results from the Large Truck Crash Causation Study (LTCCS), the first to include mirror configuration, suggest that trucks without a right fender mirror may be significantly overinvolved in crashes.