This study investigated the effects of hydrophobic treatment on distance estimation under conditions of simulated rain and wind when applied to the driver-side window and driver-side exterior rearview mirror. The dependent measure was the estimate of distance to a target vehicle viewed through the driver-side window and rearview mirror. The following independent variables were examined: actual distance, hydrophobic treatment of the driver-side window, hydrophobic treatment of the driver-side exterior rearview mirror, participant age, and participant sex.

While the results of this study indicate no significant effect of hydrophobically treating driver-side windows or mirrors, one marginally nonsignificant interaction of interest was observed. Specifically, there was a tendency for older drivers to report shorter (more conservative and presumably safer) distance estimates when viewing vehicles through a driver-side window that has received hydrophobic treatment. This tendency, in combination with over-representation of older drivers in lane change/merge crashes, suggests that additional research efforts should be focused on examining the potential for safety benefits from applying hydrophobic treatment to driver-side windows.