NATIONAL TRANSPORTATION SAFETY BOARD
Public Meeting of September 25, 2018
(Information subject to editing)

Highway Special Investigation Report
Pedestrian Safety
NTSB/SIR-18/03

This is a synopsis from the NTSB's report and does not include the Board's rationale for the conclusions and safety recommendations. NTSB staff is currently making final revisions to the report from which the attached conclusions and safety recommendations have been extracted. The final report and pertinent safety recommendation letters will be distributed to recommendation recipients as soon as possible. The attached information is subject to further review and editing to reflect changes adopted during the Board meeting.

Executive Summary

In May 2016, the National Transportation Safety Board (NTSB) hosted a forum intended to begin a public conversation about pedestrian safety. After the forum, the NTSB began investigating a series of 15 fatal crashes in which vehicles on public highways killed pedestrians. In 2016, during the project design phase, the set of 15 investigative cases represented the average number of pedestrian fatalities every day. By the time the project was complete, the average had increased to 16 a day.

This special investigation report discusses the public forum and previous NTSB investigations related to pedestrian safety, including the 15 fatal pedestrian crashes, and makes recommendations to improve pedestrian safety. Special investigation reports combine the work of a similar set of cases to address a particular safety issue. This report and the related public forum represent the NTSB's first full consideration of pedestrian safety since the 1970s.

The report uses an organizing framework of vehicle-based changes, infrastructure improvements, and data needs for improving pedestrian safety. Given that the poor visibility of people walking in and around moving vehicles is a serious problem, the report considers improvements to vehicle lighting systems that are being developed but are not yet in place. The report also considers other vehicle safety systems that can improve pedestrian safety and recognizes the needs of local transportation planning work to improve pedestrian safety. Several recommendations target data needs to better guide the implementation of countermeasures and to gauge the effectiveness of programmatic efforts. The report focuses on issues common to all pedestrians without separating out subgroups of risk or specific countermeasures for only certain types of events.

Findings

1. Vehicle headlight systems require an evaluation that is more advanced than bench testing of bulb output.

2. Motor vehicle safety standards should not limit advanced vehicle lighting systems that have been shown to have safety benefits.

3. Incorporating pedestrian injury mitigation into vehicle hood and bumper designs would improve pedestrian safety.

4. For different automated pedestrian safety systems to be compared, there needs to be a standard set of test conditions to rate their performance.

5. The public would benefit from knowing that the model vehicle they are considering for purchase has pedestrian-safe design characteristics, and their choices could in turn affect the implementation of pedestrian safety systems in new car designs.

6. Effective street designs for pedestrian safety are highly context-dependent and should be managed by local interests; however, states and cities would benefit from resources, tools, and funding support to develop and implement effective plans.

7. The design guidance needed to develop effective pedestrian safety action plans is readily available to local transportation planners.

8. Addressing the pedestrian safety design changes needed for many of our urban environments will take substantially more resources.

9. Planners need localized pedestrian data to support the decision-making process for urban pedestrian plans and to prioritize infrastructure projects; in addition, the larger safety community needs national data about pedestrian use of the transportation network.

10. The most complete set of pedestrian crash data available for safety analysis and research is more than two decades old, collected at a time when vehicle designs were substantially different from those of current models.

11. A state data system linking state police crash reports to hospital intake and emergency room medical records would facilitate the development of targeted countermeasures to reduce pedestrian crashes and the injury severity of those crashes.

12. To facilitate the aggregation of state data into a national picture of pedestrian fatalities and injuries, a common data structure needs to be used by the many jurisdictions compiling the data.

The report makes recommendations to the National Highway Traffic Safety Administration, the Federal Highway Administration, and the Centers for Disease Control and Prevention.

Recommendations

New Recommendations

As a result of its investigation, the National Transportation Safety Board makes the following new safety recommendations.

To the National Highway Traffic Safety Administration:

1. Revise *Federal Motor Vehicle Safety Standard* 108 to include performance-based standards for vehicle headlight systems correctly aimed on the road and tested on-vehicle to account for headlight height and lighting performance.

2. Revise *Federal Motor Vehicle Safety Standard* 108 to allow adaptive headlight systems.

3. Develop performance test criteria for vehicle designs that reduce injuries to pedestrians.

4. Develop performance test criteria for manufacturers to use in evaluating the extent to which automated pedestrian safety systems in light vehicles will prevent or mitigate pedestrian injury.

5. Incorporate pedestrian safety systems, including pedestrian collision avoidance systems and other more-passive safety systems, into the New Car Assessment Program.

6. Develop a detailed pedestrian crash data set that represents the current, complete range of crash types and that can be used for local and state analysis and to model and simulate pedestrian collision avoidance systems.

7. Work with the Centers for Disease Control and Prevention to develop and implement a plan for the states to combine highway crash data and injury health data, with the goal of producing a national database of pedestrian injuries and fatalities.

8. Examine the past framework of the Crash Outcome Data Evaluation System and establish methods that states and metropolitan planning organizations can use to collect pedestrian event data, then define a common framework that will allow those data sources to be combined.

To the Federal Highway Administration:

9. Expand your support of state and local safety projects beyond focus cities to promote municipal pedestrian safety action plans that develop a network of safety improvements.

10. Develop standard definitions and establish methods that states and metropolitan planning organizations can use to collect pedestrian exposure data, then define a common framework that will allow those data sources to be combined into a national metric of pedestrian activity.

To the Centers for Disease Control and Prevention:

11. Work with the National Highway Traffic Safety Administration to develop and implement a plan for the states to combine highway crash data and injury health data, with the goal of producing a national database of pedestrian injuries and fatalities.

Previously Issued Recommendation Reclassified in This Report

Safety Recommendation H-13-26, which was issued on July 3, 2013, to the US Department of Transportation, is reclassified "Closed—Superseded":

Develop and implement a plan to ensure the continued collection of data as performed for the Trucks in Fatal Accidents database and the continuation of state linkage to hospital and police-reported data as performed by the Crash Outcome Data Evaluation System. (H-13-26)

The recommendation is superseded by Safety Recommendation [7].