

Relationship Between Speed and Traffic Safety

Vehicle speed is widely recognized as one of the most significant factors in the frequency and severity of traffic crashes. According to the National Highway Traffic Safety Administration (NHTSA), higher vehicle speeds correspond with a greater potential for loss of vehicle control, a higher stopping distance required after a driver perceives a danger, and an increased degree of crash severity.¹

Pedestrians and bicyclists are particularly vulnerable in the event of a crash, as the human body has physical limits for tolerating crash forces before death or serious injury occurs. A study published by the AAA Foundation for Traffic Safety found that the average risk of severe injury to a pedestrian increased with vehicle speed (from 10% at 16 mph, 25% at 23 mph, 50% at 31 mph, 75% at 39 mph, and 90% at 46 mph).²

In 2017, the National Transportation Safety Board published a landmark comprehensive safety study entitled *Reducing Speeding-Related Crashes Involving Passenger Vehicles*, which included the following findings:³

- Speed increases the likelihood of serious and fatal crash involvement, although the exact relationship is complex due to many factors.
- Speed increases the injury severity of a crash.
- The involvement of speeding passenger vehicles in fatal crashes is underestimated.
- The current level of emphasis on speeding as a national traffic safety issue is lower than warranted and insufficient to achieve the goal of zero traffic fatalities in the United States.

In January 2022, the U.S. Department of Transportation (USDOT) announced a National Roadway Safety Strategy, which highlights speed as a key factor in the nationwide traffic safety crisis. As part of the strategy, USDOT notes that setting appropriate speed limits is essential to improving roadway safety:

“Speed limits frame expectations for drivers and other roadway users, and should be set to provide a safe, consistent, and reasonable speed to protect drivers, other people in motor vehicles, and people walking, biking, and rolling along the roadway. Setting safer speed limits is a critical tool for reducing crashes and injury, and methods for setting speed limits should be customized to the context of the roadway.”⁴

¹ National Highway Traffic Safety Administration. Speeding. (<https://www.nhtsa.gov/risky-driving/speeding>)

² Tefft, B.C. (2011). Impact Speed and a Pedestrian’s Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.

³ National Transportation Safety Board. 2017. Reducing Speeding-Related Crashes Involving Passenger Vehicles. Safety Study NTSB/SS-17/01. Washington, DC.

⁴ U.S. Department of Transportation. 2022. National Roadway Safety Strategy. https://www.transportation.gov/sites/dot.gov/files/2022-01/USDOT_National_Roadway_Safety_Strategy_0.pdf.