



Between 2014 and 2015, pedestrian fatalities in the U.S. increased by 9.5 percent. V2P (vehicle-to-pedestrian) communications can help avoid these deaths or at least reduce the consequences when light vehicles—those with a mass of 4,536 kg or less—collide with pedestrians. Volpe, the US National Transportation Systems Center, have analysed data from national crash databases that code hundreds of thousands of real crashes to help NHTSA understand the scenarios that lead to vehicle-pedestrian crashes and how V2P technology can help avoid them. The study shows that V2P communications can help avoid impacts or reduce the consequences when light vehicles collide with pedestrians.

To minimise interventions based on false positives, V2P systems must be able to discern between driving situations wherein a crash is imminent, and benign driving conditions. Volpe researchers identified five priority pre-crash scenarios that make up 91% of fatal crashes between light vehicles and pedestrians, where the first event in the crash is the vehicle striking a pedestrian:

- Vehicle going straight and the pedestrian crossing the road;
- Vehicle going straight and the pedestrian in the road;
- Vehicle going straight and the pedestrian adjacent to the road;
- Vehicle turning left and the pedestrian crossing the road, and
- Vehicle turning right and the pedestrian crossing the road.

The Volpe project lays the foundation for new V2P safety applications by identifying research areas and knowledge gaps. NHTSA will use Volpe's work to improve the effectiveness of V2P crash avoidance systems and advance V2P technologies that can compensate for limitations of vehicle-based pedestrian crash avoidance systems that use radar, lidar, or vision sensors.