Technical Report Documentation Page

1. Report No. UMTRI-2014-18	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Key Pedestrian Collision Scenarios in the U.S. for Effective Collision Avoidance Technologies		5. Report Date May 2014 6. Performing Organization Code 383818
7. Author(s) Daniel Blower		8. Performing Organization Report No. UMTRI-2014-18
9. Performing Organization Name and Address The University of Michigan Transportation Research Institute 2901 Baxter Road Ann Arbor, Michigan 48109-2150 U.S.A.		10. Work Unit no. (TRAIS) 11. Contract or Grant No.
12. Sponsoring Agency Name and Address The University of Michigan Sustainable Worldwide Transportation http://www.umich.edu/~umtriswt		13. Type of Report and Period Covered 14. Sponsoring Agency Code
15. Supplementary Notes		

16. Abstract

Pedestrians account for more than half of traffic fatalities and injuries in some countries, and a substantial and increasing share in the United States. This report develops pedestrian crash scenarios to identify the primary modes and circumstances in which pedestrians are killed and injured in traffic crashes to support the development of collision avoidance technologies to reduce pedestrian fatality and injury. Crash scenarios are developed separately for light vehicles (LVs) and trucks, because significant differences in operations and vehicle design result in different scenario distributions. National crash data from the Fatality Analysis Reporting System and the General Estimates System from 2010 through 2012 are used. Scenarios are ranked by frequency (number of involvements) and total societal burden as estimated by comprehensive crash costs.

Priority pedestrian crash scenarios for the development of pedestrian collision avoidance technologies for LVs include non-intersection, vehicle going straight; night time crashes, particularly in dark/lighted conditions; left turns, both in daylight and nighttime; pedestrians crossing in daylight; younger pedestrians darting out in non-intersections; and, pedestrians walking along or in the road at night. For trucks, priority scenarios include non-intersection, vehicle going straight; night time, particularly dark/not lighted conditions; pedestrians walking along or in the road at night; left turns, especially in daylight or dark/lighted conditions; higher-speed roads (45+ mph); older pedestrians at intersections; and, younger pedestrians darting out at non-intersections.

17. Key Words Light vehicles, trucks, pedestrians, crash scenarios, collision avoidance technologies			18. Distribution Statement Unlimited
19. Security Classification (of this report) None	20. Security Classification (of this page) None	21. No. of Pages 66	22. Price