Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
UMTRI-2009-15		

4. Title and Subtitle	5. Report Date
New Developments in UTMOST: Application to Electronic Stability Control	October 2009
	6. Performing Organization Code 383818
7. Author(s) Flannagan, C.A. and Flannagan, M.J.	8. Performing Organization Report No. UMTRI-2009-15
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	13. Type of Report and Period Covered 14. Sponsoring Agency Code

15. Supplementary Notes

The current members of Sustainable Worldwide Transportation include Bendix, Bosch, Continental Automotive Systems, FIA Foundation for the Automobile and Society, Ford Motor Company, General Motors, Nissan Technical Center North America, and Toyota Motor Engineering and Manufacturing North America. Information about Sustainable Worldwide Transportation is available at: http://www.umich.edu/~umtriswt

16. Abstract

The Unified Tool for Mapping Opportunities for Safety Technology (UTMOST) is a model of crash data that incorporates the complex relationships among different vehicle and driver variables. It is designed to visualize the effect of multiple safety countermeasures on elements of the driver, vehicle, or crash population. We have recently updated UTMOST to model the effects of the time-course of fleet penetration of vehicle-based safety measures, as well as changes in the populations of drivers and vehicle types in the fleet. This report illustrates some of the capabilities of UTMOST with examples of predicted effects for one reasonably well understood countermeasure (electronic stability control, ESC) and three countermeasures just entering the vehicle fleet (forward collision warning, FCW; road departure warning, RDW; and lane change warning, LCW). Results include the relative effects of the countermeasures on the overall number of crashes and on drivers of different ages. The report also illustrates the time-course capability of UTMOST by showing year-to-year savings in serious injuries and fatalities for a driver-based countermeasure (increased belt use), which would have an immediate effect throughout the vehicle fleet, compared to ESC, which as a vehicle-based countermeasure would affect new vehicles as they enter the fleet.

17. Key Words	18. Distribution Statement
crash data, modeling, vehicle equipment, electronic stability control, ESC	Unlimited

19. Security Classification (of this report)	20. Security Classification (of this page)	21. No. of Pages	22. Price
None	None	20	