

1. Report No. UMTRI-2005-5	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle The Roles of Garment Design and Scene Complexity in the Daytime Conspicuity of High-Visibility Safety Apparel		5. Report Date February 2005	
		6. Performing Organization Code 302753	
7. Author(s) Sayer, J.R. and Mefford, M.L.		8. Performing Organization Report No. UMTRI-2005-5	
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 Industry Affiliation Program for Human Factors in Transportation Safety		13. Type of Report and Period Covered	
		14. Sponsoring Agency Code	
15. Supplementary Notes The Affiliation Program currently includes: AGC Automotive America, Autoliv, Automotive Lighting, Avery Dennison, Bendix, BMW, Bosch, DaimlerChrysler, DBM Reflex, Decoma Autosystems, Denso, Federal-Mogul, Ford, GE, General Motors, Gentex, Grote Industries, Guide Corporation, Hella, Honda, Ichikoh Industries, Koito Manufacturing, Lang-Mekra North America, Magna Donnelly, Mitsubishi Motors, Muth, Nichia America, Nissan, North American Lighting, OLSA, OSRAM Sylvania, Philips Lighting, PPG Industries, Reflexite, Renault, Schefenacker International, Sisecam, SL Corporation, Solutia Performance Films, Stanley Electric, Toyoda Gosei North America, Toyota Technical Center USA, Truck-Lite, Valeo, Visteon, 3M Personal Safety Products, and 3M Traffic Safety Systems. Information about the Affiliation Program is available at: http://www.umich.edu/~industry			
16. Abstract A naturalistic field study was conducted to assess the effects of garment color, the amount of background material, pedestrian arm motion, scene complexity, and driver age on the daytime conspicuity of personal safety garments. Sixteen drivers drove instrumented vehicles in real traffic, along a fixed 31-km route, in search of pedestrians wearing one of four fluorescent safety garments with retroreflective trim. Distances at which the drivers first reported detecting the pedestrians were recorded. Drivers had no prior knowledge of where along the route pedestrians would be located, nor the number of pedestrians positioned along the route. All of the challenges normally encountered when driving on public roadways were present during the study (other motor vehicles, traffic signals, signs, pedestrians, and bicyclists), thus imposing an ecologically valid level of workload on the drivers. The results show that scene complexity was the only main effects variable to significantly affect the distance at which a pedestrian wearing a fluorescent safety garment was detected. Garment color (fluorescent yellow-green or fluorescent red-orange), garment type (Class 2 vest or Class 2 jacket), arm motion (arms in motion or stationary), and driver age (younger or older) did not significantly affect the distance at which pedestrians were detected. The results contribute to a growing body of research aimed at a more general understanding of what garment characteristics enhance pedestrian conspicuity in both day and night conditions.			
17. Key Words Daytime, conspicuity, fluorescent, pedestrian, personal protective equipment, road worker		18. Distribution Statement Unlimited	
19. Security Classification (of this report) None	20. Security Classification (of this page) None	21. No. of Pages 18	22. Price