PRELIMINARY FINDINGS FROM THE VRU CRASH TEST

K MURONGA, **T MATSAUNG** and **P MASHABA**

CSIR

ABSTRACT

The primary objective of this research, led by the Council for Scientific and Industrial Research (CSIR), is to evaluate the effectiveness of standard road restraint systems (RRS) in protecting vulnerable road users (VRUs) during vehicle crashes. This study addresses a significant gap in transport safety research by focusing not only on vehicle occupant protection but also on the safety of pedestrians, motorcyclists, and other non-occupant road users in the context of real-world crash scenarios.

Conducted at the Toyota Eston Racetrack in KwaZulu-Natal, South Africa, the research involved crash tests with both a large SUV and a motorcycle, each colliding with a steel w-barrier at varying speeds. Despite targeting an impact speed of 80 km/h, the actual speeds were lower: 39 km/h for the motorcycle and 38 km/h for the SUV. These tests aimed to assess the structural integrity of the RRS, the level of containment provided, and the degree of protection offered to VRUs positioned near the barrier.

Collaborators in this comprehensive study included Accident Specialist, the Road Traffic Management Corporation, the South African National Roads Agency, and several academic institutions such as the University of KwaZulu-Natal, University of Cape Town, and University of Stellenbosch. The involvement of industry partners like Toyota, Optron, and Auto track ensured the application of advanced technologies and methodologies in data collection and analysis.

Preliminary results indicate substantial insights into the performance of current RRS designs under specific crash conditions, highlighting areas for potential improvement to enhance the protection of VRUs. The findings will contribute to the development of more effective safety measures and standards, aiming to reduce fatalities and injuries in road environments.

This research underscores the critical need for a holistic approach to road safety that encompasses all road users, and it provides a foundation for future innovations in transport safety infrastructure.