RETHINKING ROADSIDE SAFETY: A PERFORMANCE-BASED APPROACH TO ROAD RESTRAINT SYSTEMS (RRS) IN SOUTH AFRICA

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ABSTRACT

Road Restraint Systems (RRS), including guardrails, parapets and crash barriers, play a critical role in protecting road users from severe roadside hazards. However, in South Africa, these systems are frequently installed using outdated specifications, are poorly maintained or incorrectly applied - often with fatal consequences. This presentation highlights the urgent need for a shift toward a performance-based and risk-informed approach to the specification, installation and maintenance of RRS.

Drawing on international standards such as EN 1317, MASH and NCHRP Report 350, as well as local well-established roadside design imperatives including the TMH 24 South African Road Restraint Systems Manual (SARRSM) and the developing Risk Assessment Program for South Africa (RAPSA), the paper outlines the technical criteria essential for modern RRS performance. It identifies common shortcomings and failures in current practice, and offers practical guidance for engineers, road authorities and contractors.

Through a systems-based lens aligned with the Safe System Approach, this presentation calls for a coordinated national effort to improve RRS knowledge leading to outcomes that will reduce fatal roadside crashes and ensure that these safety systems fulfil their intended purpose: to save lives.