

Mobility Management for Pedestrian Accident Predictability and Mitigation Strategies Using Multiple

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Abstract : Tom Mboya Street is a vital urban corridor within the spectrum of Nairobi city, it experiences high volumes of pedestrian and vehicular traffic. Despite past intervention measures to lessen this catastrophe, rates have remained high. This highlights significant safety concerns that need urgent attention. This study investigates the correlation and pedestrian accident predictability with significant independent variables using multiple linear regression to model to develop effective mobility management strategies for accident mitigation. The methodology involves collecting and analyzing data on pedestrian accidents and various related independent variables. Data sources include the National Transport and Safety Authority (NTSA), Kenya National Bureau of Statistics, and Nairobi City County records, covering five years. This study aims to investigate that traffic volumes (pedestrian and vehicle), Vehicular speed, human factors, illegal parking, policy issues, urban-land use, built environment, traffic signals conditions, inadequate lighting, and insufficient traffic control measures significantly have predictability with the rate of pedestrian accidents. Explanatory variables related to road design and geometry are significant in predictor models for the Tom Mboya Road link but less influential in junction along the 5 km stretch road models. The most impactful variable across all models was vehicular traffic flow. The study recommends infrastructural improvements, enhanced enforcement, and public awareness campaigns to reduce accidents and improve urban mobility. These insights can inform policy-making and urban planning to enhance pedestrian safety along the dense packed Tom Mboya Street and similar urban settings. The findings will inform evidence-based interventions to enhance pedestrian safety and improve urban mobility.

Keywords : multiple linear regression, urban mobility, traffic management, Nairobi, Tom Mboya street, infrastructure conditions., pedestrian safety, correlation and prediction

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