

PREDICTING CRASH SEVERITY RISK FACTORS IN WORK ZONES OF HYDERABAD METRO RAIL PROJECT

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Abstract

Work zones are given priority by most government agencies nationwide because of the need for construction, maintenance, rehabilitation, and advancement of the existing road networks and Metro Rail Construction works. The goal of this research is to analyze the contributing factors causing severe traffic crashes and to identify the measures which could minimize the work zone related crashes in order to improve work zone and traffic safety. Research is undertaken to study various types of crashes and its causative factors in Hyderabad Metro Rail Work Area, the reported crash data of project is obtained from the period of 2012 to 2014. Majority of the crashes, being a multi factor event and to identify & predict the risk factors in work zone crashes; relationship is developed between the crash variables. This research seeks to identify the contributing factors affecting crash severity by using statistical analytical technique of frequency analysis, cross tabulation, box plot and stem & leaf analysis. The analysis explores how the interaction of these factors affects accident severity risk. The crash factors as independent variable vehicle type, driver's age, collision type, location, incident cause, month and time of incident are analyzed. The SPSS version 20 & EXCEL software are used for the data analysis. The data analysis and research findings indicate that driver characteristics and crash characteristic are significantly associated with crash severity. The significant variables, type of vehicle involved, age of the driver, cause of incident, incident time, location of incident, month of incident and type of accident are among the factors that have major impact on crash severity. Restricting the speed limits and enforcing it for large vehicle, implementation of traffic controls such as implementing more warning signs ahead of the advanced warning area along with consideration of installing of self-illuminating solar blinkers, retro reflective and directional arrow blinkers during night hours in traffic work zones and awareness creation among road users are the countermeasure based on this research. The research findings could be used for decision making to reduce work-zone crash severity. This research can be further extended by considering other road geometrical parameters, traffic factors, congestion, GIS and cell phones contribution on crashes to assess the combined effect of all parameters.

Key words: crashes, Hyderabad Metro Rail, SPSS, EXCEL.