

Assessing Sustainable Development of Arterial Road Infrastructure and Road Safety in Jaipur City: A Case Study

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Abstract—The current analysis is an empirical investigation into the behaviour of a road safety audit on an access-controlled urban arterial in Jaipur, Rajasthan, India. The study intends to analyse the road safety shortcomings and improvements on the existing road network. portion of the four-lane National Highway (NH) 52 to Mahal Road, Jaipur. The study analysed FIR data from five years of traffic crashes. Accident statistics were gathered, from which we learned numerous facts regarding the severity of accidents, such as fatalities, serious injuries, time of accident, property damage, and the ages of those deceased. In this study, accident data was collected at designated road segments, and black spots were found. The current study will focus on analysing the benefits of proposed actions that have resulted from inadequacies identified throughout the audit process. We have learned from this arterial route that as traffic volume increases and vehicle speed limits increases, so more accidents occur. There are also many other solutions that are effective for this stretch, which are discussed in this paper. This research makes a variety of recommendations regarding road safety issues such as the geometric design of the road, driver training and behaviour, unauthorised median openings, the absence of bus stops, confusing pedestrian behaviour, the provision of cameras, and so on. The goal of this research is to create an innovative model of sustainable mobility that is intended to meet the dynamic and evolving mobility needs of an urban core with social, environmental, and economic sustainability as defining pillars. There are numerous different solutions that can help with this stretch that are listed in this paper. This study addresses design flaws as well as other safety features.

Keywords: Risk Analysis; Collision Analysis; Road safety assessment; Countermeasures.