ESTIMATION OF PERCEIVED AND ACTUAL RISK FACED BY PEDESTRIANS: CASE STUDY DELHI, INDIA

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by

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CERTIFICATE

This is to certify the thesis entitled "**Estimation of Perceived and Actual risk faced by Pedestrians: Case study Delhi, India**" being submitted by **Ms. Shalini Rankawat** to the Indian Institute of Technology Delhi, India, for the award of the degree of **DOCTOR OF PHILOSOPHY**, is a record of original bona fide research work carried out by her under my guidance and supervision.

To the best of my knowledge, the thesis has reached the requisite standard. The material contained in this thesis has not been submitted, in part or in full to any other University or Institute for the award of any degree or diploma.

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ABSTRACT

Pedestrians continue to face high risk in urban traffic in most cities. In case of Delhi (India), where road space is shared by variety of vehicle types, traffic crash fatalities from 2006-12 show that pedestrians have the largest share in total road fatalities. In an attempt to manage high-speed traffic in the city and safety of pedestrians a large number of pedestrian subways and foot over-bridges have been constructed. However, their usage is poor (Rankavat and Tiwari 2016 (b)).

The focus of this study is to understand pedestrians' perceptions about safety, convenience, security and comfort of different crossing facilities and road infrastructure in the city as well as in their own neighborhood where they are familiar with the surroundings. Since pedestrians' perception of risk also provides important information to identify potential crash risk, the study also explored the pedestrian perception of risk of getting involved in a traffic crash and the impact of built environment features in their risk perceptions. The ordered logit model was used to examine the influence of built environment features on risk perception of respondents. Along with pedestrians' perceptions and preferences, it was also necessary to evaluate the characteristics of the built environment around the high crash location clusters. This study reports an analysis of the built environment (BE) factors influencing the safety of pedestrians.

Further analysis combined these three factors (perceived risk, road crossing behavior/preferences and actual crash risk) associated with pedestrians' risk in path analysis modeling. Results showed potentially useful role that pedestrian perception of risk and preferences of road crossing can play in influencing the actual crashes of pedestrians.

This study evaluates and quantifies the actual risk, perceived risk and road crossing preferences with the built environment features on road segments. Furthermore, the inverse relation between actual crash risk and perceived risk at road segments with and without flyover has been established.

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