

## Comparison of the 1st and 2nd Orders of Reliability Method in Determination of the length of Speed Change Lanes

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### *Abstract*

This paper presents the results of applying First and Second Orders of Reliability Method in determination of Speed Change Lanes' (SCLs') length. The basic assumption used in this paper was that the traffic flow is stochastic. Past researches showed that using First Order of Reliability Method (FORM) leads to a determination approach that gives the length of SCLs more or less than those of proposed in design manuals. Data used in this study consists of eleven study areas in Tehran-Karaj highway, Tehran, Iran. FORM and SORM (Second Order of Reliability Method) were applied to these data and to assure the results simulation method was used. It was observed that in most cases the SCL's length achieved by SORM were less than that of FORM, so using SORM which is more accurate than FORM because of more times of derivation, cause to a more economical SCL's length design process.

**Keywords:** *Speed Change Lane's (SCL's) Length, FORM, SORM, Probability of Hazard.*

