

Review of Roundabout Design Parameters and Development of a Roundabout Design Guideline for Sri Lanka

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Sri Lanka has been thriving through rapid development process with the ending of the civil conflict. Currently people of Sri Lanka are experiencing a local industrial revolution especially in highway and transportation sector. Increase of accessibility and mobility has led to more trip generation and attraction. Adequate traffic control measures are a timely need in Sri Lanka to develop effective transportation system.

Roundabouts are frequently used in urban areas in Sri Lanka where considerable amount of traffic move across a junction to function the traffic controlling effectively. However there is no proper guideline to design roundabouts in Sri Lanka. Increasing traffic and use of long vehicles resulted in malfunctioning some of the roundabouts. Geometry of roundabout has great influence on operation of the roundabouts.

Main objectives of the study are to review the roundabout design guidelines and identify the issues in existing roundabouts. The other objective of this study is to formulate a roundabout design guideline for Sri Lanka.

Five major design guidelines were considered to compare the design parameters of roundabout geometry. Twenty three number of roundabouts spread over major cities were considered for study. Main geometric parameters of each roundabouts were collected using Satellite images calibrated and validated using field measurements. Parameters of local roundabouts have been analysed with the standards of international Roundabout guidelines. Swept path analysis was carried out on selected roundabout layout for single unit truck to determine the adequacy of entry width, circulation width, exit width and operational speed.

Design parameters that need to be improved on existing roundabout will be identified and suitable values for selected design parameters will be proposed.

Key words: Design Parameters, Guidelines

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