REVIEW OF ROUNDABOUT DESIGN PARAMETERS AND DEVELOPMENT OF A ROUNDABOUT DESIGN GUIDELINE FOR SRI LANKA

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DECLARATION

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Prof. W.K. Mampearachchi

ABSTRACT

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

Roundabouts are frequently used in urban areas in Sri Lanka. 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.

Objectives of the study are to review the roundabout design guidelines, identify the issues in existing roundabouts and formulate a roundabout design guideline for Sri Lanka.

Five major design guidelines were considered to compare the design parameters of roundabout geometry. Twenty four roundabouts spread over major cities were selected for study. Main geometric parameters for each roundabout were collected using field measurements and calibrated satellite images. Standards of local roundabouts were compared with the 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 were identified and suitable values for selected design parameters were proposed.

Key Words: Design Parameters, Guidelines, Roundabouts

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ABBREVIATIONS AND ACRONYMS

AASHTO	-American Association of State Highway and Transportation Officials
AUSTROADS	-Association of Australian and New Zealand Road Transport and Traffic Authorities
CID	-Central Island Diameter
DMRB	-Design Manual for Roads and Bridges
ICD	-Inscribed Circle Diameter
ISTEA	-Intermodal Surface Transportation Efficiency Act
MEW	-Maximum Entry Width
RA	-Roundabout
US DOT	-US Department Of Transportation