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FEASIBILITY OF A ONE-WAY TRAFFIC SYSTEM FOR COLOMBO CITY

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This thesis was submitted to the Department of Civil Engineering University of Moratuwa in partial fulfilment of the requirements for the Degree of Master of Engineering.

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DECLARATION

The work included in this thesis is part or whole, has not been submitted for any other academic qualification at any institution.

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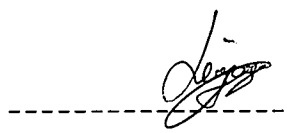

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ABSTRACT

Traffic management in main cities has become an absolute need due to the increase in the number of vehicles in the limited road space, at present. There are numerous limitations that restrict the widening of roads to cater to the demand of the ever-increasing vehicular load in an already congested city such as Colombo. The question is how are we going to differentiate between the benefit and the cost of development. It is very important to look for cost effective methods by minimizing the adverse effects on the economy in a developing country like Sri Lanka.

The objective of this research was to check the suitability of a One-way traffic system in a selected area of the Colombo City. The most congested areas, which could be expanded later, depending on the results obtained, have been selected first. The study area was confined to Northern and Southern banks of Beira Lake in Colombo Fort area. Computer software developed by Transportation Engineering Division, Department of Civil Engineering of University of Moratuwa called 'Transplan' was used for the analysis of data. This is still in the developing stage, but has been observed to have been used accurately by comparing actual data at the site. However, 'Transplan' has greatly reduced the amount of time required for calculation. There are other researches that are being carried out to study the suitability of Bus Lanes and Light Rail Transit (LRT), both of which require additional road space in the existing road network. This requirement could be met with a One-way traffic system, which increases the capacity in those road links. Traffic management measures such as integrated signalling systems, tidal flow operation etc, also have to be implemented in parallel with a one-way traffic system to have optimum benefits. Any of the above researches accrues benefits to the transport sector development resulting in large economic gains to the country, indeed.

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However, it is high time we explored the feasibility of implementing accurate traffic management systems that can relieve the congestion level in busy business cities. One-way traffic systems are operating in most developed countries quite effectively at present.

Very soon, we will have to select a One-way traffic system as a traffic management option in the Colombo City, as it is the most convenient alternative in the prevailing situation.

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LIST OF ABBREVIATIONS

AADT	-	Average Annual Daily Traffic
B/C	-	Benefit Cost Ratio
BOQ	-	Bill of Quantities
CMC	-	Colombo Municipal Council
CNSA	-	Cumulative Number of Standard Axles
CRWB	-	Colombo Ratnapura Wellawaya Batticaloa
DBST	-	Double Bitumen Surface Treatment
EIRR	-	Economic Internal Rate of Return
LOS	-	Level of Service
LRT	-	Light Rail Transit
Mw	-	Mawatha
NPV	-	Net Present Value
USA	-	United States of America
V/C	-	Volume to Capacity Ratio
VOC	-	Vehicle Operating Cost
VOT	-	Value of Time

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