

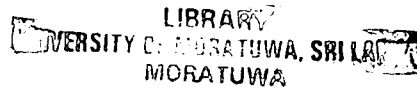
SURVEY OF CONDITIONS REGARDING  
TRAFFIC PROBLEMS IN  
KANDY METROPLITAN AREA



By

**K.M.JAYATILAKA**

CEng MIE (SL)



This thesis was submitted to the department of Civil Engineering of the University of Moratuwa in partial fulfillment of the requirements for the Degree of Master of Engineering in Highways and Traffic Engineering.

Supervised By:

**Dr. Amal Kumarage**

626 "03"

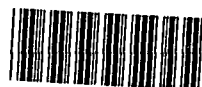
626.7 : 656.05  
(548.7)

DEPARTMENT OF CIVIL ENGINEERING  
UNIVERSITY OF MORATUWA

SRI LANKA

upl Thesis coll.

University of Moratuwa



77771

MARCH - 2003

77771

77771

<u>Contents</u>	<u>Page</u>
1 .0 Introduction	08
2 .0 Present Situation	10
2.1 Road Network	12
2.2 Land use data	16
2.3 Population	18
3 .0 Methodology	19
4 .0 Data Collection	20
4.1 Traffic volume Survey	
4.1.1 Classified counts (C C)	23
4.1.2 Classified Route Bus Counts (C B C)	23
4.2 O-D Survey	
4.2.1 Data collected from Passengers vehicles	24
4.2.2 Data collected from Goods vehicles	24
4.2.3 Classified Route bus counts	25
5.0 Traffic Volume Survey	27
5.2 Summary of Traffic Volume data	32
5.2.1. Traffic Volumes on Main Roads	35
5.3 Peak hour traffic	37
5.4 Traffic composition	38
5.5 Traffic volume composition and its effect on road	39
5.6 Average daily traffic	42
5.7 Road capacity analysis	44
5.7.1 Service Flow on Roads	45
5.7.2 Level of Service of Road (L O S)	46
5.8 Passenger inflow to the city	47
5.8.1. Passenger inflow by buses	47
5.9 Origin destination survey	50
5.9.1 Passenger Vehicles	50
5.9.2 Traffic to City Centre	61
5.9.3 Traffic through Kandy	63
5.9.4 All the Traffic Desires in Kandy	65
5.9.5 Places at origins and destinations of passenger vehicles	69
5.9.6 Types of commodity and occupancy of goods vehicles	70
6.0 Identification of Issues and Constraints	71
7.0 Conclusions	74
8.0 Annexures	

<b><u>FIGURES</u></b>	<b><u>PAGE</u></b>
2.1 Vicinity Map - Kandy	11
2.2 Road network	13
2.3 Kandy city	15
2.4 Kandy city boundary	17
4.1 Survey locations	22
5.1 Daily traffic flow towards Kandy at Lake Round	31
5.2 Kandy city traffic Volume	34
5.3 Traffic flow on approach roads toward city centre	36
5.4 O-D Survey at Ampitiya	52
5.5 O-D Survey at Tennekumbura	54
5.6 O-D Survey at Katugastota	56
5.7 O-D Survey at Getambe	58
5.8 O-D Survey at Heeressagala	60
5.9 Traffic to Kandy desires	62
5.10 Traffic through Kandy desires	64
5.11 Kandy city traffic desires	66
5.12 Traffic from main trunk roads	67
5.13 Places at origins and destinations of passenger vehicles	69



**TABLES****PAGE**

2.1	Details of the main roads in Kandy metropolitan Region	14
2.2	Land use in Kandy Municipal Area for 1995	16
2.3	Population in KMC area	18
4.1	Survey Locations	21
4.2	Details of Survey	25
5.1	Classified vehicle counts on lake round road	28
5.2	Classified Bus count on lake round road	29
5.3	Summary of classified Bus counts (Rout buses)	30
5.4	Summary of Traffic volume data	32
5.5	Peaks and average Traffic volumes	37
5.6	Competition of Daily Traffic to the city	38
5.7	PCU Factors	39
5.8	Vehicle PCU conversion for vehicle types - Lake round	48
5.9	Bus PCU conversion - Lake round	48
5.10	Summary of traffic volume and PCU at all locations	42
5.11	Peak Hour traffic and average daily traffic	43
5.12	Peak hour traffic volume and average daily traffic	43
5.13	Comparison of calculation ADT with RDA data	44
5.14	Service flow capacity on roads	45
5.15	Traffic volume in PCU's	46
5.16	Level of service calculation	46
5.17	Passenger flow calculation (Other vehicles)	47
5.18	Bus capacity data	48



5.18 (A) Bus loading and occupancy factors	48
5.19 Passenger flow calculation of the sample	49
5.20 Passenger flow calculation of the total buses	49
5.21 Summary of passenger inflow	49
5.22 Comparison of traffic volume and origin destination survey data	67
5.23 Origin destination survey data in 1961 & 1998	68
5.24 Summary of origin and destination	69
7.1 Summary of traffic flow in Kandy	74



## ABSTRACT

In the city of Kandy traffic problems have made severe impact on people by causing inconvenience and it has affected them socially and economically. In order to find solutions, comprehensive studies have to be carried out to collect data, to analyze them for identification of problems.

The extent of the study area was confined to the study of major traffic entering the city along main and trunk roads from outstations. The main entrances to the city were considered as Tennekumbura, Katugastota, Getambe, Heeressagala Junction and Ampitiya. Surveys of traffic volume and Origin and Destination were carried out to find actual traffic volumes on major roads and traffic desires of the commuters. Evaluation of the present situation of main roads to the city was done based on the findings of the studies on traffic volume and road capacities. Studies were directed to find out Peak Hour Traffic, Composition of Traffic, number of Vehicles and Passengers entering the city per day.



University of Moratuwa, Sri Lanka  
Electronic Theses & Dissertations

The result of the study reveals that about 40,000 vehicles and 331,000 people enter the city daily. About 50% of the total vehicles entering the city are Car/Van/Jeep type. Origin and destination survey data shows that only about 40% of vehicles need to come to the city center and only about 15 - 20% of vehicles need to go through the city for other destinations. Out of the four main roads, situation of the Kandy - Katugastota Road is critical where widening of road or alternative road is urgently required.

## ACKNOWLEDGEMENT

I thank Dr. Amal Kumarage Senior Lecturer of University of Moratuwa for the guidance and encouragement given to me in carrying out the survey and preparing this report. I am indeed grateful to him for the support given to obtain financial assistance from the University of Moratuwa in order to carryout the surveys. I also acknowledge with thanks the assistance given to me by the Chief Secretary of Central Provincial Council by granting financial and other facilities to follow this course. I also thank Mr. Nimal Mediwaka D.I.G. Kandy and other Police Officers for the assistance given in carrying out the traffic survey. I am grateful to Miss. D.Roshanee Wickramasinghe in my office for type setting the document.



University of Moratuwa, Sri Lanka.  
Electronic Theses & Dissertations  
[www.lib.mrt.ac.lk](http://www.lib.mrt.ac.lk)

