# DEVELOP A POLICY FRAMEWORK TO INCREASE THE TRANSMISSION FROM PRIVATE TO PUBLIC TRANSPORTATION (WITH SPECIAL REFERENCE TO THE BATTARAMULLA ADMINISTRATIVE CAPITAL IN SRI LANKA)

Kamburugamuwa Gallage Prasadi Manjula

158706F

Degree of Master of Spatial Planning

Department of Town and Country Planning

University of Moratuwa Sri Lanka

February 2020

# DEVELOP A POLICY FRAMEWORK TO INCREASE THE TRANSMISSION FROM PRIVATE TO PUBLIC TRANSPORTATION (WITH SPECIAL REFERENCE TO THE BATTARAMULLA ADMINISTRATIVE CAPITAL IN SRI LANKA)

Kamburugamuwa Gallage Prasadi Manjula

158706F

Thesis/Dissertation submitted in partial fulfillment of the requirements for the degree

Master of Spatial Planning

Department of Town and Country Planning

University of Moratuwa Sri Lanka

February 2020

## **DECLARATION**

I hereby confirm that, the research study that I have been submitted for the degree Master of Spatial Planning was solely completed by me. So I hereby confirm that any of the content of this study is not included in any of the previous studies, reports, thesis, Degree or Diploma works. As to my belief, the report does not content any materials that already published or written by.

And further, I grant University of Moratuwa non-exclusive right to publish, reproduce and distribute this thesis, wholly or partly in any medium (Either print, electronic or another).

Finally, I hereby declare that excluding tables, graphs, references and appendix the word count of the body of this research is 13178.

Signature	
Name of the student	:
Registration Number	:
Group	:
Department of Town & Cou	ntry Planning

## **CERTIFICATION**

I hereby certify, this student with Index No 158706F of the  $2015/\ 2019$  group has

carried out research for the dissertation und	ler my supervision.
Signature of Principal Supervisor	Head of the Department
Date:	Department of Town & Country
	Planning,
	University of Moratuwa
	Date:

## **ABSTRACT**

Traffic congestion can be identified as a manifesting critical problem that can be seen in urban areas around the world. It generates huge negative impacts on the urban environment. Sri Lankan statistics prove that many people in Sri Lanka spend more time on the road and they pay more for fuel. Currently, the vehicle amounts are rapidly increasing and it causes to take more time to reach a destination. Therefore, the need for pt system accessibility is acceded by developed and developing countries, due to one of the main critical issues of road traffic congestion in urban areas.

This research aims to develop a policy framework in order to reduce road traffic congestion and enhance the effective accessibility in public bus transport for the Sri Lankan community. This paper's object is to evaluate the implementation of prevailing policies to enhance the pt and to develop a policy framework to reduce the negative impacts from growing private vehicle population to the public bus transportation system in Sri Lanka.

Keywords: Public transportation, Private Transportation, Traffic congestion, Transport Policy

### **ACKNOWLEDGEMENT**

The thesis is a final result of the hard work of mine and kind support of many individuals. And this would not be completed without the valuable support from them. Therefore I would like to thanks all the individuals who have been believing me and supporting me until the very end.

Hereby I offer my heartiest thanks to Dr Rangajeewa Rathnayaka, Head of Department of Town & Country Planning and all the lectures of the department. Foremost I will extent my gratitude to my principal supervisor Dr Chameera De Silva. As well as I offer my thanks to the non- academic staff and my all the batch mates for their support.

Finally, thank you for all my family, my friends for believe in me, support and the encouragement given in order to successfully complete this study.

## **Table of Contents**

CHAPTER 01	1
INTRODUCTION	1
1.1 Introduction	1
1.2 Research Problem.	1
1.3 Scope and Limitations	3
CHAPTER 02	4
LITERATURE REVIEW	4
2.1 Introduction	4
2.2 Current Transportation Issues in World Context	4
2.3 Current Transportation Issues in Sri Lanka	6
2.4 Comparative analysis (Sri Lanka Vs World Context)	11
2.5 Policy frameworks incorporated in World context	14
2.6 Most successful strategies and theories according to the Literature	17
2.7 Criteria Selection	21
2.8 Summary of the literature review	35
CHAPTER 03	37
METHODOLOGY	37
3.1 Introduction	37
3.2 Methodology	38
3.3 Introduction to study area	40
3.4 Justification for the Study Area.	40
3.5 Sampling Method	41
3.6 Data Collection Method	43
3.7 Method of Analysis	43
CHAPTER 04	44
RESULTS AND FINDINGS	44
4.1 Introduction	44
4.2 Narrative Policy Analysis	44
4.3 Traffic Analysis of the Selected case study	47
4.4 Congestion Cost Analysis	56

4.5 Public Perception Analysis	60
4.6 Expert Perception Analysis	62
4.7 Comparison and the most suitable strategies	67
4.8 Applicability of different public transport modes into Sri Lankan context	
4.9 Key recommendations based on Expertise Interviews	
4.10 Policy Framework and the Evaluation Process	
CHAPTER 05	
CONCLUSION AND RECOMMENDATION	
5.1 Conclusion	
5.2 Recommendation for future work	
REFERENCES	
ANNEXURES	
ANNEXURE 1: LOCATION MAP	
ANNEXURE 2: LAND USE MAP	
ANNEXURE 3: STUDY AREA	iii
ANNEXURE 4: EXPERT SURVEY SHEET	4
ANNEXURE 5: PUBLIC PERCEPTIONS SURVEY SHEET	7
List of Figures	
List of Figures	
Figure 1 : Structure of the National Transport Policy in Sri Lanka	
Figure 2 Comparative policy analysis (National vs International)	
Figure 3 Policy framework for the transport sector in Ghana	
Figure 4 Transport Policies and development framework	
Figure 5 Policy framework to develop public transportation	
Figure 6 The wide spectrum of car free development	
Figure 7 Typified public transportation strategies	
Figure 8 A systematic approach	
Figure 9 Word Cloud Analysis in terms of frequency	
Figure 10 Cluster Analysis	
Figure 11 Study area	
Figure 12 Policy effects analysis	
Figure 13Vehicle Classification on Kaduwela Road (B240)	
Figure 14 Vehicle Classification on Polduwa Road	
Figure 15 Traffic Flow Distribution on Polduwa Road	
Figure 16 Traffic Flow Distribution on Kaduwela Road	
Figure 17 Traffic Flow Distribution on Sri Subuthipura Road	
Figure 18 Traffic Flow Distribution on Battaramulla - Pannipitiya Road (B47)	

Figure 20 Traffic Flow Distribution on Subuthi Mawatha	52
Figure 21 Level of Condition at present condition	55
Figure 22 Growth of passenger traffic 1958-2011	58
Figure 23 Passenger Kms by Mode 1958-2011	
Figure 24 Road traffic growth 2011-2031	59
Figure 25 Solution to erase traffic congestion in Battaramulla according to public per	ception
	60
Figure 26 Expected qualities for Public transportation by public	61
Figure 27 Collected Policy Actions from Public Perception Survey	61
Figure 28 Different professionals' Perceptions analysis	68
Figure 29 Comparison of Experts' Solutions	68
Figure 30 Applicability of different public transport modes into Sri Lankan context	69
Figure 31 Further Directives and Actions through the Literature	72
Figure 32 Policy Framework and the Evaluation Process	74
List of Tables	
Table 1 Important elements of public transportation that should be developed	
Table 2 ASI Approach example	
Table 3 Comparative analysis of ASI approach	
Table 4: Policy actions for eliminating the road congestion	
Table 5 Policy actions to mitigate negative impacts at transport sector in world conte	
Table 6 Narrative Analysis	
Table 7 Directional Distribution of Nearby Road.	
Table 8 Taken Strategies to reduce congestion impact in urban areas of Sri Lanka	
Table 9 Future planning strategies, proposals and proposed developments	
Table 10 Collected Policy Actions from Expert Survey	
Table 11 Comparison of the selected strategies through several analysis types	
Table 12 Narrative Analysis of Key Recommendation	70
List of Equations	
Equation 1 Solvin's Formula	42