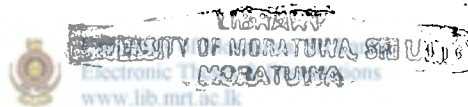




MICRO SIMULATION MODEL TO ANALYZE TURNING MOVEMENT DELAYS AT ROAD INTERSECTIONS



L.W. GAYAN LIYANAGE

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

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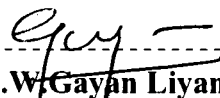


DECLARATION

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



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L.W. Gayan Liyanage

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Prof. J.M.S.J. Bandara

To My Father and Mother



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Abstract

In many countries the transportation planning process is currently turning from the unlimited expansion of the infrastructure to the improvement of the efficiency of the existing systems. This demands the development of efficient management tools. Due to the complexity of the problem, many of these tools are computer based models, a development which is reinforced by the explosion of computational power over the recent past.

This research is a development of a micro simulation model to understand delays at intersections. This would give an opportunity to traffic engineers to understand delays at intersections and to evaluate the effectiveness of traffic control measures before implementation. This information is very useful for situations where traffic signals are to be installed and the field trials would be expensive.

Even though there are a large number of variables that contribute to the intersection, three variables that would have considerable impact on intersection performance were selected for modelling. They are Geometric Properties, Vehicle Properties, and Driver Behaviour. Three different lane arrangements, five vehicle types and three driver behaviour situations can be handled by the model.

This model can be used to simulate both controlled and uncontrolled situations of four-way or three-way intersections. Validation of the model with field data was done using field surveys. Model outputs include queue length, vehicle flow, vehicle delay of each approach and graphical representation of vehicle movements.

Acknowledgment

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Contents

	Page
Abstract	i
Acknowledgement	ii
List of Figures	iii
List of Tables	iv
List of Annexes	vi
Chapter One - Introduction	1-6
1.1 Objective of the Research	2
1.2 Traffic as a Simulation Object	2
1.3 Areas and Approaches in Traffic Simulation	5
1.4 Limitation of the Model Developed	5
1.5 Organization of the Thesis	6
 University of Moratuwa, Sri Lanka Electronic Theses & Dissertations www.lib.mrt.ac.lk	
Chapter Two - Literature Review	7-19
2.1 Micro-simulation	7
2.2 Simulation Development in the Recent Past	8
2.3 Why undertake Micro-Simulation Models	9
2.4 Level of Details in Simulations	9
2.5 Scale of the Independent Variables	11
2.6 Representation of the Processes	11
2.7 Operationalization	11
2.8 Scale of the Applications	11
2.8.1 Microscopic Simulation Models	12
2.8.2 Submicroscopic Simulation Models	12
2.8.3 Cellular Automaton Models	13
2.8.4 Particle Hopping Models	14
2.8.5 Mesoscopic Simulation Models	14

2.8.5.1	Head way Distribution Models	14
2.8.5.2	Cluster Models	15
2.8.5.3	Gas Kinetic Continuum Models	15
2.8.6	Continuum Microscopic Traffic Flow Models	16
2.9	Simulation Packages	17
2.9.1	Paramics vs. VISSIM	17
2.9.2	Classification with Traffic Conditions	18
Chapter Three	– Theoretical Background	20-28
3.1	Car Following Methods	20
3.2	Gap Acceptance	21
3.3	Stochastic Approach	21
3.4	Queuing Theory	23
3.5	Validation	23
3.5.1	Multistage Validation Frame work	24
3.5.1.1	Conceptual Validation	25
3.5.1.1.1	Model Survey	25
3.5.1.1.2	Model Walkthrough	26
3.5.1.2	Operational Validation	26
3.5.1.2.1	Comparing Two Means	27
3.5.1.3	Data Collection	28
Chapter Four	– Simulation Model	29-46
4.1	Introduction	29
4.2	Model Development	29
4.3	Logical Development	30
4.3.1	Uncontrolled Intersections	30
4.3.2	Controlled Intersections	31
4.4	Variables Considered	35
4.4.1	Geometric Properties	35
4.4.2	Vehicle Properties	36

4.4.3 Driver Behaviours	37
4.5 Features of the Model	38
4.5.1 Start Form	38
4.5.2 Intersection Selection Form	39
4.5.3 Input Form	40
4.5.4 Signal Phasing Input form	42
4.5.5 Output Form	45
Chapter Five	– Surveys for Validation
	47-50
5.1 Classified Vehicle Counts	47
5.1.0 Introduction	47
5.1.1 Objective	47
5.1.2 Location	47
5.1.3 Vehicle Classification	48
5.1.4 Survey Procedure	48
5.2 Delay Survey	49
5.2.1 Location	49
5.2.2 Survey Procedure	50
Chapter Six	– Analysis of Simulation
	51-59
6.1 Introduction	51
6.2 Definition of the Delay	51
6.2.1 Uncontrolled Intersections Simulation	51
6.2.2 Controlled Intersection Simulation	53
6.3 Actual Delay Calculated	54
6.4 Actual vs Simulated Delays in Four-way intersections	54
6.5 Simulated controlled vs Simulated uncontrolled	55
6.6 Validation of the Model	57

Chapter Seven	– Conclusions and Recommendations	60-62
7.1	Conclusions & Recommendations	60
References		63
Annex A		65
Annex B		66



List of Figures

	Page	
Figure 1-a	Basic Driver Perception-action Process	3
Figure 1-b	The Vehicle Object's Interactions in a Simulation System	4
Figure 2.1	Graphic Presentation of Simulation Results in late 60's	8
Figure 3.1	Gap Acceptance	21
Figure 3.2	Multistage Validation Framework	24
Figure 4.0	Flow Chart of the Simulated Model	32
Figure 4.1	Intersections Available in the Simulation Model	35
Figure 4.2	Start Form of the simulation Software	38
Figure 4.3a	Intersection Selection Form –Four-Way	39
Figure 4.3b	Intersection Selection Form- Three-Way	40
Figure 4.4a	Input Form	40
Figure 4.4b	Error Message for Simulation Duration	41
Figure 4.5	Signal Phasing Scheme Selection Form	42
Figure 4.6	Controlled Intersection	43
Figure 4.7a	Approach Three Vehicles Moving	44
Figure 4.7b	Approach Two and Four Vehicles Moving	44
Figure 4.8	Vehicles Moving in Uncontrolled Intersection	45
Figure 4.9	Out-put Form	46
Figure 6.1	Actual Delays vs. Simulated Delays	55
Figure 6.2	Simulated Controlled vs. Uncontrolled Intersection Vehicular Delay	56
Figure 6.3	Traffic Stream Flow and Q-K Diagram	57

List of Tables

		Page
Table 2.1	Comparison of Simulation and Conventional Traffic Planning Packages	17
Table 2.2	Comparison of Paramics vs. Vissim	18
Table 2.3	Four Types of Model Classification	19
Table 4.1	Vehicle Types Available in the Simulation	36
Table 4.2	Vehicle Types and Their Characteristics	37
Table 5.1	MCC Data	49
Table 5.2	Calculated Actual Delays on Delay Survey	50
Table 6.1	Simulated Uncontrolled Intersection Delay	53
Table 6.2a	Simulated Delays of Controlled Intersection	53
Table 6.2b	Signal Timing for Two Phase System	53
Table 6.3	Average Vehicular Delays in Approach Roads in the Bellanthara Junction	54
Table 6.4	Average Actual Delays and Average Simulated Delays for each Approach	56
Table 6.5	Total Theoretical Delay Calculation Table	57
Table 6.6	Simulated vs. Theoretical Delays at Controlled Intersection	58



Table 6.7	Simulated Average Delays at Bellanthara Junction	58
Table 6.8	Actual Average Delays at Bellanthara Junction	58



List of Annexes

		Page
Annex A	Delay Survey Form	65
Annex B	Manual Classified Counts Form	66



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