

**EXAMINE THE RELATIONSHIP BETWEEN PARKING
DEMAND AND URBAN FORM CHARACTERISTICS:
CASE OF COLOMBO CITY, SRI LANKA.**

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Degree of Master of Science

Department of Town & Country Planning

University of Moratuwa

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

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February 2024

DECLARATION

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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ABSTRACT

A country like Sri Lanka is having huge traffic congestion even at the off-peak time. Accordingly, many scholars have contributed their knowledge to identify the root causes of traffic congestion and its impact on activities. In that background, this study is focused on finding the relationship between Urban Form's Characteristics and Parking Demand enabling planners to use this model for their policy-making process.

The study used a Network Centrality model to examine the level of Accessibility in the study area and the Parking Volume in common parking spaces is considered as Parking Demand. Further, an urban parameter such as Land Use Mixed, Capacity of the Road, and Urban Density of the selected sample is calculated to measure the relationship.

The 300m buffer zone of 65 Nos. junctions in the core area of Colombo City were selected as the sample of the study and a field survey was conducted to count the parking volume in particular sample locations at the peak time.

According to the Correlation Analysis, Accessibility, Capacity of the Roads and Commercial Density have indicated a positive strong relationship with Parking Volume at a 0.01 level of significance. Successively regression analysis was used to create a model to estimate Parking Volume at a given location and the model was shown a 0.64 R^2 value. Hence, Accessibility, Capacity of the Road, and Commercial Density are identified as the major factors that directly affect Parking Demand in a particular place.

This model can be used to predict future traffic volume effortlessly by considering the Parking Volume enabling planners to explain future scenarios of the urban form. Hence, in the process of urban planning and traffic planning, Accessibility and Capacity of the Road have to be considered carefully when the time of forecasting future traffic demand and demand for future economic activities. Further, travel behavior of a particular location can be assessed by using the Parking Demand for the activities.

Keywords: Accessibility, Parking Demand, Parking Volume, Land Use, Capacity of the Road, Urban Density.

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