

Impact on Traffic Flow due to the New Apartments in Colombo Municipal Council Area

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Abstract

The City of Colombo is the economic focal point in Sri Lanka and more and more people are attracted every day and the majority of them wanted to settle within Colombo city limits. Factors such as lack of proper public transportation system, traffic congestion, the concentration of reputed schools and easy access to other amenities have certainly added motivation towards this residing decision. From the supply point of view, the availability of limited land within Colombo City has skyrocketed the land prices and as a result, settling down in a high rise apartment has become a feasible solution for many people. Thus, many high rise apartment developments have been completed in the Colombo City and surrounding area recently and more projects are in the pipeline.

At present, an apartment building can be categorized as low income, middle income & high income depending on the unit size and facilities available. The impact on traffic generated from each category can be varied in terms of the number of vehicle trips, time and mode. Generally, the traffic pattern of an office building can be predicted as there are peaks in the morning as well as in the evening. However, when it comes to apartment buildings it is somewhat difficult to generalize the trip patterns since more distributed traffic flow can be observed throughout the day. Many land-use activities/developments may affect the traffic flow but this study is only confined to the residential apartments and its impact on the traffic flow during the operational stage.

Impact on traffic flow due to the traffic generated by apartments and trip generation rates from a different type of apartment buildings are important information and it is helpful to take planning decisions. However, there are no comprehensive studies available to quantify the impacts due to apartment buildings on traffic flow in the Sri Lankan Context. At present, parking requirement is assessed based on the floor area of an apartment unit and no standard or manual has been developed to estimate the trip generation. Therefore, this research aims to study the travel patterns of residents in apartment buildings and subsequently propose the trip generation rates as well as more appropriate and realistic parking requirements for different apartment types in and around Colombo city.

In this study, apartments are categorized into three major types; low, medium & high-income category based on the unit price. Fifteen apartments, five from each category, spread out within

Colombo Municipal Council limit were selected for this study. Trip pattern both in & out and traffic distribution by mode will be collected through traffic count survey while collecting the number of visitors, visitor's vehicle mode, vehicle ownership rate, number of occupied housing units and occupancy rate of parking lots will be collected through onsite observation survey. Level of satisfaction of residents with respect to the number of parking lots allocated for a unit, size of the parking, arrangement of the parking, width of the driveway, access for parking and number of parking lots allocated for visitors will be collected through a questionnaire survey.

Traffic generation rate per unit and vehicle compositions will be calculated separately and will compare with different apartment categories. Correlation analysis will be done to identify the relationship between trip generations with the number of occupied units, the total number of bedrooms and average unit price. Expected number of visitors per unit and mode of access will be estimated and will compare against the apartment category. Correlations between the number of visitors and number of occupied units, number of visitor parking lots, number of bedrooms and the average unit price will be checked to identify possible relationships. Category analysis using cross-tabulation will be carried out to identify any pattern between traffic generation and other independent variables.

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