

Demand-based Roadside Parking Control Strategy for a Main Road Corridor

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Abstract

Overcrowding in parking lots near high-demand locations is common in any main urban road, where parking demand often exceeds supply and parking spaces are distributed unevenly. This study aims to develop an effective roadside parking control methodology and strategy using the case study area of the Galle Road Corridor in Colombo, Sri Lanka. To accomplish this objective, it is necessary to identify various parking management strategies, identify parking fee methods and monitoring tools that are being used. In addition, the parking demand and supply on the selected section of the road are required. A single transportation corridor in an urban setting was studied, focusing on light and medium-duty vehicles. Instead of implementing a single uniform parking fee system for the entire region, we are proposing to implement a method where the parking fee varies based on the location and time of day so that demand can be distributed to less congested areas. Parking fees will be decided based on the above criteria. The methodology was developed using data such as parking location data and parking time data from the Colombo Municipal Council (CMC). Furthermore, the number of parking spaces was compared to what is currently being collected through Google Maps. The Galle Road section between Kollupitiya and Wellawatta was divided into 13 zones, and parking usage was analyzed by identifying demand, rush hours, and day variations of parking using CMC parking usage data. Following that, a physical survey was conducted to verify the past data that had been analyzed. The use of parking spaces during the day, as well as the vehicle type of parking vehicles, was monitored in the selected sections. Then identify, the pattern between those data and high, medium and low-demand sections was identified based on the time of the day and day of the week. Using CMC parking usage data, spot demand and parking variation by time and by day were identified. High parking was observed between 12.30 pm and 1.30 pm and 6.30 pm to 7.00 pm in the section from Pentrive Gardens to 5th Lane, as well as excess parking in the Alfred House Gardens to Bagathale Road section. As a result, pricing mechanisms can be used to distribute parking. The parking price and parking arrangements were adjusted according to the demand of the location. As a result of these changes, a new smart strategy for managing public parking in urban areas, such as a mobile app and features, was suggested, allowing for more efficient use of parking spaces in the city.

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