World Academy of Science, Engineering and Technology
International Journal of Transport and Vehicle Engineering
Vol:11, No:08, 2017

A Parking Demand Forecasting Method for Making Parking Policy in the Center of Kabul City

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Abstract : Parking demand in the Central Business District (CBD) has enlarged with the increase of the number of private vehicles due to rapid economic growth, lack of an efficient public transport and traffic management system. This has resulted in low mobility, poor accessibility, serious congestion, high rates of traffic accident fatalities and injuries and air pollution, mainly because people have to drive slowly around to find a vacant spot. With parking pricing and enforcement policy, considerable advancement could be found, and on-street parking spaces could be managed efficiently and effectively. To evaluate parking demand and making parking policy, it is required to understand the current parking condition and driver's behavior, understand how drivers choose their parking type and location as well as their behavior toward finding a vacant parking spot under parking charges and search times. This study illustrates the result from an observational, revealed and stated preference surveys and experiment. Attained data shows that there is a gap between supply and demand in parking and it has maximized. For the modeling of the parking decision, a choice model was constructed based on discrete choice modeling theory and multinomial logit model estimated by using SP survey data; the model represents the choice of an alternative among different alternatives which are priced on-street, off-street, and illegal parking. Individuals choose a parking type based on their preference concerning parking charges, searching times, access times and waiting times. The parking assignment model was obtained directly from behavioral model and is used in parking simulation. The study concludes with an evaluation of parking policy.

Keywords : CBD, parking demand forecast, parking policy, parking choice model
Conference Title : ICTDMTO 2017 : International Conference on Transportation Demand Management and Traffic Operations
Conference Location : Paris, France
Conference Dates : August 28-29, 2017