

Parking Service Effectiveness at Commercial Malls

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Abstract : We study the effectiveness of the parking service provided at Kuwaiti commercial malls and explore potential problems and feasible improvements. Commercial malls are important to Kuwaitis as the entertainment and shopping centers due to the lack of other alternatives. The difficulty and relatively long times wasted in finding a parking spot at the mall are real annoyances. We applied queuing analysis to one of the major malls that offer paid-parking (1040 parking spots) in addition to free parking. Patrons of the mall usually complained of the traffic jams and delays at entering the paid parking (average delay to park exceeds 15 min for about 62% of the patrons, while average time spent in the mall is about 2.6 hours). However, the analysis showed acceptable service levels at the check-in gates of the parking garage. Detailed review of the vehicle movement at the gateways indicated that arriving and departing cars both had to share parts of the gateway to the garage, which caused the traffic jams and delays. A simple comparison we made indicated that the largest commercial mall in Kuwait does not suffer such parking issues, while other smaller, yet important malls do, including the one we studied. It was suggested that well-designed inlets and outlets of that gigantic mall permitted smooth parking despite being totally free and mall is the first choice for most people for entertainment and shopping. A simulation model is being developed for further analysis and verification. Simulation can overcome the mathematical difficulty in using non-Poisson queuing models. The simulation model is used to explore potential changes to the parking garage entrance layout. And with the inclusion of the drivers' behavior inside the parking, effectiveness indicators can be derived to address the economic feasibility of extending the parking capacity and increasing service levels. Outcomes of the study are planned to be generalized as appropriate to other commercial malls in Kuwait

Keywords : commercial malls, parking service, queuing analysis, simulation modeling

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