

# **Development of an effective patrol dispatching system for traffic police operations**

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Abstract

Police patrol plays an important role in safety and efficiency of the transportation system by effective patrolling on the streets. It checks traffic violations, attends accidents, suppresses crimes, and provides safer environment for the society.

In Saudi Arabia, the allocation and dispatching of police patrol vehicles is generally carried out in an intuitive manner, which may not utilize manpower effectively in police departments. A well planned patrol allocation and dispatching scheme can partially solve numerous traffic safety problems.

This study aims to enhance the existing allocation and dispatching techniques by application of the queuing models. The study area under consideration is the city of Al-Khobar.

After the data collection and input data preparation phase of the study, the analyses were carried out in two stages, First, different allocation policies were evaluated in terms of performance measures, for determining the police patrol car requirements by considering the appropriate variations in the patrol levels. The patrol car allocation model has been adopted for this purpose. Second, the sector or beat design process for the patrolling units were carried out in iterative manner in order to balance the workload among each of the patrolling units. The hypercube queuing model is used to design the patrol sectors.