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Design of Optimum Allocation of Police Patrols in Four Police Districts at a Large City in Mexico Based on Stochastic Simulation

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Abstract: Public safety statistics in Mexico are showing very slim signs of an improvement tendency. However, these statistics are still very high and unacceptable. Beyond these metrics, society still observes that strategies to combat and prevent crime have substantial room for improvement. Based on these opportunities we have extended our prior research adding a police district to characterize its service demand and performance of the Emergency Response System (ERS) as a function of response time as well as to estimate an ideal allocation of the number of police patrols to meet an international response time reference of three minutes. With this additional police district, our research has integrated a total of four out of eight districts in the city. Our research was based on a discrete stochastic simulation model of the ERS's demand for service and its response time where current and proposed patrol deployment operating strategies were evaluated. The city's ERS provided data from 552 continuous hours. Actual operating strategy requires one patrol for each patrolling zone of the 16 zones integrated in a police district. However, this allocation strategy is often not met due to limited resources.

Keywords: Patrol Allocation, Emergency Response Systems, México