Rapid transit service in the unique context of Holy Makkah: assessing the first year of operation during the 2010 pilgrimage season

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Abstract

Each year, more than 2 million Muslims from around the world gather in the City of Makkah in Saudi Arabia to perform the annual pilgrimage. A significant milestone in the effort to improve the existing transport system in the Holy City has been the introduction of the Southern Masha’er Rail Line (SMR) during the 2010 pilgrimage season. The line was designed to accommodate the unusual demand and specific movement patterns during the pilgrimage season. In its first year of operation, the line was supposed to operate at only 35\% of its full capacity, before full implementation in the following year when the line was expected to transport 72,000 passengers per hour. This paper presents the results of a study to assess the performance of the rail line in its first year of operation. The analysis revealed that the majority of pilgrims found the rail line and its stations to be of excellent quality and exceeded their expectations. However, the analysis also revealed that the rail system suffered from operational and scheduling adherence problems that resulted in fluctuations in service frequency, capacity utilization rates, and cases of long waiting times. This paper concludes with recommendations for future improvements to the rail system based on the results of this evaluation study.

Keywords: pilgrimage season, controlled demand, specific rail movements.