Abstract

The emergence of traffic and subsequently traffic congestion in urban road networks are increasing worldwide with the growing number of vehicles, which results in excess delays, and reduced safety. The aim of this paper is to use many GIS functions (network analyst, shortest path) in evaluating traffic congestions point during working day hours according to roads directions. The study area is a residential area of Jeddah city, Saudi Arabia. A geo-database is designed that includes the road network with their directions that located in Jeddah city. Several GIS functions are used in this paper including network analyst and overlay analysis using ArcGIS 10.2. The priority results are utilized in evaluating congestion points according to roads direction, which can help planner in re-assigning roads directions to mitigate congestion points at all parts of Jeddah city.

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**Index Terms**

Computer Science  
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**Keywords**

GIS, Traffic congestion, Jeddah