



Impact analysis of a transportation management project by integrating GIS and traffic model in urban environment

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Abstract: Transportation demand management actions are among the strategies that can reduce congestion or enhance mobility in congestion management process (CMP) to solve transportation problems. The delay time at the signals for the vehicles is the direct measure of the congestion on the road network and has to be mitigated. In this paper, a GIS based system has been addressed by combining traffic model with GIS based traffic network data to analyze the impact of a new grade separator project on the traffic in vicinity of network and to suggest a solution for releasing congestion. Average delay time in the routes connecting the junction where a grade separator is being constructed is estimated for scenario before and after the construction. The impact on the adjacent junctions were also estimated and found to be more affecting the traffic flow in the vicinity. A mitigation measure by adjusting green time to improve from 224 to 167 in one direction and average reduction of delay time in all routes is suggested. A new feeder road has also been suggested by implementing cost based overlay model in GIS considering various thematic layers. The study highlights the importance and need of spatial network representation of the traffic data and the ease of visualization and analysis of impact of development projects on the better traffic flow.

Key words: traffic management, average delay time, GIS based traffic network