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# Developing a Transportation Network Model with emphasis on fuel consumption to Achieve Environmental Sustainability in Urban Areas. (Case Study: Tabriz City)

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## Abstract

The most important global challenge of our time is to ensure that our planet still provides enough resources for future generations. More than half of world's population lives in cities today with the rate of urbanization further increasing. In urban areas challenges of sustainable development are concentrated and environmental issues to achieve sustainability are so essential. In Reduction of the world's energy resources need to pay attention to environmental management of energy consumption increases. Urban transportation has a great importance due to the significant role of fuel resources consumption as a major concern in environmental sustainability with the significant growth of urbanization. The purpose of the research is to design and develop a model in the GIS software with the approach of introducing developing areas for the development of roads and the optimal location of urban transport destinations with the aim of increasing access and reducing fuel consumption which lead to reach sustainability. The case study Tabriz is a metropolis city in the northwest region of Iran. Research methodology has been designing a model for calculating fuel consumption in the diverse routes and proper establishment of transportation network to achieve the sustainability. The results indicate the effectiveness of the designed model for the proper location of the network and the main urban traffic goals. Different maps indicate inappropriate establishment part of the major traffic intentions in the transportation network, which results in unnecessary fuel consumption. Due to the high consumption of fuel in current traffic routes, the results of the study, along with the quantitative survey and reasons for fuel consumption in these areas, are based on solutions such as changing the type of roads in some of the current traffic areas, changing the location of commercial, Administrative and recreational uses, as well as the management of urban traffic routes.

**Key words:** transportation network, modeling, environmental management, sustainability, geographic information system (GIS)