

Investigation of Spatial Distribution and Optimal Site Selection of Fire Station in Iran- A Case Study of Tehran Township Using GIS (AHP Model)

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ABSTRACT. Firefighting stations are one of the elements of public security in the city. To make them have the supposed role in public security; we should look at different urban facilities in detail and lend the city structure as a whole.

Appropriate site selection of firefighting stations is one of the most important obligations of the city planners, which should be carefully planned and implemented. Better site selection is meant to avoid waste of resources in one hand and better capability of the stations on the other hand.

In this research, best sites for the construction of new stations and moving of those stations with improper location in Tehran city has been studied. First, conceptual model of the study was defined, then, spatial layers and other information about site selection of the stations collected. In the next session Analytical Hierarchy process used to assign weights to spatial layers. This process was done based on the expert's views and pair wise comparison method. After collection of expert views and in order to avoid wrong views, judgment compatibility amounts were calculated. After accepting of CR values, these weights used in future analyses.

Network analysis, one of GIS spatial functions, used to find best routes from fire stations to affected area and service area of each station. Based on the analyses of this section and field checks, gave good attitude in terms of stations functionality. Regarding to the locations of existing stations, new stations proposed using a moving window on the potential sites map.

Key words: GIS, Firefighting Stations, Site Selection, AHP model, Network Analysis.

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