

Modeling and Analysis of Fire Center Locations in a City to Minimize Response Time

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Abstract

Facility location problems have been subject of analysis and have received considerable attention over the past several years. Location problems may arise under a variety of conditions. One of the important location problems encountered in real life is the location of emergency service centers, such as fire stations. Effective location of an emergency service center within a geographical area significantly affects the level and quality of the service it provides. A fire station supports the needs of the fire department and the community in which it is located. The location of the station is largely driven by the need to minimize response time. Response time is the duration between receiving a call and reaching the place of incident. This paper presents a real application related to the location analysis of fire stations in a city. Models are utilized to determine optimum locations and assignments of fire stations in various regions of a particular city under different conditions including obstacle overcoming points between the regions considered.

Keywords

Location analysis, Emergency center location, Fire station location