

Network sensitivity analysis through traffic modelling

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December 2019

Network location problems are commonly associated with real world situations such as locating a new facility in a city or setting up a new server in a computer network. In these real world situations, changes can come up quite often, such as a busy road because of morning hours, or a broken connection in the network. These kind of problems give the motivation of our research. During our previous work, we inspected how a network operates, when we block different amounts of edges, and how these changes influence the solution of a facility location problem called p -median. In the p -median problem we try to locate p facilities so the sum of the distances between the facilities and the demand points (vertices) is minimal. In this work we continued our research by analysing the results of p -median problems when congestion occurs in a few dedicated vertices, where it is more likely to have high traffic or other kind of problem, and around these vertices we increased the weight of the edges. The motivation behind this model, to find a better solution when the roads are busy. During our work, we used different road graphs to get a complex picture about the results, which will be discussed in the talk.