Optimal Supply Facility Location subject to Customer Service Quality

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This paper considers a facility location problem where some facility location sites are to be selected from among a given set of candidate sites so as to satisfy all the demands at the demand nodes specified in a set of predetermined zones. The demand satisfaction should be made subject to a required customer service quality, measured in terms of delivery time(distance), and an incorporated budget. The objective is to locate the optimal number of facilities and to make the optimal allocation of each demand node to its supplying facilities such that the total delivery cost for all the demand nodes is minimized. For this location (network design) problem, a branch-and-bound solution procedure is proposed.