

Sarocho Nakcharoen 2009: An Algorithm for Solving Multi-depot Location Routing Problem for Parcel Delivery Service. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Associate Professor Anan Mungwattana, Ph.D. 100 pages.

This research is focused on an algorithm for solving the Multi-depot Location Routing Problem (MDLRP) which is NP-hard and requires substantial amount of time to determine optimal solutions for large problems. However, For the MDLRP, the locations of potential depots must be known. The proposed algorithm is a heuristic solution method based on assumption to set the locations of potential depots on the same place of customer's locations for solving the MDLRP with unknown potential depots. The algorithm is divided into three steps as follows. The customers must be clustered within a constraint of vehicle capacity. The number of customers must be determined and then customers are allocated to each depot by using MDLRP. The locations of depot and routes are determined.

The comparison of performance, from a case study of parcel delivery service and the sample problems, between the solution of a proposed algorithm and the lower bound or optimal solution by using the mathematical model for MDLRP. The average percent error of a proposed algorithm is 15.98% and the result show that a proposed algorithm is suitable for small problems.

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Thesis Advisor's signature

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