

# 指定點接駁車輛路線問題之解法設計

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## 摘要

In order to reduce the vehicles' round-trip and traveling distance, recently some carriers have developed a new type of operation that dispatches a heavy truck as the movable depot to serve other trucks for the second loading and delivery. The purposes of this research are to transfer above-mentioned operation into a special Vehicle Routing Problem, named as the Linehaul-Feeder Vehicle Routing Problem (LFVRP), and to design a simple heuristic to solve the LFVRP. This heuristic includes three steps: (1) selecting a specific customer as the movable depot, (2) constructing routes to serve customers between DC and the movable depot, and (3) improving routes by neighborhood search heuristics. In the first step, we propose eight rules to select movable depot; in the second step, we utilize the Nearest Neighbor (NN) method to construct the initial routes; in the final step, we used three neighborhood search methods: 2-Opt, Or-Opt and Inter-route node exchange to improve routes' distance. This research generated a bank of sixty LFVRP instances that are modified from classical VRP benchmark instances, and divided them into four groups according to the position of DC and the geographic distribution of customers. Then, we use the C# computer language to coding the above heuristic method and use the LFVRP instances to test its performance and to verify the feasibility and suitability of the LFVRP. Through comparing with the best-found solutions, we found that LFVRP seems to be suitable for the instances which DC is located on side and customers are clustered.

關鍵字：Vehicle Routing Problem, Linehaul-Feeder, Heuristic Method