

Hub Port Positioning and Route Planning of Feeder Lines for Regional Transportation Network

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Abstract : In this paper, we seek to determine one reasonable local hub port and optimal routes for a containership fleet, performing pick-ups and deliveries, between the hub and spoke ports in a same region. The relationship between a hub port, and traffic in feeder lines is analyzed. A new network planning method is proposed, an integrated hub port location and route design, a capacitated vehicle routing problem with pick-ups, deliveries and time deadlines are formulated and solved using an improved genetic algorithm for positioning the hub port and establishing routes for a containership fleet. Results on the performance of the algorithm and the feasibility of the approach show that a relatively small fleet of containerships could provide efficient services within deadlines.

Keywords : route planning, hub port location, container feeder service, regional transportation network

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