

A Demand-Response Routing Model for Traffic Signal Maintenance Operations  
with Time-Dependent Travel Times

陳昭華, 廖凱怡

Transportation Technology and Logistics Management

Management

erchen@chu.edu.tw

Abstract

This study is aimed at planning traffic signal maintenance work using a demand-response routing model with time-dependent travel times. The routing model was able to produce timely maintenance routes for each maintenance vehicle compatible to the daily inspection plan and randomly revealed malfunctioning traffic signals. Three modules, the route-generating module, the decision-support module and the time-evolution module, constituted the model framework, and Genetic Algorithms (GAs) were used to solve for dynamic maintenance routes. Furthermore, different service strategies with different routing procedures based upon a case reconstructed from real world data were designed and tested to reflect the concerns for practical applications. Evaluation results show the routing model is flexible in structure and feasible enough for practical applications.

Keyword : Traffic Signal Maintenance Operations, Demand-Response Routing Model, Time-Dependent