

ABSTRAK

Pengangkutan sampah dilakukan untuk memindahkan tumpukan sampah ke tempat pengolahan sampah. Pelayanan pengangkutan sampah di Kabupaten Sleman dilakukan mengunjungi TPS secara acak sesuai keinginan supir kendaraan. Jarak antar TPS dan TPA yang cukup jauh jika dilakukan dikunjungi secara acak akan berdampak pada biaya bahan bakar. Penelitian ini bertujuan untuk pembuatan rute pengangkutan sampah sehingga dapat meminimasi jarak tempuh dengan mempertimbangkan kapasitas kendaraan dan waktu pengangkutan.

Pelayanan pengangkutan sampah dapat dianalogikan dengan model vehicle routing problem dengan mempertimbangkan batasan Multiple trip, Intermediate Facility, Time Windows, Split Delivery, dan Periodic. Penentuan rute pengangkutan sampah menggunakan sequential insertion dengan dengan cara berulang kali mencoba memasukkan TPS yang belum masuk dalam rute manapun ke bagian sementara dalam rute yang terbentuk saat ini. Pemilihan TPS yang akan disisipkan berdasarkan waktu perjalanan terpendek.

Penelitian ini menghasilkan rute pengangkutan sampah untuk tiap hari selama 6 hari. Penelitian ini menunjukkan bahwa setelah dilakukan pembuatan rute kendaraan yang digunakan berkurang menjadi 3 dari 4 untuk hari senin, selasa, rabu, kamis, sabtu dan 2 dari 4 untuk hari jumat. Total jarak tempuh senin sampai sabtu berkurang dari 2067.2 km menjadi 1781.54 km. Presentase penghematan total jarak tempuh diperoleh sebesar 13.9%.

Kata Kunci: Pengangkutan sampah, Sequential insertion, Intermediate Facility, Time Windows, Split Delivery, Periodic.

ABSTRACT

Waste transportation is carried out to move piles of trash to a waste processing site. Waste transportation services in Sleman Regency are carried out by visiting TPS randomly according to the will of the vehicle driver. The distance between TPS and TPA which is quite far if visited randomly will have an impact on fuel costs. This study aims to create a waste collection route so that it can minimize the distance traveled by considering the vehicle capacity and transportation time.

Waste transportation services can be analogized with the vehicle routing problem model by considering the limits of Multiple trips, Intermediate Facility, Time Windows, Split Delivery, and Periodic. Determination of waste transportation routes using sequential insertion by repeatedly trying to insert TPS that have not been included in any routes to the temporary section of the currently formed route. The selection of TPS to be inserted is based on the shortest travel time.

This study resulted in a route for transporting waste for every day for 6 days. This study shows that after making the route the vehicle used is reduced to 3 of 4 for Monday, Tuesday, Wednesday, Thursday, Saturday and 2 of 4 for Friday. The total distance traveled from Monday to Saturday was reduced from 2067.2 km to 1781.54 km. The percentage of total mileage savings obtained is 13.9%

Keywords: Waste transportation, Sequential insertion, Intermediate Facility, Time Windows, Split Delivery, Periodic.