ABSTRAK

Artha Sasta Siahaan, NIM 5203550015. Analisis Kinerja Operasional Bus Rapid Trans (BRT) (Studi Kasus Koridor 5 Rute Tembung - Lapangan Merdeka Medan)

Penelitian ini bertujuan untuk mengevaluasi kinerja operasional Bus Rapid Transit (BRT) Koridor 5 Kota Medan berdasarkan tujuh indikator, yaitu *load factor*, *headway*, waktu henti, kecepatan perjalanan, ketersediaan armada, penyebab keterlambatan, dan konsumsi energi. Metode yang digunakan adalah pendekatan kuantitatif melalui survei langsung (*on-board survey*) selama tujuh hari pada pukul 05.30–22.00 WIB terhadap 8 unit bus listrik berkapasitas 52 penumpang dengan 6 ritase per hari pada rute sepanjang 19,58 km.

Hasil penelitian menunjukkan bahwa kinerja operasional dari sisi penyediaan layanan tergolong baik, ditandai dengan ketersediaan armada sebesar 100% dan waktu henti rata-rata 8 detik. Namun, kinerja layanan belum optimal akibat pengaruh lalu lintas campuran yang menyebabkan *headway* rata-rata sebesar 16,12 menit dan kecepatan operasional sebesar 17,5 km/jam. Permasalahan utama terletak pada rendahnya *load factor* sebesar 18,87% yang menunjukkan pemanfaatan kapasitas angkutan belum optimal.

Evaluasi berdasarkan SK Dirjen Perhubungan Darat No. 687 Tahun 2002 menunjukkan bahwa sebagian besar indikator belum memenuhi standar minimum, kecuali *Headway,* Ketersediaan Armada dan Waktu Henti. Oleh karena itu, diperlukan intervensi taktis berupa penataan hambatan samping jalan, manajemen rekayasa lalu lintas setempat pada titik sumbatan, serta integrasi angkot konvensional sebagai angkutan pengumpan (*feeder*) untuk mendongkrak daya tarik layanan angkutan umum massal ini.

Kata Kunci: Bus Rapid Trans, *Load factor, Headway*, Kecepatan Perjalanan, Standar Pelayanan Minimum, Bus Listrik.

ABSTRACT

Artha Sasta Siahaan, NIM 5203550015. Operational Performance Analysis of Bus Rapid Transit (BRT) (Case Study: Corridor 5 Tembung - Lapangan Merdeka Medan Route)

This study aims to evaluate the operational performance of Bus Rapid Transit (BRT) Corridor 5 in Medan based on seven indicators: load factor, headway, dwell time, travel speed, fleet availability, causes of delay, and energy consumption. The research employed a quantitative approach using on-board surveys conducted over seven days from 05:30 to 22:00 WIB, involving 8 electric buses with a capacity of 52 passengers, operating 6 trips per day along a 19.58 km route.

The results indicate that the operational performance from the supply side is relatively good, as reflected by 100% fleet availability and an average dwell time of 8 seconds. However, the service performance is not yet optimal due to mixed traffic conditions, resulting in an average headway of 16.12 minutes and an average travel speed of 17.53 km/h. The main issue lies in the low load factor of 18.87%, indicating that the vehicle capacity is not utilized efficiently.

Evaluation based on the Decree of the Director-General of Land Transportation No. 687 of 2002 shows that most indicators have not met the minimum service standards, except for Headway, Fleet Availability, and Dwell Time. Meanwhile, the load factor and journey speed indicators are strictly declared to be non-compliant with the standard guidelines. Therefore, tactical interventions are urgently required, including the management of roadside friction, localized traffic engineering at bottlenecks, and the integration of conventional public transit (angkot) as a feeder system to enhance the attractiveness and reliability of this mass public transportation service.

Keywords: *Bus Rapid Transit, Load factor, Headway, Travel Speed, Minimum Service Standards, Electric Bus*