

ABSTRACT

Rapid urbanization in Surakarta City has increased mobility challenges, especially in meeting public transportation needs. Although the Bus Rapid Transit (BRT) system, Batik Solo Trans (BST), was introduced to reduce the high dependence on private vehicles, its limited coverage and perceived inefficiencies inhibit optimal utilization. This study aims to analyze the reachability of BST services in Surakarta through three objectives: identifying the distribution of BRT stops, evaluating service reachability, and assessing the availability of supporting access facilities. This study aims to analyze the reachability of BST services by focusing on three main aspects: the spatial distribution of BRT stops, the service coverage based on walking distance, and the availability of access-supporting infrastructure such as sidewalks, crosswalks, and signage.

A quantitative approach is employed using Geographic Information Systems (GIS), combining buffer analysis and service area network analysis across various land use zones. The data collection technique used is through observation as a primary data source and document review as a secondary data source that contains predetermined scenarios. Walking distance to BRT stops was classified into three categories using a Likert scale: very reachable (0-200 meters), reachable (201-500 meters), and quite reachable (501-1000 meters).

The analysis shows that 42.29% of the city area is very reachable, 41.00% is reachable, and 12.34% is quite reachable by BRT services. However, only 50.13% of BRT stops within a 0–500 meter radius have access facilities such as pedestrian pathways, crosswalks, and stop signage. The distribution of 252 BRT stops primarily serves residential (61.44%), commercial (15.49%), and educational (5.77%) land uses. These findings conclude that BRT service in Surakarta is generally reachable, with over 95% of the urban area located within 1,000 meters of a stop. The fact that only 4.37% of the city area falls into the uncovered classification (>1,000 meters) indicates a strong level of spatial coverage, suggesting that the current BRT system has the potential to effectively support urban mobility with further improvements in access infrastructure. Which leads into several recommendation on enhancing pedestrian connectivity and expanding feeder services are therefore essential to realizing a more inclusive, efficient, and sustainable public transportation system in Surakarta.

Keywords: Reachability, Batik Solo Trans (BST), Urban Mobility, Surakarta City