ANALYSIS OF INTERSECTION LANE WIDTH AGAINST SATURATION DEGREE VALUES

(*Case Study: Durian Intersection, Pekanbaru City*)

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ABSTRACT

The high traffic volume at the Durian Intersection, Pekanbaru City, often causes congestion and a decrease in the level of service, especially during peak hours. This study aims to evaluate the geometric design and performance of the existing traffic lights, and to formulate recommendations for improvements to increase the efficiency of the intersection. The method used is a field survey for primary data collection and analysis referring to the Geometric Technical Planning Guidelines for Intersections (2024) and the Indonesian Road Capacity Guidelines (PKJI 2023). The evaluation results indicate that several geometric elements, such as the road width at the T and B approaches, do not meet technical standards. Analysis of the projected performance for the next 10 years shows a significant decrease in the level of service (LOS) to levels E and F, with the degree of saturation (DJ) on all approaches exceeding the ideal limit (DJ > 0.85). The proposed improvement recommendations include widening the lanes on Jl. Durian and Jl. Dharma Bakti, narrowing the median on Jl. Soekarno-Hatta, and optimizing the traffic light cycle time to 100 seconds. Improvement simulations showed a decrease in the DJ value below 0.85, reduced delays, and an increase in the LOS to level D, indicating a significant improvement in intersection performance.

Keywords: Intersection Geometric, Intersection Performance, Traffic Light, Degree of Saturation, Delay, PKJI