

## **ABSTRAK**

### **Evaluasi Pengoptimalan Transportasi Pada Persimpangan Bersinyal Simpang Bandara-Tanjung Api-Api Kota Palembang**

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Simpang Bandara – Tanjung Api-Api merupakan salah satu simpang bersinyal yang memiliki peran penting dalam sistem transportasi Kota Palembang. Simpang ini menjadi titik temu berbagai arus kendaraan, termasuk akses ke Bandara Sultan Mahmud Badaruddin II, Asrama Haji dan jalur Lintas Sumatera. Tingginya volume lalu lintas, terutama pada jam-jam sibuk dan saat kegiatan besar berlangsung, menimbulkan potensi kemacetan dan penurunan kinerja simpang. Penelitian ini dilakukan untuk mengevaluasi kinerja simpang bersinyal dengan menganalisis kapasitas, volume lalu lintas, derajat kejenuhan, waktu siklus, tundaan, dan peluang antrian berdasarkan pendekatan Pedoman Kapasitas Jalan Indonesia (PKJI 2023).

Data diperoleh melalui observasi langsung pada pendekatan simpang dengan mencatat jenis kendaraan seperti sepeda motor, mobil pribadi, bus, dan truk. Analisis dilakukan untuk mengetahui efektivitas pembagian waktu isyarat dan sejauh mana arus kendaraan dilayani secara optimal. Hasil evaluasi menunjukkan bahwa distribusi waktu hijau belum seimbang terhadap beban lalu lintas aktual, serta terdapat hambatan samping yang memengaruhi kinerja simpang secara signifikan. Derajat kejenuhan pada beberapa pendekatan menunjukkan nilai yang tinggi, mengindikasikan perlunya optimalisasi pengaturan fase sinyal.

Dari hasil tersebut, disarankan dilakukannya penyesuaian waktu siklus dan proporsi fase isyarat berdasarkan rasio arus kritis, pengendalian hambatan samping, serta penerapan sistem pemantauan lalu lintas untuk meningkatkan efisiensi dan keselamatan di kawasan simpang bersinyal ini.

Kata kunci: Simpang bersinyal, evaluasi kinerja, waktu siklus, derajat kejenuhan, PKJI 2023, Kota Palembang

## ABSTRACT

### ***Evaluation of Transportation Optimization at the Airport-Tanjung Api-Api Signalized Intersection in Palembang City***

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*The Airport-Tanjung Api-Api intersection is a signalized intersection that plays a crucial role in the Palembang City transportation system. This intersection serves as a meeting point for various vehicle flows, including access to Sultan Mahmud Badaruddin II Airport, the Hajj Dormitory, and the Trans-Sumatra Highway. High traffic volumes, especially during rush hour and during major events, create potential congestion and reduce intersection performance. This study was conducted to evaluate the performance of the signalized intersection by analyzing capacity, traffic volume, degree of saturation, cycle time, delays, and queuing opportunities based on the Indonesian Road Capacity Guidelines (PKJI 2023).*

*Data were obtained through direct observation at intersection approaches, recording vehicle types, including motorcycles, private cars, buses, and trucks. An analysis was conducted to determine the effectiveness of signal timing and the extent to which vehicle flow is optimally served. The evaluation results indicate that the distribution of green time is not balanced with the actual traffic load, and that side obstacles significantly impact intersection performance. Saturation levels at several approaches showed high values, indicating the need to optimize signal phase settings.*

*Based on these results, it is recommended to adjust the cycle time and signal phase proportion based on the critical flow ratio, control side obstacles, and implement a traffic monitoring system to improve efficiency and safety at this signalized intersection.*

*Keywords: Signalized intersection, performance evaluation, cycle time, saturation level, PKJI 2023, Palembang City*