

# **PERENCANAAN *TRAFFIC LIGHT* BERDASARKAN ANALISIS KINERJA SIMPANG TIGA KREONGAN KABUPATEN JEMBER**

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## **ABSTRAK**

Peningkatan jumlah penduduk dan kendaraan bermotor di Kabupaten Jember berdampak pada bertambahnya volume lalu lintas, khususnya di Simpang Tiga Kreongan. Kondisi tersebut menyebabkan penurunan kinerja simpang yang ditandai dengan meningkatnya tundaan, antrean, dan derajat kejenuhan. Kajian ini bertujuan menganalisis kinerja simpang eksisting serta merencanakan penerapan Alat Pemberi Isyarat Lalu Lintas (APILL) berdasarkan Pedoman Kapasitas Jalan Indonesia (PKJI) 2023. Analisis dilakukan menggunakan data volume lalu lintas, geometri simpang, dan hambatan samping dengan parameter kapasitas, derajat kejenuhan, tundaan, peluang antrean, dan tingkat pelayanan. Hasil analisis menunjukkan bahwa kondisi eksisting memiliki kapasitas sebesar 2.494 smp/jam, derajat kejenuhan 0,87, tundaan 33,5 detik/smp, dan tingkat pelayanan E. Setelah direncanakan APILL tiga fase dengan waktu siklus 57 detik, derajat kejenuhan menurun menjadi 0,70, tundaan berkurang menjadi 6 detik/smp, dan tingkat pelayanan meningkat menjadi kategori C. Hasil tersebut menunjukkan bahwa penerapan APILL mampu meningkatkan kinerja simpang serta memperlancar arus lalu lintas di Simpang Tiga Kreongan.

**Kata kunci.** APILL, Kinerja simpang, PKJI 2023, Tingkat pelayanan lalu lintas.

**TRAFFIC LIGHT PLANNING BASED ON THE PERFORMANCE  
ANALYSIS OF KREONGAN THREE-WAY INTERSECTION, JEMBER  
REGENCY**

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**ABSTRACT**

*The increase in the population and the number of motor vehicles in Jember Regency has led to an increase in traffic volume, particularly at the Kreongan Three-Way Intersection. This situation has caused a decline in the intersection's performance, as evidenced by increased delays, traffic queues, and congestion levels. This study aims to analyze the performance of the existing intersection and plan the implementation of traffic signal systems based on the 2023 Indonesian Road Capacity Guidelines (PKJI). The analysis was conducted using data on traffic volume, intersection geometry, and side obstructions, with parameters including capacity, degree of saturation, delay, queue probability, and level of service. The analysis results show that the existing conditions have a capacity of 2,494 vehicles per hour, a degree of saturation of 0.87, a delay of 33.5 seconds per vehicle, and a level of service of E. After implementing a three-phase traffic signal system with a 57-second cycle time, the degree of saturation decreased to 0.70, delay was reduced to 6 seconds per vehicle, and the level of service improved to category C. These results demonstrate that the implementation of the traffic signal system is capable of improving intersection performance and facilitating traffic flow at the Kreongan Three-Way Intersection.*

**Keywords.** APILL, Intersection Performance, PKJI 2023, Traffic Service Level.