

ANALISIS KINERJA SIMPANG TIGA TAK BERSINYAL DI
JALAN RAYA TULUNGREJO KECAMATAN BUMIAJI KOTA BATU

Octo Sinaga¹ Andy Kristafi Arifianto ² Yurnalisdel ³

Program Studi Teknik Sipil/Fakultas Teknik dan Teknologi/Universitas Tribhuwana
Tunggadewi

e-mail [@gmail.com](mailto:.....@gmail.com)

ABSTRAK

Penelitian ini bertujuan untuk menganalisis kinerja simpang tiga tak bersinyal di Jalan Raya Tulungrejo, Kecamatan Bumiaji, Kota Batu. Simpang ini merupakan jalur vital menuju kawasan pariwisata Selecta yang sering mengalami kepadatan arus lalu lintas, terutama pada akhir pekan dan hari libur. Masalah utama di lokasi ini meliputi kemacetan akibat antrean kendaraan panjang, tingginya volume kendaraan besar, serta hambatan samping berupa aktivitas perdagangan dan parkir di bahu jalan. Metode yang digunakan dalam penelitian ini adalah pendekatan kuantitatif deskriptif dengan mengacu pada Pedoman Kapasitas Jalan Indonesia (PKJI 2023). Pengumpulan data primer dilakukan melalui survei lapangan selama satu minggu untuk mendapatkan data geometrik jalan, volume lalu lintas, antrean, dan tundaan. Data sekunder berupa jumlah penduduk diperoleh dari Badan Pusat Statistik (BPS) Kota Batu. Hasil penelitian menunjukkan bahwa simpang tiga tersebut termasuk tipe 322 dengan tipe lingkungan jalan permukiman dan kategori hambatan samping rendah. Berdasarkan analisis data jam puncak pada hari Minggu, 26 Oktober 2025, diperoleh nilai parameter kinerja sebagai berikut: Kapasitas Simpang (SCS): 2030,78 smp/jam. Derajat Kejenuhan ($SDjS$): 0,65. Tundaan Simpang ($ST\$$): 124,01 det/smp. Peluang Antrean ($SPa\$$): berkisar antara 0,01% hingga 36,09%. Tingkat Pelayanan Simpang: Masuk dalam kategori C, yang berarti arus lalu lintas masih stabil namun pergerakan kendaraan mulai dibatasi oleh kondisi lalu lintas dan pengemudi tidak dapat bebas menentukan kecepatan. Sebagai solusi untuk meningkatkan kinerja simpang, direkomendasikan pemasangan rambu dilarang parkir di sekitar simpang serta larangan berjualan bagi pedagang kaki lima di sepanjang pendekat simpang guna mengurangi hambatan samping dan memperlancar arus lalu lintas.

Kata Kunci: Kinerja Simpang, Simpang Tak Bersinyal, PKJI 2023, Derajat Kejenuhan, Tundaan.

"PERFORMANCE ANALYSIS OF UNSIGNALIZED THREE-ARM INTERSECTION AT
JALAN RAYA TULUNGREJO, BUMIAJI DISTRICT, BATU CITY"

Octo Sinaga¹ Andy Kristafi Arifianto² Yurnalisdel³

Civil Engineering Study Program/Faculty of Engineering and
Technology/Tribhuwana Tungadewi University

e-mail..... [@gmail.com](mailto:.....@gmail.com)

ABSTRACT

This study aims to analyze the performance of the unsignalized three-arm intersection at Jalan Raya Tulungrejo, Bumiaji District, Batu City. This intersection serves as a vital route to the Selecta tourism area and frequently experiences traffic congestion, particularly during weekends and national holidays. The primary issues at this location include congestion caused by long vehicle queues, a high volume of large vehicles, and side friction in the form of commercial activities and parking on the road shoulders. The method employed in this research is a descriptive quantitative approach based on the Indonesian Road Capacity Guidelines (PKJI 2023). Primary data collection was conducted through a one-week field survey to obtain data on road geometry, traffic volume, queues, and delays. Secondary data regarding the population size was obtained from the Central Bureau of Statistics (BPS) of Batu City. The results of the study indicate that the three-arm intersection is a type 322 with a residential road environment and a low side friction category. Based on the peak hour data analysis on Sunday, October 26, 2025, the performance parameter values are as follows: Intersection Capacity (\$C\$): 2030.78 pcu/hour. Degree of Saturation (\$D_j\$): 0.65. Intersection Delay (\$T\$): 124.01 sec/pcu. Queue Probability (\$P_a\$): ranging from 0.01% to 36.09%. Level of Service (LOS): Classified as Category C, which means the traffic flow is stable, but vehicle movement is restricted by traffic conditions, and drivers cannot freely determine their speed. As a solution to improve intersection performance, it is recommended to install "no parking" signs around the intersection and "no vending" signs along the intersection approaches to reduce side friction and improve traffic flow. Keywords: Intersection Performance, Unsignalized Intersection, PKJI 2023, Degree of Saturation, Delay.

Keywords: *pedestrian path, satisfaction level, Importance Performance Analysis, Level of Service, Kayutangan Heritage*