

EVALUASI KINERJA SIMPANG TAK BERSINYAL PADA BUNDARAN *BYPASS* MANGKUBUMI KOTA TASIKMALAYA

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ABSTRAK

Bundaran *Bypass* Mangkubumi merupakan jalur akses utama menuju pusat pendidikan dan perekonomian di kawasan tersebut. Bundaran ini mengalami kemacetan lalu lintas yang signifikan akibat peningkatan volume kendaraan. Penelitian ini bertujuan untuk mengevaluasi dan mencari solusi alternatif yang paling efektif untuk mengurangi kemacetan di Bundaran *Bypass* Mangkubumi. Penelitian dilakukan dengan cara observasi langsung selama 16 hari sebanyak tiga periode, yaitu pukul 07.00 – 08.00, pukul 11.00 – 13.00, dan pukul 16.00 – 18.00. Data tersebut dianalisis menggunakan Pedoman Kapasitas Jalan Indonesia 2023 dan disimulasikan dengan perangkat lunak PTV Vissim. Berdasarkan hasil analisis PKJI 2023 pada kondisi eksisting diperoleh nilai arus lalu lintas total (Q_{tot}) = 4.965 smp/jam dan tundaan bundaran rata-rata = 17,41 detik/smp. Derajat kejenuhan untuk setiap pendekat adalah: 0,87 (Jl. Ir. H. Juanda), 0,74 (Jl. Brig. Jen. Sutoko), 0,85 (Jl. Mayor S. L. Tobing), 0,62 (Jl. Gubernur Sewaka), dan 0,81 (Jl. A. H. Nasution). Hasil yang diperoleh pada kondisi eksisting dinilai kurang optimal sehingga direncanakan solusi alternatif guna meningkatkan kinerja simpang. Perbaikan dilakukan dengan mengubah geometrik bundaran dan rekayasa lalu lintas. Solusi alternatif yang optimal yaitu dengan mengubah bundaran tidak bersinyal menjadi bundaran bersinyal dua fase yang secara efektif menurunkan derajat kejenuhan dan meningkatkan kinerja simpang.

Kata Kunci: Bundaran, Derajat Kejenuhan, PKJI 2023, PTV Vissim, Kinerja Simpang

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**PERFORMANCE EVALUATION OF AN UNSIGNALIZED
INTERSECTION AT MANGKUBUMI BYPASS ROUNDABOUT IN
TASIKMALAYA CITY**

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ABSTRACT

The Mangkubumi Bypass Roundabout is a critical access route leading to educational and economic hubs in the region. The roundabout currently experiences significant traffic congestion due to increased vehicular volume. This study aims to evaluate the existing traffic conditions and propose the most effective alternative solution to mitigate congestion at the Mangkubumi Bypass Roundabout. The research was conducted through direct field observations over a 16-day period during three peak intervals: 07:00–08:00, 11:00–13:00, and 16:00–18:00. The collected data were analyzed using the 2023 Indonesian Highway Capacity Manual (IHCM 2023) and simulated with PTV Vissim software. The analysis under existing conditions revealed a total traffic flow (Q_{tot}) of 4.965 pcu/hour and an average roundabout delay of 17,41 seconds/pcu. The degree of saturation for each approach was found to be: 0,87 (Ir. H. Juanda Street), 0,74 (Brig. Jen. Sutoko Street), 0,85 (Mayor S. L. Tobing Street), 0,62 (Gubernur Sewaka Street), and 0,81 (A. H. Nasution Street). The current roundabout performance is considered inadequate, necessitating alternative solutions to enhance operational efficiency. Improvements are proposed through geometric redesign and traffic engineering strategies. The optimal alternative solution is the changing the unsignalized roundabout into a two-phase signalized roundabout, which effectively lowers the degree of saturation and improves intersection performance.

Keywords: *Roundabout, Degree of Saturation, IHCM 2023, PTV Vissim, Intersection Performance*

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