

## ABSTRACT

From a geometric perspective, the intersection of Sonder Road and Kawangkoan-Tomohon Road experiences a downward slope when heading from Tomohon towards Kawangkoan. This results in a decrease in speed, particularly when vehicles need to make a turn onto a minor or major road. As a consequence, one of the lanes may experience a significant reduction in speed or even come to a complete stop, leading to traffic disruptions. Given these issues, an analysis of the performance of Sonder Road - Kawangkoan-Tomohon Road is necessary. The research aims to determine the traffic volume on Monday, Friday, and Saturday at the intersection of Sonder Road - Kawangkoan-Tomohon Road, as well as evaluate the performance of this unsignalized intersection using the Manual Kapasitas Jalan Indonesia (MKJI, 1997) method.

This research will be conducted at the intersection of Jl. Sonder - Jl. Kawangkoan Tomohon, Sonder District, Minahasa Regency, North Sulawesi Province. The research method employed is the Manual Kapasitas Jalan Indonesia (MKJI) method, with the coordinate point  $1^{\circ} 15'03''$  N,  $124^{\circ} 47'16''$  E. A preliminary survey will be conducted, and the research will be carried out for three days, specifically on Monday, Friday, and Saturday, from 6:00 AM to 7:00 PM.

Based on the calculations of the unsignalized intersection at the junction of Jl. Tomohon-Kawangkoan, using the guidelines of MKJI 1997, the following results were obtained for the total traffic volume: on Friday = 11,310 vehicles per hour, on Saturday = 9,698 vehicles per hour, and on Monday = 9,898 vehicles per hour. The capacity (C) values obtained were: on Friday = 2,814 vehicles per hour, on Saturday = 3,029 vehicles per hour, and on Monday = 2,934 vehicles per hour. The Degree of Saturation (DS) values were: on Friday = 0.36, on Saturday = 0.34, and on Monday = 0.29 (The performance of the intersection at Jl. Tomohon-Kawangkoan during the three days showed DS values below 0.75, indicating good performance). The Intersection Delay (D) values were: on Friday = 7.60 seconds per vehicle, on Saturday = 7.50 seconds per vehicle, and on Monday = 6.89 seconds per vehicle. The Queue Probability (QP%) values were: on Friday = 6 - 11%, on Saturday = 6 - 10%, and on Monday = 5 - 8%.

Based on the field survey conducted at the intersection of Jl. Tomohon-Kawangkoan, the following traffic volume data were obtained: on Friday = 11,310 vehicles per hour, on Saturday = 9,698 vehicles per hour, and on Monday = 9,898 vehicles per hour. The road capacity (C) values were: on Friday = 2,814 vehicles per hour, on Saturday = 3,029 vehicles per hour, and on Monday = 2,934 vehicles per hour. The Degree of Saturation (DS) values were: on Friday = 0.36, on Saturday = 0.34, and on Monday = 0.29. The Intersection Delay (D) values were: on Friday = 7.60 seconds per vehicle, on Saturday = 7.50 seconds per vehicle, and on Monday = 6.89 seconds per vehicle. The Queue Probability (QP%) values were: on Friday = 6 - 11%, on Saturday = 6 - 10%, and on Monday = 5 - 8%. The Degree of Saturation (DS) values were below 0.75, indicating good performance. The Level of Service (LOS) at the intersection for the three days was 7.60 seconds per vehicle (5.1 - 15), categorizing it as Level B, which means it has higher traffic flow compared to Level of Service C.

## ABSTRAK

Dilihat dari sudut pandang geometrik persimpangan jalan Sonder – jalan Kawangkoan Tomohon , dari Tomohon mengarah ke Kawangkoan jalan menurun sehingga mengalami penurunan kecepatan, ketika kendaraan akan berbelok ke arah jalan Minor atau Mayor, maka salah satu jalur akan mengalami penurunan kecepatan bahkan bisa saja berhenti dan mengakibatkan aktivitas lalu lintas terhenti. Maka dari permasalahan tersebut di atas, perlu dilakukan analisis terhadap kinerja dari Jalan Sonder – Jalan Kawangkoan Tomohon didapati tentang permasalahan dari penelitian ini yaitu berapakah volume Kendaraan lalu lintas pada hari Senin, Jumat, dan Sabtu, untuk Persimpangan Jalan Sonder – Jalan Kawangkoan Tomohon. Bagaimana kinerja simpang tak bersinyal Persimpangan Jalan Sonder – Jalan Kawangkoan Tomohon tersebut bila dianalisis dengan metode *Manual Kapasitas Jalan Indonesia (MKJI,1997)*

Penelitian ini akan dilakukan di simpang tiga Jl. Sonder - Jl. Kawangkoan Tomohon Kecamatan Sonder, Kabupaten Minahasa Provinsi Sulawesi Utara, Metode Penelitian ini menggunakan Metode Manual Kapasitas Jalan Indonesia (MKJI), dengan titik koordinat  $1^{\circ} 15'03''$ ,N  $124^{\circ} 47'16''$ E . dilakukan survei pendahuluan, waktu penelitian akan dilaksanakan selama Tiga (3) hari yaitu pada hari Senin, Jumat dan Sabtu pada pukul 06.00 Pagi Sampai pukul 19.00 Malam.

Berdasarkan hasil perhitungan simpang tak bersinyal pada simpang 3 Jl.Tomohon-Kawangkoan berdasarkan pedoman MKJI 1997 diperoleh hasil untuk volume lalu lintas total pada hari Jumat = 11310 smp/jam, Sabtu = 9698 smp/jam dan Senin = 9898 smp/jam. Untuk kapasitas (C) diperoleh pada hari Jumat = 2814 smp/jam, Sabtu = 3029 smp/jam dan Senin = 2934 smp/jam. Derajat Kejenuhan (DS) didapat pada hari Jumat = 0,36, Sabtu = 0,34 dan Senin = 0,29 (Kinerja pada simpang 3 Jl. Tomohon - Kawangkoan selama 3 Hari diperoleh nilai derajat kejenuhan (DS) kurang dari 0,75 sehingga tergolong baik). Tundaan Simpang (D) diperoleh pada hari Jumat = 7,60 det/smp, Sabtu = 7,50 det/smp dan Senin = 6,89 det/smp. Peluang Antrian (QP%) diperoleh nilai pada hari Jumat = 6 - 11 %, Sabtu = 6 -10 % dan Senin = 5 - 8%.

Berdasarkan hasil survei di lapangan pada simpang 3 Jl. Tomohon – Kawangkoan di dapatkan volume lalu lintas hari Jumat = 11310 smp/jam, Sabtu = 9698 smp/jam, Senin = 9898 smp/jam. Kapasitas Jalan (C) : Jumat = 2814 smp/jam, Sabtu = 3029 smp/jam, Senin = 2934 smp/jam Derajat Kejenuhan (DS): Jumat = 0,36, Sabtu = 0,34, Senin = 0,29 Tundaan Simpang (D): Jumat = 7,60 det/smp, Sabtu = 7,50 det/smp, Senin = 6,89 det/smp. Peluang Antrian (QP %): Jumat = 6 - 11 %, Sabtu = 6 -10 %, Senin = 5 - 8 % derajat kejenuhan (DS) kurang dari 0,75 sehingga tergolong baik. Tingkat pelayanan simpang (LOS) selama 3 hari yaitu 7,60 det/smp (5,1 - 15), sehingga termasuk dalam kategori B yaitu memiliki arus lebih tinggi daripada Tingkat Pelayanan C

