

ABSTRAK

Desa Sempali merupakan salah satu desa yang berada di kecamatan Percut Sei Tuan, Kabupaten Deli Serdang, Provinsi Sumatera Utara yang berbatasan langsung dengan kota medan yang memiliki tingkat aktivitas pergerakan yang tinggi. Pergerakan transportasi yang tinggi ini merupakan salah satu penyebab utama kemacetan lalu lintas. Salah satu titik kemacetan yang sering terjadi terdapat di Simpang Tak Bersinyal 4 Lengan JL. William Iskandar-JL. H. Anif, JL. Cemara-JL. Irian Barat.

Penelitian ini bertujuan untuk menganalisis serta mensimulasikan kinerja Simpang pada kondisi eksisting dan kondisi prediksi periode 5 tahun kedepan. langkah langkah pembuatan simulasi serta analisis dilakukan menggunakan program *Microsimulator PTV VISSIM Student Version*.

Dari hasil keluaran program *Vissim* didapat kondisi eksisting Simpang memiliki tingkat pelayanan kinerja “*LOS D*” dengan tundaan mencapai 32 detik, panjang antrian rata rata 52 meter dan panjang antrian maksimum sebesar 272 meter. Sedangkan kondisi simpang prediksi 5 tahun kedepan tingkat pelayanan kinerja menurun menjadi “*LOS E*” dengan tundaan sebesar 46 detik, panjang antrian rata rata 100 meter dan panjang antrian maksimum sebesar 498 meter. Maka perlu adanya penanganan lebih lanjut untuk mengatasi penurunan nilai kinerja pada simpang tersebut.

Kata kunci : Simpang tak bersinyal, Kinerja simpang, Tingkat pelayanan, *PTV VISSIM*

ABSTRACT

Sempali Village is one of the villages located in Percut Sei Tuan sub-district, Deli Serdang Regency, North Sumatra Province which is directly adjacent to Medan City which has a high level of movement activity. This high movement of transportation is one of the main causes of traffic jams. One of the congestion points that often occurs is at the 4 Arms Unsignalized Intersection William Iskandar Street - H. Anif Street, Cemara Street - West Irian Street.

This study aims to analyze and simulate the performance of the intersection under existing conditions and predictive conditions for the next 5 years. The steps for making simulations and analysis were carried out using the student version of the PTV VISSIM Microsimulator program.

From the output of the Vissim program, the existing condition of the intersection has a performance service level of "LOS D" with a delay of up to 32 seconds, an average queue length of 52 meters and a maximum queue length of 272 meters. Meanwhile, the predicted intersection conditions for the next 5 years, the level of service performance decreases to "LOS E" with a delay of 46 seconds, the average queue length is 100 meters and the maximum queue length is 498 meters.

So there is a need for further handling to overcome the decrease in the value of performance at the intersection.

Keywords: unsignalized intersection, intersection performance, level of service, PTV VISSIM