

ABSTRACT

Road intersections are one of the critical points in the transportation network system that often become a source of congestion and potential accidents, especially at unsignalized intersections. This study aims to analyze the performance of unsignalized intersections and plan an optimal traffic light system at the four-way intersection of Jalan Irian Barat, Sampali Village - Jalan Cemara - Jalan H. Anif - Jalan Williem Iskandar in Medan City. The method used is the Quantitative Method based on the 1997 Indonesian Road Capacity Manual (MKJI), with traffic volume data collection at three peak hour periods: Morning, Afternoon, Evening conducted for 3 days. The results of the analysis show that the performance of unsignalized intersections has a degree of saturation (DS) of 1.926 which indicates very dense and non-ideal traffic conditions. After planning traffic lights with signalized intersections, the degree of saturation was reduced to around 0.83 - 0.84 on each approach, which means a significant increase in traffic efficiency and safety. This planning is expected to be an effective solution in overcoming the problem of congestion and irregular traffic flow at the location.

Keywords : Unsignalized intersection, Traffic light, Traffic planning, Degree of saturation, MKJI 1997.