THE EVALUATION OF INTERSECTION PERFORMANCE BY USING PKJI 2023 AND PTV VISSIM
(Case Study: Durian Intersection, Pekanbaru City)

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ABSTRACT

Signalised intersections play an important role in regulating traffic flow in urban areas. Pekanbaru City, as a centre of activity, experiences annual growth in population and vehicle numbers, which impacts intersection performance. This study evaluates the performance of the Durian Four-Way Intersection located in a commercial area with a three-phase signal system. The analysis method uses the Indonesian Road Capacity Guidelines (PKJI) 2023 and PTV VISSIM simulation, with an evaluation of the existing conditions and projections for the next 5 and 10 years. Data was obtained through surveys of average daily traffic volume, identification of peak hours, and measurement of intersection performance parameters. The analysis results show that under existing conditions, the degree of saturation (DJ) for the North arm is 0.573, South 0.625, East 0.705, and West 0.664, all <0.85, with a service level of LOS C. In the 5-year projection, the DJ of the East arm increases to 0.891 and the West arm to 0.835, with the LOS decreasing to D–E. In the 10-year projection, the DJ of all arms is >0.85 (North 0.915, South 0.998, East 1.12, West 1.09) with LOS E–F. These results indicate the need for improvement planning through signal optimisation or capacity enhancement to maintain intersection performance in the future.

Keywords: capcity, degree of saturation, PKJI 2023, PTV VISSIM, signalized intersection.