ABSTRACT

OPTIMIZATION OF INTERSECTION PERFORMANCE ON TRAFFIC MOVEMENT PATTERNS AND MICROSIMULATION WITH PTV VISSIM SOFTWARE (CASE STUDY: SIMPANG SOUTH CITY)

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The high traffic flow that crosses the South City Interchange causes various traffic problems that cause obstacles at the intersection caused by various factors. This causes traffic conflicts because the intersection becomes a meeting point for vehicles from various directions so that delays and queues can occur which causes a decrease in intersection capacity. This study aims to optimize the performance of Simpang South City with calculations referring to the Indonesian Road Capacity Manual (1997) and microsimulation using PTV Vissim software. The study was conducted at an intersection of unsignaled located at the meeting point between Jalan Pondok Cabe Raya and Jalan South City Barat. The results of the study obtained an intersection capacity (C) is 3812.025 smp/hour, saturation degree (DS) is 1.886, an intersection delay (D) is 173.377 sec/smp, and an intersection Service Level Index (ITP) included in category F. The results of the calculation and microsimulation illustrate that the performance of the South City Interchange is not optimal so needed to optimize the performance of the intersection. After redesign the intersection with geometric changes to the intersection and installing APILL 2 phases, it can be seen that the intersection capacity (C) becomes 8122 smp/hour, the average saturation degree (DS) is 0.56, the delay of the intersection (D) is 9.9 sec/smp, and the Service Level Index (ITP) of the intersection is included in category B. New design the intersection with geometric changes of the intersection and the installation of APILL 2 phases shows that the performance of the intersection can work optimally so it can decompose traffic density that occurs at the South City Interchange.

Keywords: *Traffic Characteristics, Interchange Performance, Interchange Handling Solutions*, *PTV Vissim*.