ABSTRACT

THE EFFECT OF DELAY AND QUEUE LENGTH ON SIGNALED INTERSECTION AGAINST OIL FUEL CONSUMPTION (CASE STUDY: PERSIMPANGAN CBD EMERALD BINTARO)

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The delay and the length of the queue at the intersection cause the time needed to cross the signalized intersection to be longer. The effect of the delay in addition to having an impact on time loss, also has an impact on fuel consumption. Along with the increasing human need for transportation, the fuel will also be increasingly scarce. Fuel consumption that is wasted at signalized intersections when the vehicle is idle is strongly influenced by the length of time delay and queue length. This study aims to analyze the effect of delay time and queue length on fuel consumption at the Emerald Bintaro CBD intersection which consists of two approaches. The primary data taken are the volume of vehicles, delays and queue lengths. Calculation of fuel consumption based on the length of the delay using the equation from LAPI-ITB at idle. Analysis of the effect of delay and queue length on fuel consumption using multiple linear regression analysis with fuel consumption as the dependent variable (Y) which is influenced by delay and queue length as independent variables (X1 and X2). The results of the analysis show that the regression equation for the RSPI approach does not meet the BLUE criteria so it cannot be used. While the regression equation for the Funtastico approach meets the BLUE criteria, it is in accordance with the initial hypothesis that the higher the delay time and the length of the queue for vehicles at signalized intersections, the more fuel consumption by vehicles will be wasted.

Keywords: delay, long queue, fuel consumption, signalized intersection