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Prediction of CO, CO_2, CH_4, and N_2O Vehicle Emissions from Environmental Impact Assessment (EIA) at Toll Road of Krian-Legundi-Bunder in East Java of Indonesia

Mohammad Razif[1*] and Irwan Bagyo Santoso[2]

[1,2]**Department of Environmental Engineering, Faculty of Civil Engineering and Planning Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia**

Abstract: Environmental Impact Assessment study on Krian-Legundi-Bunder, East Java, was created in 2014 and it has the feasibility and environmental permit. From the EIA study, one of the negative impact from the operational stage is explored from the emission from vehicles, which they use this toll road. This research is aimed to study in more detail on the prediction of CO, CO_2, CH_4 and N_20 emission by using the traffic prediction data, which was performed in the feasibility process. The prediction produced the passenger carunit (PCU)/day. According to the value of PCU/day, this value can predict the total emission of CO, CO_2, CH_4 and N_2O of vehicles by multiplying the value of PCU/hour with the vehicle emission factor and the fuel consumption as well as calculating the length of the usage road. The regresion result of CO, CO_2,CH_4 and N_2O vehicle emission, which came from the toll road of Krian-Legundi-Bunder in year 2048, are:Total Emission CO = -425 + 235 Years; Total Emission CO_2 = -4254 + 2353 Years; Total Emission CH_4 = -0.693 + 0.383 Years; and Total Emission N_2O = -0.140 + 0.0777 Years respectively.

Keywords : Toll Road, Emission, CO, CO_2, CH_4, NO_2.

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