ANALISIS PENINGKATAN INFRASTRUKTUR JALAN DALAM MENGURANGI KEPADATAN LALULINTAS DI KOTA JAYAPURA

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Abstract

The study analyses the contribution of road infrastructure development to the traffic congestion reduction on the main roads of Jayapura-Abepura-Heram as well as the influence of population and social economic infrastructure to the social interaction in Jayapura city. Besides the secondary data source from Statistics Board of Jayapura, this study surveyed the flows of two, four and six-wheeled vehicles during rush hours of 06.30 – 09.30 am and 15.00 – 18.00 pm on Monday, Wednesday, and Thursday, crossing the main road of Jayapura-Abepura and the alternative road of Jayapura-Kotaraja-Waena. The data is then analysed using the Spider Web and Newton Gravity Analysis, transformed into normal logistic (ln), and then using the Statistical Nonlinear Estimation Model. The first and second surveys showed the development of alternative road of Jayapura-Abepura-Heram able to reduce traffic congestion to all types of vehicles while major contributor is experienced to private, government vehicles and two-wheeled vehicles. This finding is as shown by Spider Web Analysis, moving away from the centre (zero) and closer to the blue line. While the total contribution of the alternative road to the traffic congestion reduction on the main road is 24 percent, the development of the road has no impact on public transportation on the main road. Newton Gravity Model shows both coefficients of distance constraint (km) and tariff constraint (Rupiah) inelastic to the change of attractiveness and thrust variables on the origin and destination districts while the coefficient of market-wide elastic to the attractiveness variable, i.e. $Z5 = 3.027789$. This indicates a sensitivity from the sellers and type of goods in the market to the change of vehicle flow among districts. The coefficient determination ($R2$) on the distance constraint model, 0.99736 is significantly able to explain factors, driving the flow of vehicles of Jayapura-Abepura while that on the tariff constraints model is only 0.523. The rest 0.477, therefore, can be explained by constraint outside the model.

Keywords *: Development of Road Infrastructure and reduction of traffic density on Highway*

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