Abstract

The problem of traffic density is a complex problem in the world of land transportation, especially in urban areas, including Bandung City. Buah Batu Road, one of the main roads in Bandung City which is 13 meters wide and 1.70 kilometers long, connecting Bandung City and Bandung Regency. And this study examines the relationship between vehicle speed and traffic density on Buah Batu Road, Bandung. Using the macroscopic Lighthill-Whitham Richards (LWR) model, Second Order Polynomial Regression, and Lax-Wendroff scheme simulation. This study aims to obtain the speed-density function for traffic. The introduction emphasizes the importance of understanding traffic flow dynamics to reduce congestion, especially in areas with significant vehicle growth. The methodology used is direct observation of the Buah Batu Road section with an observed length of 18 meters, with data collected through cellphone camera recordings at various times. These observation data provide insight into vehicle density and speed under various conditions.

Keywords: *Velocity, Density, Velocity-Density Function, Second Order Polynomial Regression, Lax-Wendroff Scheme.*