

ABSTRACT

Analysis of the Impact of Train Schedules on Queue Length at the Pondok Ranji Station Level Crossing

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This study presents a model analysis of vehicle queue lengths at the Pondok Ranji railway level crossing on Jalan WR Supratman, South Tangerang City. The research employs simple linear regression and multiple linear regression methods, with the independent variables consisting of gate closure duration (X_1), degree of saturation (X_2), and train speed (X_3), while the dependent variable is vehicle queue length (Y). Primary data were obtained through field surveys conducted over three observation days (Tuesday, Thursday, and Saturday), representing both weekday and weekend traffic conditions. Additionally, traffic simulations were carried out using the PTV VISSIM software to compare manual survey results with digital modeling outcomes for queue length, delay time, and degree of saturation. The results indicate that gate closure duration and degree of saturation have a significant influence on vehicle queue length, whereas train speed does not show a significant impact. This study is expected to provide accurate insights into traffic behavior at the level crossing and serve as a basis for improving traffic management planning in the surrounding area.

Keywords: Queue length, level crossing, linear regression, degree of saturation, PTV VISSIM

References: 21

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