

**ANALISIS KECEPATAN, KERAPATAN DAN VOLUME KENDARAAN
AKIBAT PENUTUPAN PALANG PINTU KERETA API DENGAN
METODE *GREENSHIELD*, *GREENBERG* DAN *UNDERWOOD*
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ABSTRAK

Sistem transportasi yang terbentuk dari komponen sarana, prasarana dan manusia adalah bagian hidup masyarakat saat ini. Pertemuan antara jalan raya dan jalan rel merupakan persimpangan pada perlintasan sebidang dan merupakan titik yang dapat terjadi konflik antara dua moda transportasi. Salah satu perlintasan sebidang yang ada di Kota Ciamis berada pada perlintasan sebidang ruas jalan Ciptomangunkusumo di Jalan simpang Gayam. Pada perlintasan tersebut volume kendaraan yang melintas cukup besar sehingga pada saat pintu tertutup dapat membuat antrian yang cukup panjang dan juga membuat banyak kendaraan mengalami tundaan. Karakteristik lalu lintas yang disurvei pada penelitian ini yaitu volume, kecepatan dan kerapatan lalu lintas. Disamping itu juga dilakukan survey terhadap jadwal kedatangan kereta api, lama penutupan pintu perlintasan, panjang antrian, banyak kendaraan dalam antrian dan waktu pemulihan kendaraan. Dari hasil perhitungan menggunakan metode *Greenshield*, *Greenberg*, dan *Underwood* dengan pengujian statistik terlihat bahwa model *Greenshield* memenuhi kriteria lebih baik diantara kedua model lainnya. Analisa antrian dan tundaan yang diperoleh yaitu pada periode penutupan palang pintu rel kereta api pada 15:00 – 15:15 hari jumat, Peluang Antrian batas atas = 11.337% dan untuk Peluang Antrian batas bawah = 3.742%, Tundaan Lalu Lintas = 4.154 det/kend, Tundaan Lalu Lintas Mayor = 3.103 det/kend. Tundaan Lalu Lintas Minor = 1.145 det/kend, Tundaan Geometrik Simpang = 4.630 det/smp, dan Tundaan Simpang = 9.381 det/smp

Kata kunci : Perlintasan Sebidang, Karakteristik Lalulintas, Tundaan dan Antrian

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ANALYSIS OF VEHICLE SPEED, DENSITY AND VOLUME DUE TO CLOSING OF TRAIN DOORSTOPS USING THE GREENSHIELD, GREENBERG AND UNDERWOOD METHODS

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ABSTRACT

The transportation system which is formed from the components of facilities, infrastructure and people is part of today's society. The meeting between the highway and the railroad is an intersection at level crossings and is a point where conflicts can occur between the two modes of transportation. One of the level crossings in Ciamis City is at the level crossing of the Ciptomangunkusumo road section near the intersection of five. At these crossings the volume of vehicles passing is quite large so that when the doors are closed it can create quite long queues and also cause many vehicles to experience delays. The traffic characteristics surveyed in this study are volume, speed and traffic density. Besides that, a survey was also carried out on train arrival schedules, crossing gate closing time, queue length, number of vehicles in queue and vehicle recovery time. From the results of calculations using the Greenshield, Greenberg, and Underwood methods with statistical testing, it can be seen that the Greenshield model meets the criteria better than the other two models. The analysis of queues and delays obtained is that during the closing period of railway track gates at 15:00 – 15:15 Friday, the upper limit queuing opportunity = 11,337% and for the lower limit queuing opportunity = 3,742%, traffic delay = 4,154 sec/vehicle, Major Traffic Delay = 3,103 sec/vehicle. Minor Traffic Delay = 1,145 sec/pcu, Intersection Geometric Delay = 4,630 sec/pcu, and Intersection Delay = 9,381 sec/pcu

Keywords: Level crossing , traffic characteristics, delay and queueing.

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