

ABSTRACT

Analysis of The Impact of a Bottleneck as a Result of The MRT CP 201 Construction Project Based On Greenshield, Greenberg and Underwood Modeling.

Diandra Dwi Rahma ¹⁾, Resdiansyah ²⁾, Fredy Jhon Philip Sitorus ²⁾

1) Student of Civil Department of Civil Engineering and Center for Urban Studies, Universitas Pembangunan Jaya

2) Lecturer of Civil Department of Civil Engineering and Center for Urban Studies, Universitas Pembangunan Jaya

Currently M.H Thamrin road - Bundaran HI is under construction of the MRT project, this study aims to determine the impact of a bottleneck that impedes the traffic flow. The object of this study is located at two observation points, it is where the road is normal and narrow that located exactly in front of the Sari Pacific Jakarta and Sarinah bus stop. This study aims to find the mathematical relationship of volume, speed and traffic density due to the occurrence of road narrowing with the three types of traffic flow models which are Greenshield, Greenberg and Underwood using Microsoft Excel. The result showed that Greenberg's mathematical model was the most suitable for field conditions with the model equation $V = 114,548 s.e^{-0,110 S}$, for the relationship between volume and speed ($V - S$); $V = 42,833 d - 9,033 d \ln d$ and for the relationship between volume and density ($V - D$); $S = 42,833 D - 9,033 \ln d$ with strong correlation $r^2 = 0,89$, F count = 83,023 and t count = 8,156. Based on the value of its degree of saturation, it is proven a bottleneck has a significant impact on the flow of traffic so some duties are needed to be done, like adding two road lanes in narrowing section like the normal one.

Keywords: Bottleneck, Traffic Flow Model, Greenshield, Greenberg, Underwood

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