

Tram Progression Model using Tram Green Window

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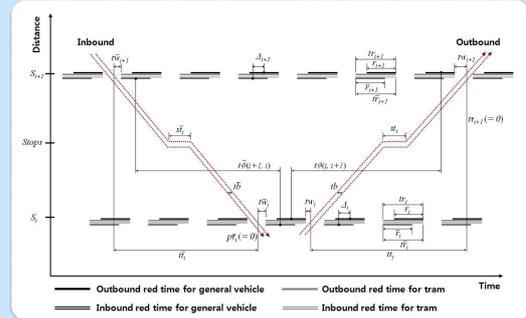
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Abstract

This research suggested a new tram progression model, TBAND, which was an active tram signal priority strategy in median tram lane. TBAND was formulated based on bandwidth maximization model, which was a mixed integer linear programming. A tram that leaves a stop during a tram green signal time can arrive at next stop without unnecessary intersection delays and stops using the tram green band. This priority model also maximizes the auto bandwidth in a median-exclusive tram lane. The case study is based on nine signalized intersections and a micro-simulator VISSIM, wherein it demonstrates that the proposed tram priority model, TBAND, is capable of computing signal timings so as to avoid intersection delays and stops of tram and maintain the auto green band.

3 TBAND Model

This research suggests a revised MAXBAND model for the tram progression, and the time-space diagram that depicts the tram bandwidth is presented in Fig.

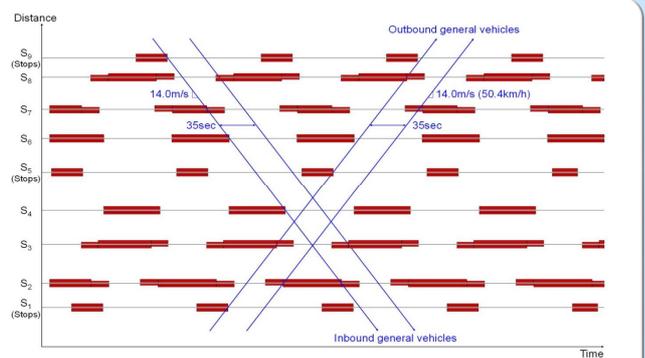
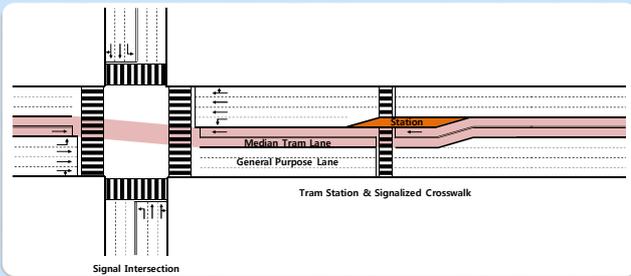


1 Introduction

This research suggests a new tram progression model, TBAND, which is a transit signal priority strategy that considers the tram dwell-time and additional delays of other types of traffic. This model is based on the MAXBAND model and determines both the bandwidths of general vehicles and trams in the context of an exclusive median tram rail as described in Fig.

4 Case Studies

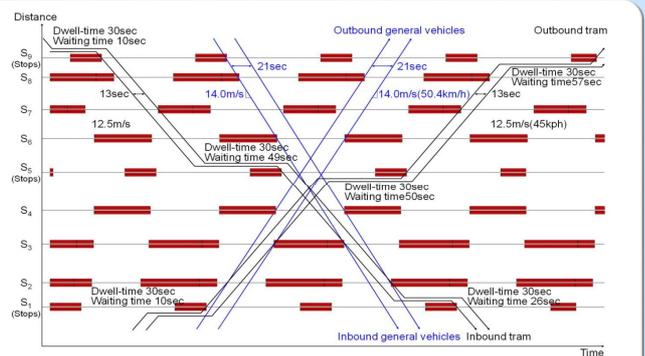
The MAXBAND model made the general vehicle bandwidth by up to 35 seconds; however this model could not consider the tram travel. The TBAND model expressed the dual bandwidth for the general vehicle and tram. The general vehicle bandwidth was reduced by up to 21 seconds as compare with the MAXBAND model; however, the tram bandwidth was designed to avoid the tram delay and stops at intersections.



MAXBAND Model(Green Band Maximization for Autos)

2 Tram Signal Priority

The tram bandwidth has to include dwell-time and its variability at stations. Additional dwell-time, which is referred to as waiting time in this study, can absorb dwell-time variability and extend the service time for the unloading and loading of passengers. In addition, the waiting time is used as the slack time to maximize the general vehicle bandwidth.



TBAND Model(Non-Stop Tram Band & Auto Band Maximization)

