Fundamentals of Traffic Operations and Control

Exercise 1: Shockwave Theory

Wednesday September 20, 2017

Exercise 1a:

Consider a single-lane road of length $L=300m$ with a traffic signal at the end. Estimate the average cycle link flow and density according to the generalized definitions for the following values:

- Green Time=30 seconds, Red Time=30 seconds
- Demand $q=600$ veh/hr
- Triangular FD with capacity=$1800$ vh/hr, jam density =$150$ vh/km, and critical density =$30$ vh/km

Exercise 1b:

A vehicle traveling at speed $v$, overpasses a traffic stream traveling at speed $v'$ and density $k'$. Identify the passing rate (vehicles passing per unit time).