1 Math

1.1 Without acceleration or deceleration

Calculating the needed speed, when acceleration and deceleration is not taking into consideration. We use the standard formula for calculating velocity and calculate two velocities: one for arriving at the traffic light just as it changes to green and one when it chances to red. The desired is therefore somewhere in between.

$$h_g = \frac{s}{t_g}$$

$$h_r = \frac{s}{t_r}$$

$$h_r \leq h \leq h_g$$

where

- s is the distanced between the vehicle and the traffic light

- t_g is the amount of seconds before the traffic light changes to green

- t_g is the amount of seconds before the traffic light changes to red

- h_g is the speed one need to drive in order to arrive at the traffic light when it changes to green

- h_g is the speed one need to drive in order to arrive at the traffic light when it changes to red