1 Introduction

2 Assumptions

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3.1 Simulation and discussion

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We simulate a toll plaze with 8 tollbooths and 3 lanes.

Commen cars are with length of 4-4.5m and width of 1.65-1.85m, so a car will take up 2 cells. According to the 1994 Green Book,a fit solution of the plaze would be a trapezoid with 168 meters of recovery zone length and 612 meters of departure zone. The width of one tollbooth and toll island is usually 5.5 meters and the width of each lane is 3.5-4 meter We set the length of each cell equal to 2 meter: $l_{car} = 0.5(m)$. So the parameters are as follows:

$$l_{car} = 2w_{car} = 1WB = W_bB = 3 \times 8 = 24WL = W_lL = 2 \times 3 = 6L_r = 84L_d = 306$$

Figure 1 shows the relationship between current and density of cars in road with different p_v.

Figure 1: The relationship between throughput and density with different p_v