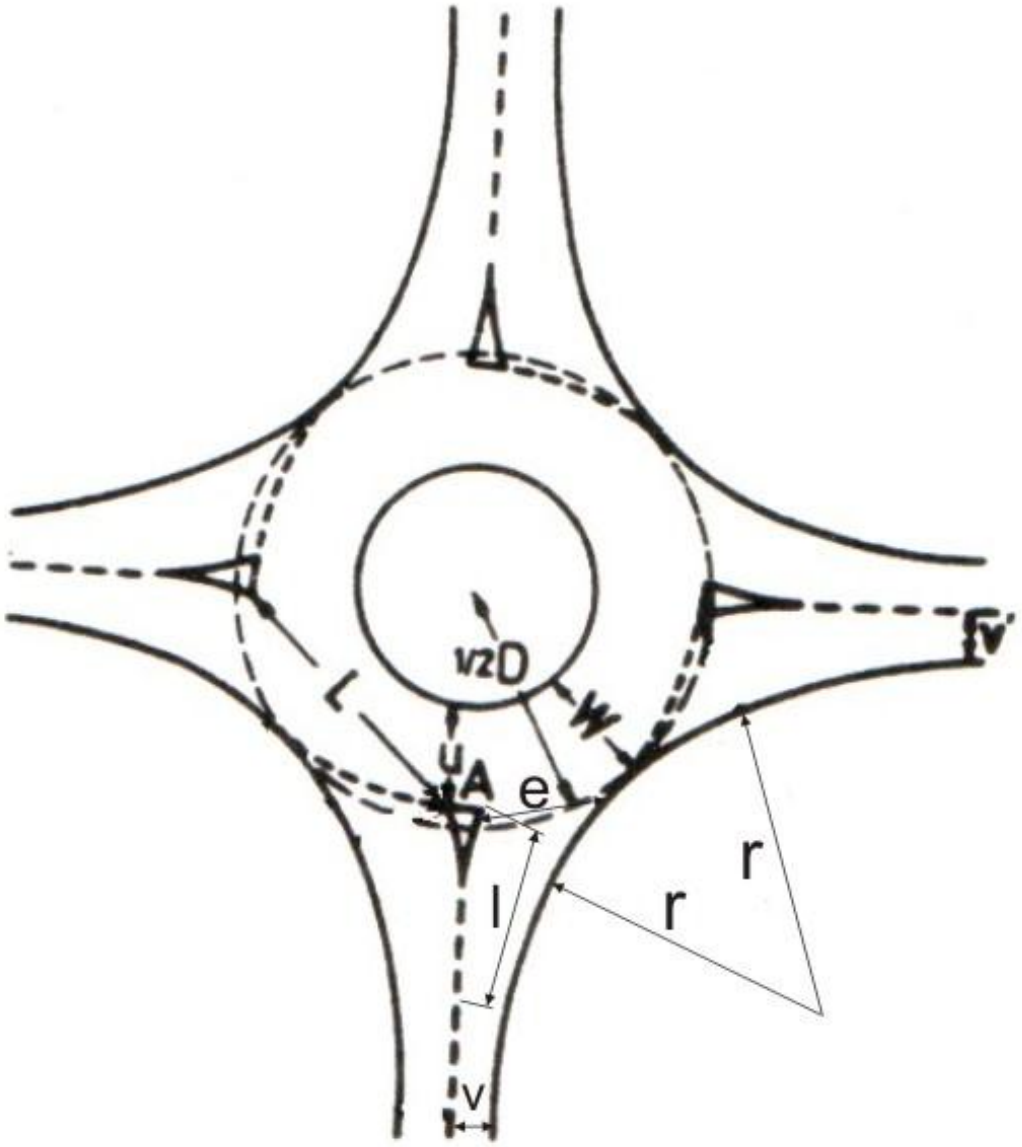
KAPACITET KRUŽNIH RASKRSNICA

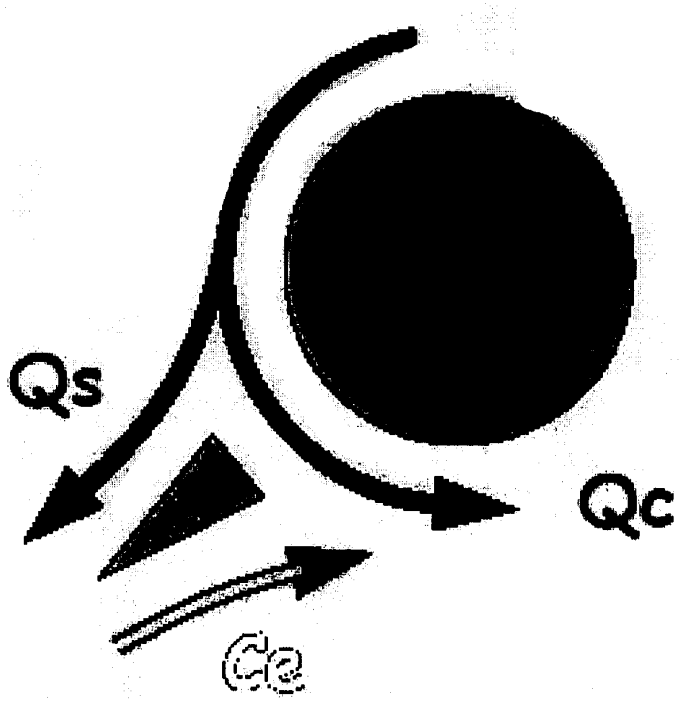
WANDROP-OV OBRAZAC (1957)

$$C = \frac{108 \cdot W \cdot (1 + e/W) \cdot (1 - p/3) \cdot f_{pkv}}{0{,}3 \cdot (1 + W/L)}$$

- W-širina zone preplitanja
- e – širina ulaza u kružnu raskrsnicu
- p – odnos toka koji se prepliće i ukupnog toka
- L- dužina posmatranog kružnog segmenta
- f_{pkv} – faktor komercijalnih vozila (100/Ppa+Pltv+2(Pbus+Pstv+Pttv))

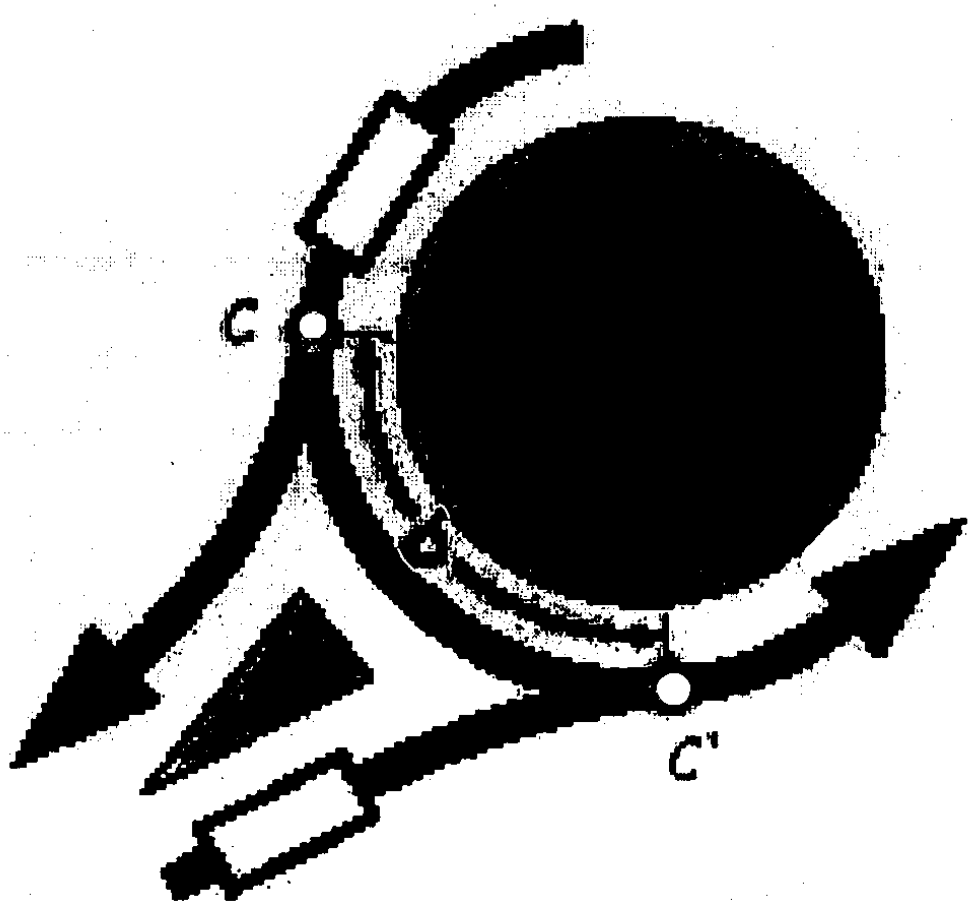

1/2D
L
W
A
e
l
r
r
v

SETRA

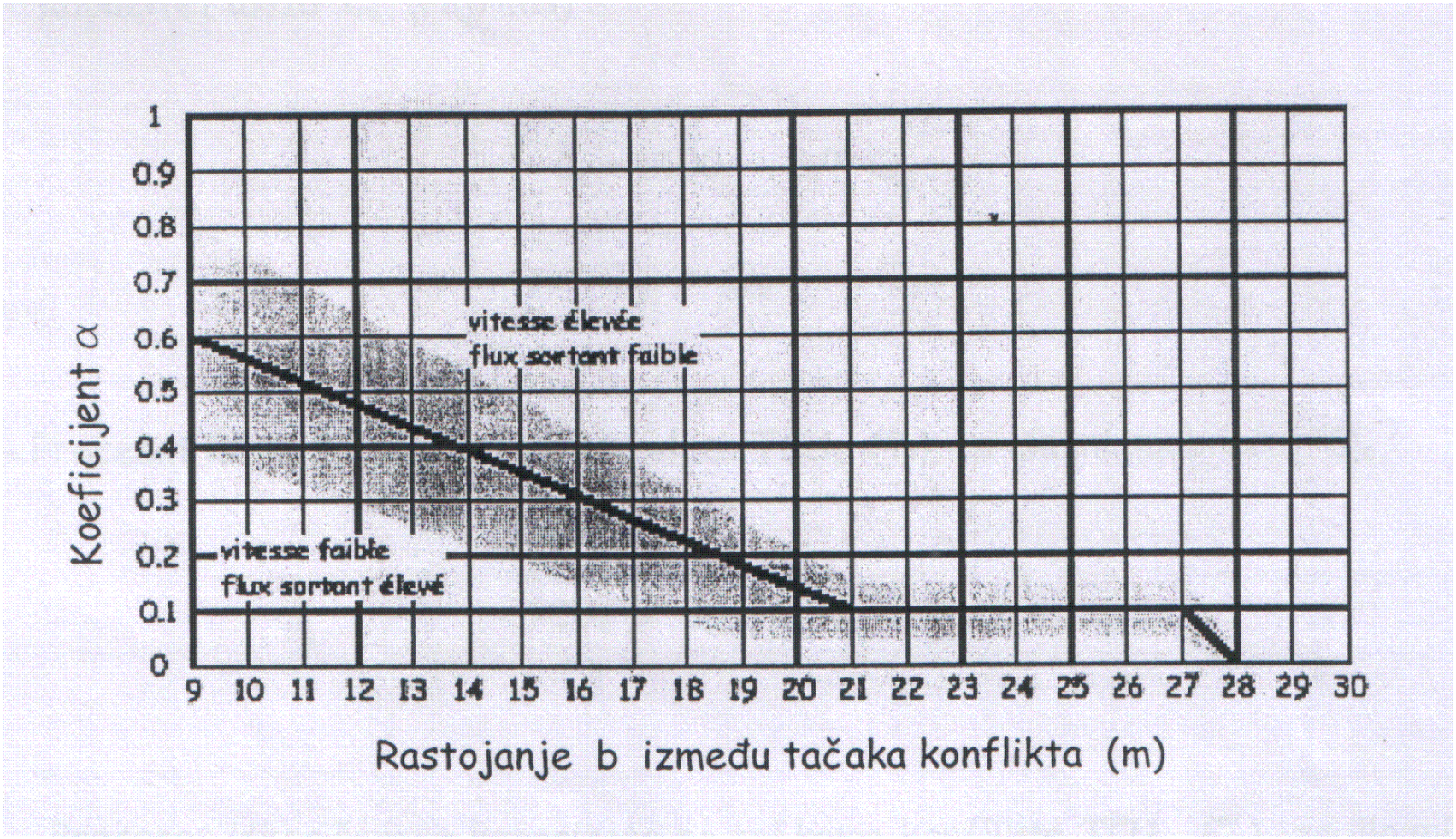


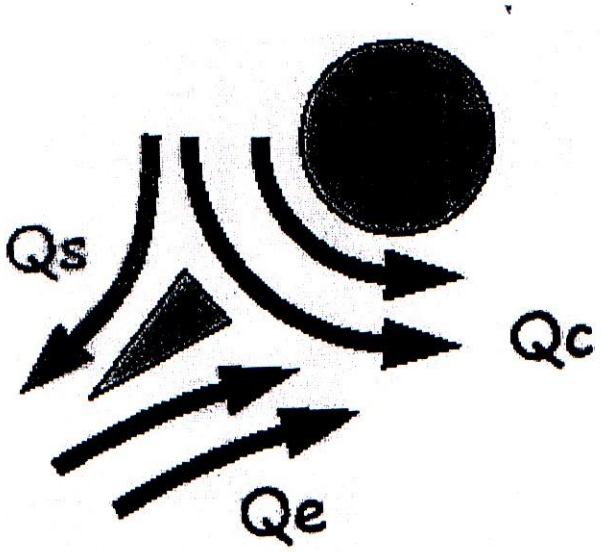
Ce=1500-8/9Qg

Qg=Qc+αQs



α-zavisi od rastojanja b


Koeficijent α
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
vitesse élevée
flux sortant faible
vitesse faible
flux sortant élevé
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Rastojanje b između tačaka konflikta (m)



Ce=1500-8/9Qg

Qg=βQc+αQs

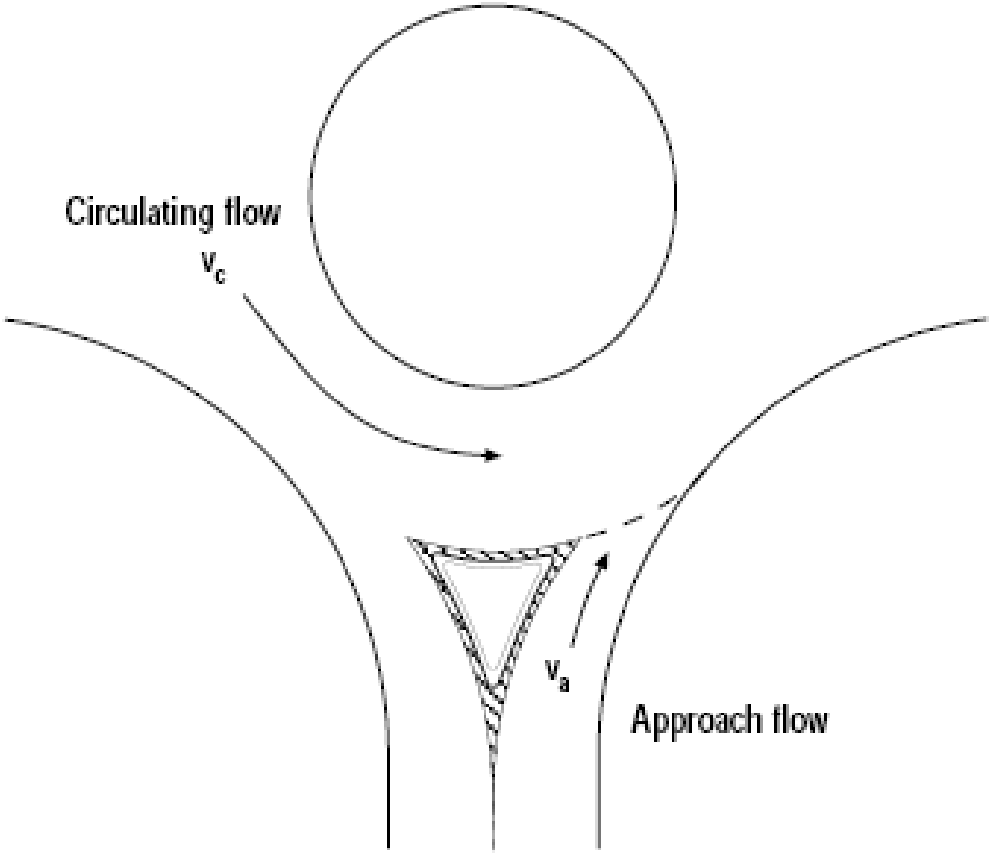
β-zavisi od broja traka na kružnom prstenu

1 traka – 0,9 do 1

2 trake – 0,6 do 0,8

3 trake – 0,5 do 0,6

HCM-2000



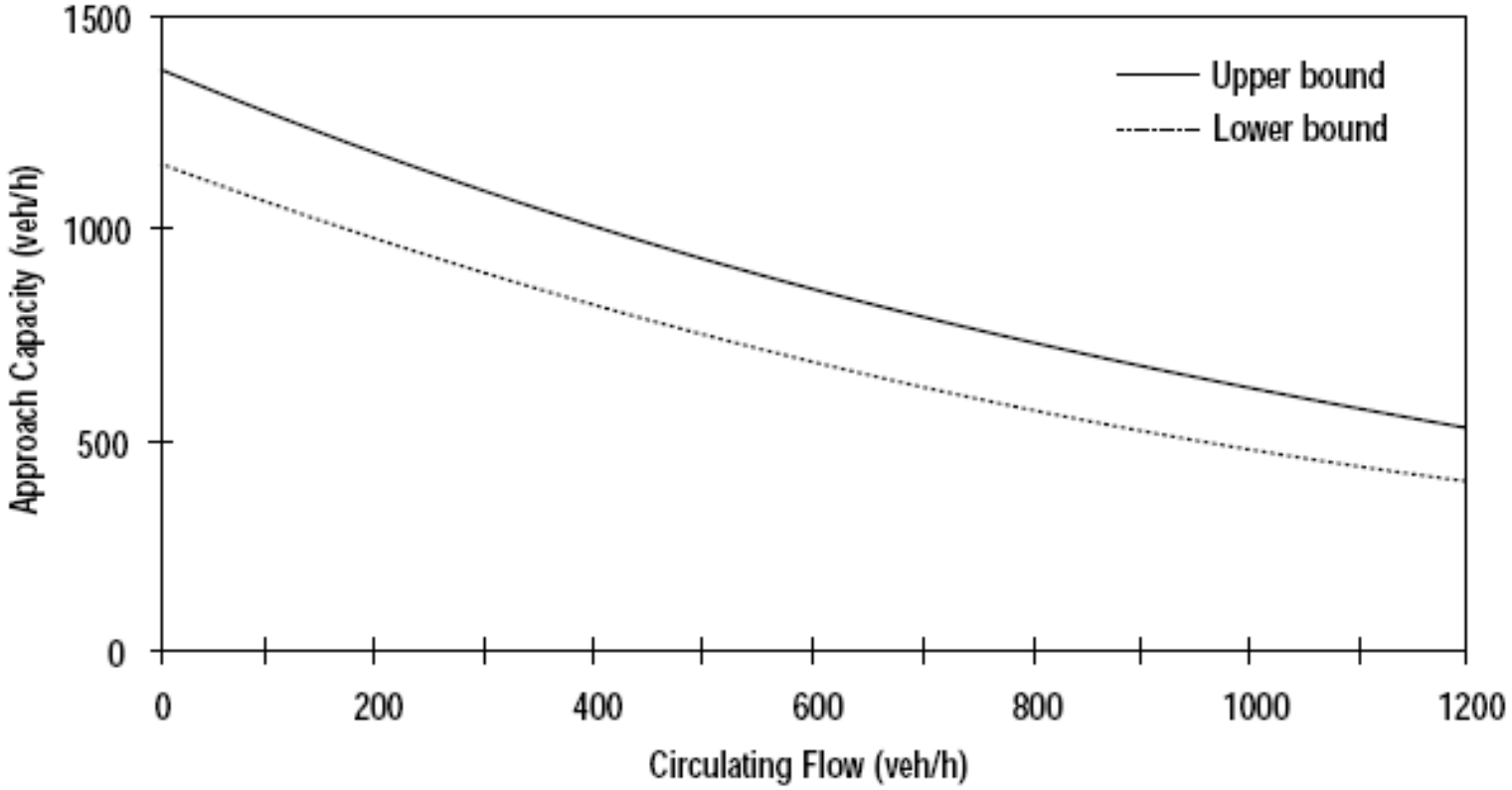
$$c_a = \frac{v_c e^{-v_c t_c / 3600}}{1 - e^{-v_c t_f / 3600}}$$

EXHIBIT 17-37. CRITICAL GAP AND FOLLOW-UP TIMES FOR ROUNDABOUTS

	Critical Gap (s)	Follow-Up Time (s)
Upper bound	4.1	2.6
Lower bound	4.6	3.1

$$C_{crit} = 1230e^{(-0.0009\,v_c)}$$

EXHIBIT 17-38. ROUNDABOUT APPROACH CAPACITY



$$d = \frac{3600}{c} + 900T\left[\frac{v}{c} - 1 + \sqrt{\left(\frac{v}{c} - 1\right)^2 + \frac{\left(\frac{3600}{c}\right)\frac{v}{c}}{450T}}\right]$$

Level of Service	Average Control Delay (s/veh)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

HCM-2005

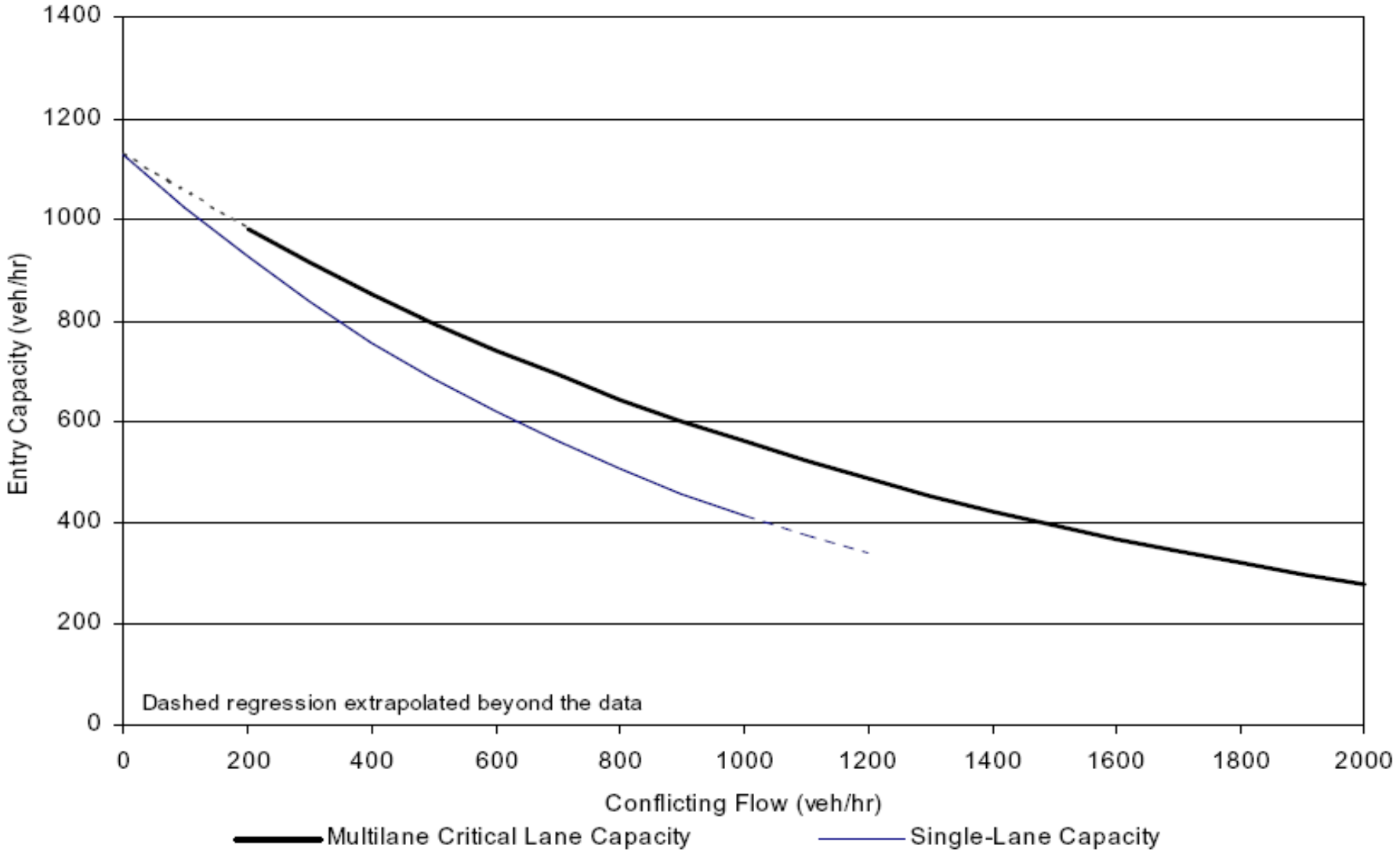
$$C_{crit} = Ae^{(-B\,v_c)}$$

$$A = \frac{3600}{t_f}$$

$$B = \frac{t_c - t_f/2}{3600}$$

$$C_{crit} = 1130e^{(-0.0007\, v_c)}$$

$$C_{non-crit} = \frac{2}{n+1\sqrt{2}} C_{crit} - C_{crit}$$


1400
1200
1000
800
600
400
200
0
Entry Capacity (veh/hr)
Dashed regression extrapolated beyond the data
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Conflicting Flow (veh/hr)
Multilane Critical Lane Capacity
Single-Lane Capacity

$$d = \frac{3600}{c} + 900T\left[\frac{v}{c} - 1 + \sqrt{\left(\frac{v}{c} - 1\right)^2 + \frac{\left(\frac{3600}{c}\right)\frac{v}{c}}{450T}}\right]$$

Level of Service	Average Control Delay (s/veh)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

$$Q_{95} = 900T\left[\frac{v}{c} - 1 + \sqrt{\left(1 - \frac{v}{c}\right)^2 + \frac{\left(\frac{3600}{c}\right)\left(\frac{v}{c}\right)}{150T}}\right]\left(\frac{c}{3600}\right)$$