Traffic Theory

CEE320 Prof. Goodchild October 7, 2009

Can We Get Speed from a Single Loop?

$$s = \frac{EVL}{t_o}$$

EVL = effective vehicle length (ft)

 $t_o = occupancy time (s)$

EVL ~ vehicle length + detector length (24 feet)

Estimating Speed from a Single Loop?

$$s = \frac{N \times EVL}{T \times \frac{O}{100}}$$

s = speed (ft/sec)

- N = number of vehicles in the observation interval
- T = observation interval (s)
- O = percentage of time the loop is occupied by vehicles during the observation interval (occupancy)
- EVL = Effective vehicle length

units

Estimating Speed from a Single Loop?

$$s = \frac{N \times EVL}{T \times O} \times \frac{100 \times 3600}{5280}$$

- s = speed (miles/hr)
- N = number of vehicles in the observation interval
- T = observation interval (s)
- O = percentage of time the loop is occupied by vehicles during the observation interval (occupancy)
- EVL = Effective vehicle length

units

Useful Identities

$$u_{cap} = \frac{u_f}{2}$$

$$k_{cap} = \frac{k_j}{2}$$