LeAP – AMU Presentation on

Sight Distance in Highway Engineering

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Sight Distance

Factors Governing

- Reaction time of a Driver (PIEV)
- Speed of the Vehicle
- Efficiency of Brakes
- Frictional resistance (Skid-Circumferential & Slip – Longitudinal)
- Gradient of the road

Types of Sight Distance

Stopping Sight Distance (SSD)

Overtaking Sight Distance (OSD) / Passing Sight Distance (PSD)

Intermediate Sight distance (ISD)

Stopping Sight Distance

Definition

Components

- Reaction Distance

  = vt

- Braking Distance

  = $v^2/2g\,(f \pm n)$

Overtaking/Passing Sight Distance

Definition

Factors Governing

- Reaction time of a driver
- Speeds of Overtaking, Overtaken vehicle and On-Coming vehicles
- Rate of acceleration of overtaking vehicle
- Gradient of the road

Analysis of OSD/PSD

$OSD = d_1 + d_2 + d_3$

d_1 = distance traveled by over taking vehicle during the reaction time

d_2 = distance traveled by over taking vehicle during over taking operation

d_3 = distance traveled by on coming vehicle during over taking operation

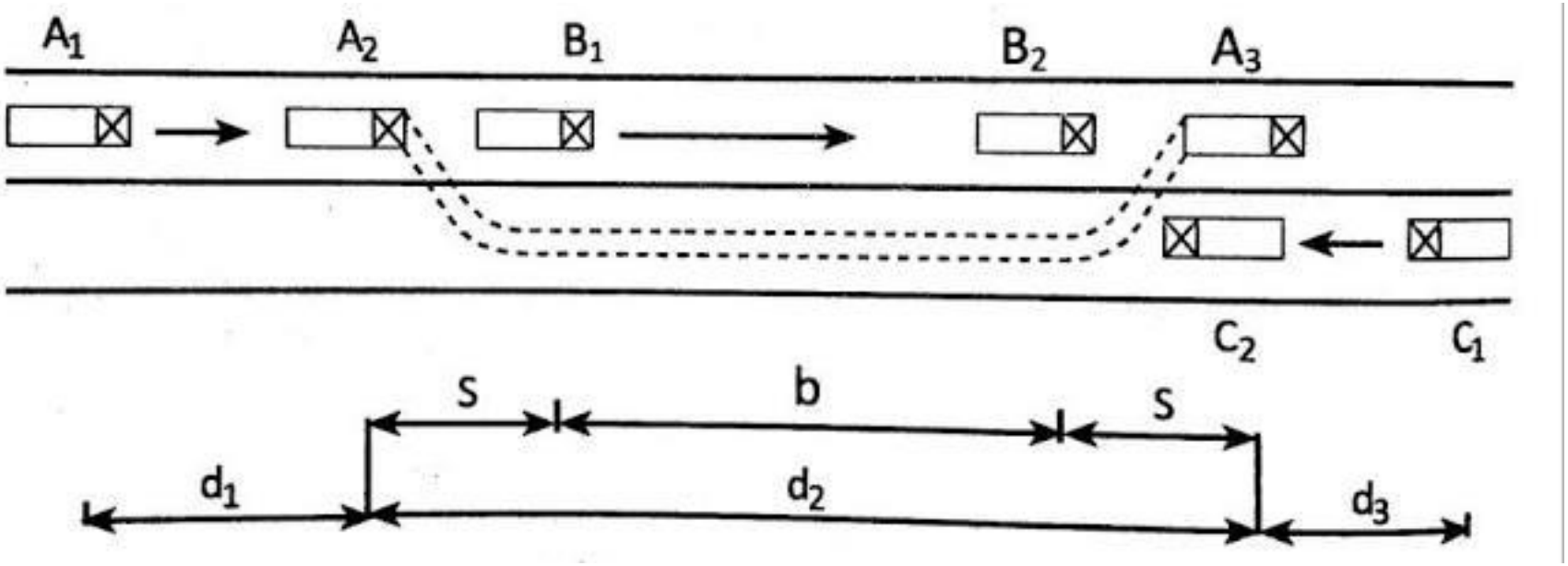
Analysis of OSD/PSD ..contd..

$OSD = d_1 + d_2 + d_3$

$d_1 = V_b t$
$d_2 = V_b T + 2s$
$d_3 = VT$

$s = 0.2v_b + 6$ (if v_b is substituted in m/s)
$s = 0.7v_b + 6$ (if v_b is substituted in km/h)
T = sqrt (4s/a) (if 'a' is substituted in m/s)
T = sqrt (14.4s/a) (if 'a' is substituted in km/h)

Analysis of OSD/PSD ..contd.,



Courtesy: moderncivilians.blogspot.com

Intermediate Sight Distance

Due to

Inadequate width of road

Insufficient OSD

Stopping Sight Distance

An Example:

Find minimum sight distance to avoid head-on collision of two cars approaching at 100 kph and 80 kph.
Given t = 2.5 s, f = 0.35.

Overtaking Sight Distance

An Example:

Overtaking and overtaken vehicles are at 80 and 50 kmph respectively. Find (i) OSD (ii) min. and desirable length of overtaking zone

Thank You