Flow chart for alignment design  Fig 1.2
Road Function

Traffic Volumes
Design Vehicles

Identify the various sections based on curve groupings given in Table 3.3. Note if a straight section is less than 200 m then it has no effect on vehicle operating speeds. If greater than 200 m then treat as a separate section.

Establish the section operating speeds also from Table 3.3. Adopt the greater operating speed value where there is a different range of radii for section operating speeds.

Note the problem curve is in Section 2 as the difference in operating speed value between adjoining sections is > 10 km/h in both directions.

Operating Speeds

Identify the various sections based on curve groupings given in Table 3.3. Note if a straight section is less than 200 m then it has no effect on vehicle operating speeds. If greater than 200 m then treat as a separate section.

Establish the section operating speeds also from Table 3.3. Adopt the greater operating speed value where there is a different range of radii for section operating speeds.

Note the problem curve is in Section 2 as the difference in operating speed value between adjoining sections is > 10 km/h in both directions.
Stopping sight distance (SSD) is the distance to enable a normally alert driver, travelling at the design speed on wet pavement, to perceive, react and brake to a stop before reaching a hazard on the road ahead.

SSD is derived from two components:
- The distance travelled during the total reaction time
- The distance travelled during the braking time from the design speed to fully stopped.

\[ \text{SSD} = \frac{R_T V}{3.6} \left( \frac{V}{254(d + 0.01a)} \right) \]

- \( R_T \) = reaction time (sec)
- \( V \) = operating speed (km/h)
- \( d \) = coefficient of deceleration (longitudinal friction factor)
- \( a \) = longitudinal grade (\%, + for upgrades and - for downgrades).
**Horizontal Design & Superelevation**

Superelevation runoff $S_{ro}$ is from flat crossfall to full superelevation.

Tangent runoff $T_{ro}$ is from a normal crowned road crossfall to a flat crossfall.

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**Vertical alignment**

Made up of:
- Series of straight grades (complying with maximum and minimum criteria) and vertical curves (complying with forward visibility, safety, comfort and appearance criteria)
- Grades can be positive or negative (going up or down in the direction being considered)
- Curves can be concave or convex (sag or crest)
Coordination of Horizontal and Vertical Drainage

- Bridge
- Low level bridge
- Floodways
- Culverts
Questions?

QUESTIONS?