201.05 STOPPING SIGHT DISTANCE AT GRADE SAGS

Stopping sight distance for grade sags is important at night when headlights need to illuminate the road ahead. Figure 200.02, provides the minimum sag vertical curve length which provides headlight sight for a given design speed. Lighting may be considered as an economic option to lengthening the sag curve.

201.06 STOPPING SIGHT DISTANCE ON HORIZONTAL CURVES

Figure 200.03 is used to determine the required clear distance (at a given design speed) from the inside lane centerline to a roadside obstruction. The driver's eye is assumed 1070 mm above the inside lane centerline (inside with respect to curve) and the object is 150 mm high. With little or no vertical curvature, the sight line is assumed to intercept the obstruction at the midpoint of the sight line, 610 mm above the inside lane centerline. The clear distance (*m*) is measured from the inside lane center to the obstruction.

201.07 DECISION SIGHT DISTANCE

Decision sight distance is the distance required for a driver to detect an unexpected or difficult to perceive information source or hazard in a roadway environment that may be visually cluttered, select an appropriate speed and path, and initiate and complete the required maneuver safely and efficiently. Decision sight distance is used at major decision points such as lane drops, changes in cross section, off-ramp noses to interchanges, branch connections, roadside rests, vista points, and inspection stations. At these locations, sight distance greater than stopping sight distance is desirable to allow drivers time for making decisions

The decision sight distances in Table 200.02 provide appropriate decision sight distance rounded for design. Decision sight distance is based on a 1070 mm eye height and a 150 mm object height.

Table 200.02
Decision Sight Distance

Design Speed kph	*Decision Sight Distance for Avoidance Maneuver (m)*				
	A	*B*	*C*	*D*	*E*
50	75	160	145	160	200
60	95	205	175	205	235
70	125	250	200	240	275
80	155	300	230	275	315
90	185	360	275	320	360
100	225	415	315	365	405
110	265	455	335	390	435
120	305	505	375	415	470

A Stop on rural road.
B Stop on urban road.
C Speed/path/direction change on rural road.
D Speed/path/direction change on suburban road.
E Speed/path/direction change on urban road.

From AASHTO, 1994, "A Policy on Geometric Design of Highways and Streets"

202 SUPERELEVATION

202.01 GENERAL

As a vehicle travels a curved section of road it is subjected to centrifugal force which tends to push it towards the outside of the curve. If the surface is flat, the vehicle is held in its curved path by side friction between the tires and pavement. Roadways are superelevated to further counter centrifugal force. Superelevation is the sloping of the roadway surface upward toward the outside of the curve. On a superelevated roadway, centrifugal force is resisted by the vehicle weight component parallel to the superelevated surface and the tire side friction. However, it is impractical to balance centrifugal force by superelevation alone, because for a given curve radius a certain superelevation rate is exactly correct at only one speed. At all other speeds side thrust will either be toward or away from the curve center. This thrust must be offset by side friction.