

**Section 11**  
**Roadside furniture**

## SECTION 11

**ROADSIDE FURNITURE****11.1 General**

Roadside furniture shall be provided as per details given in this Section.

**11.2 Road Boundary Stones (RBS)**

Road boundary stones shall be provided at the boundary on both sides of the right of way available under the control of the Government. These shall be spaced at 200 m. The boundary stones shall be of cement concrete as per Type Design given in IRC:25. The boundary stones shall be painted with cement primer and enamel paint and marked 'RBS' by paint.

**11.3 Kilometre and 200 m Stones**

- (i) The Km and 200 m stones shall be provided on one side of the Project Highway. The side of the road on which such stones will be provided, shall be decided by the Government.
- (ii) The design and specifications of Kilometre stone shall conform to IRC:8. The matter to be written on various Kilometre stones and the pattern thereof, shall be as specified in IRC:8.
- (iii) 200 m stones shall be provided at every 200 m distance. The design and specification of 200 m stone shall conform to IRC:26. The matter to be written on various 200 m stones shall be as specified in IRC:26.

**11.4 Roadside Railings / Pedestrian Guard Rails****11.4.1 Pedestrian Guard Rails**

- (i) Pedestrian guardrails are an important design element to prevent indiscriminate crossing and spilling over of pedestrians on to the carriageway. Their judicious use can help to ensure that pedestrians cross the highway at predetermined and safe locations.

As the guardrails would confine the movement of pedestrians to the footpath, it is obligatory that sufficient width of footpath be made available for the use of pedestrians.

- (ii) **Design:** The design shall be such that the guardrails are neat and simple in appearance. The height of guardrail shall be 1.2 m from footpath level. The visibility of the approaching vehicles by the pedestrians as well as the visibility of the pedestrians by the drivers of the approaching vehicles shall be adequate. The railings shall not have any thick horizontal member, other than the baluster to achieve the desired objective.

Pedestrian guardrails may be of reinforced cement concrete, iron tubes, steel channeled sections and pipes, or steel sections appropriate for the environment. Refer to IRC:103.

(iii) Application: Pedestrian guardrails shall be provided at the following locations/situations:

(a) Hazardous locations on straight stretches: In particularly busy reaches, where the road is congested and vehicles move at a fast pace, guardrails shall be provided on both sides of the carriageway so as to channelize the pedestrians on to the planned crossing locations.

(b) At Junctions/Intersections: Railing barriers shall be provided to prevent people from crossing the junctions diagonally at signalized intersections. The barrier shall open only at planned crossing facility (at the Zebra Crossing). At unsignalized junctions they shall be provided for sufficient length to guide the pedestrians to the nearest planned pedestrian crossing.

(c) Schools: Provision of guardrails near schools, where children would otherwise run straight into the road, is essential. If there is a pedestrian crossing or a school crossing patrol nearby, the guardrails shall be extended up to it.

(d) Bus stops, Railway stations, etc.: Guardrails shall be provided along sidewalks with suitable access at bus stops, railway stations and other areas of heavy pedestrian activity such as cinema houses, stadia, etc. for guiding pedestrians safely in such areas.

(e) Overpass, Subway, etc.: Guardrails shall be provided at these locations in order to compel the pedestrians to use the facilities provided for them.

(f) Central reserves: Where there is a central reserve or a median, guardrails shall be erected within it to deter the pedestrians from attempting a crossing.

(iv) Gaps/Setback Distance: The guardrails shall be set back from edge of the carriageway by at least 150 mm.

## 11.5 Overhead Traffic Signs

**11.5.1** Overhead road signs shall be provided in lieu of, or as an adjunct to ground signs where the situation so warrants, for providing warning of hazardous situations, help in regulating traffic, for proper information and guidance of the road users. The following conditions may be considered while deciding about the provision of overhead signs:

- (i) Traffic volume at or near capacity,
- (ii) Restricted sight distance,
- (iii) Built up stretches,
- (iv) Insufficient space for ground mounted signs,
- (v) Distances of important places and route highways at suitable intervals.

**11.5.2** The overhead signs shall be reflectorized type, with high intensity retro-reflective sheeting preferably of encapsulated lens type.

**11.5.3** Design, location, application, height, vertical and lateral clearances of overhead road signs shall be as specified in Section 800 of MOSRTH Specifications.

**11.5.4** Materials for overhead signs support structure and installation shall be in accordance with Section 802 of MOSRTH Specifications.

**11.5.5** Location and size of overhead traffic signs shall be specified in Schedule-B of the Concession Agreement.

## **11.6 Traffic Impact Attenuators**

**11.6.1** These are protective systems which prevent errant vehicles from impacting fixed objects like the following:

- (i) Bridge abutments.
- (ii) Structural columns of large direction signs.
- (iii) Illumination lamp posts.

**11.6.2** In case of two-lane highway, they may be provided where Guard Rail is not appropriate. Necessary safety devices like an assembly of old tyres or steel drums filled with sand can be adopted at suitable location.

## **11.7 Road Delineators**

**11.7.1** They provide visual assistance to drivers about the road ahead especially at night.

These include pavement markings and post type delineators.

### **11.7.2** Delineators will include:

- (i) Roadway Indicators - They shall be provided to delineate the edges of the roadway so as to guide drivers about the alignment and particularly, where it might be confusing to drivers.
- (ii) Hazard Markers - They shall be used to define obstructions like guardrails and abutments adjacent to the carriageway and bridges which are narrower than the roadway width.
- (iii) Object Markers - They shall be provided to indicate hazards and obstructions within the vehicle flow path like channelizing islands close to the intersections.

**11.7.3** Delineator by pavement markings shall be provided as per IRC:35. Guidepost side delineators shall be provided as per IRC:79 and Section 800 of MOSRTH Specifications.