

Traffic Signs and Road Markings

Overview

Traffic control device is the medium used for communicating between traffic engineer and road users. Unlike other modes of transportation, there is no control on the drivers using the road. Here traffic control devices comes to the help of the traffic engineer. The major types of traffic control devices used are- traffic signs, road markings , traffic signals and parking control. This chapter discusses traffic control signs. Different types of traffic signs are regulatory signs, warning signs and informatory signs.

Road Markings

Overview

The essential purpose of road markings is to guide and control traffic on a highway. They supplement the function of traffic signs. The markings serve as a psychological barrier and signify the delineation of traffic path and its lateral clearance from traffic hazards for the safe movement of traffic. Hence they are very important to ensure the safe, smooth and harmonious flow of traffic. Various types of road markings like longitudinal markings, transverse markings, object markings and special markings to warn the driver about the hazardous locations in the road etc. will be discussed in detail in this lecture.

Classification

The road markings are defined as lines, patterns, words or other devices, except signs, set into applied or attached to the carriageway or kerbs or to objects within or adjacent to the carriageway, for controlling, warning, guiding and informing the users. The road markings are classified as longitudinal markings, transverse markings, object markings, word messages, marking for parking, marking at hazardous locations etc.

Longitudinal markings

Longitudinal markings are placed along the direction of traffic on the roadway surface, for the purpose of indicating to the driver, his proper position on the roadway. Some of the guiding principles in longitudinal markings are also discussed below.

Longitudinal markings are provided for separating traffic flow in the same direction and the predominant color used is white. Yellow color is used to separate the traffic flow in opposite direction and also to separate the pavement edges. The lines can be either broken, solid or double solid. Broken lines are permissive in character and allows crossing with discretion, if traffic situation permits. Solid lines are restrictive in character and does not allow crossing except for entry or exit from a side road or premises or to avoid a stationary obstruction. Double solid lines indicate severity in restrictions and should not be crossed except in case of

emergency. There can also be a combination of solid and broken lines. In such a case, a solid line may be crossed with discretion, if the broken line of the combination is nearer to the direction of travel. Vehicles from the opposite directions are not permitted to cross the line. Different types of longitudinal markings are center line, traffic lanes, no passing zone, warning lines, border or edge lines, bus lane markings, cycle lane markings.

Center line

Center line separates the opposing streams of traffic and facilitates their movements. Usually no center line is provided for roads having width less than 5 m and for roads having more than four lanes. The center line may be marked with either single broken line, single solid line, double broken line, or double solid line depending upon the road and traffic requirements. On urban roads with less than four lanes, the center line may be single broken line segments of 3 m long and 150 mm wide. The broken lines are placed with 4.5 m gaps (figure below).

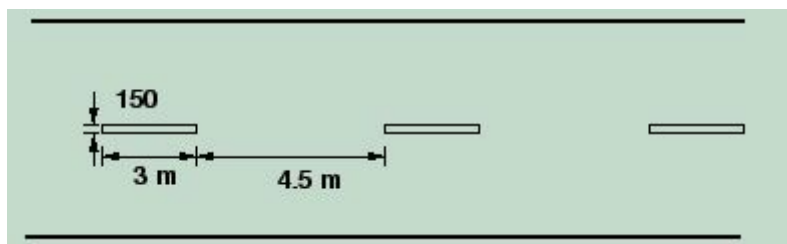


Figure: Center line marking for a two lane road.

On curves and near intersections, gap shall be reduced to 3 meters. On undivided urban roads with at least two traffic lanes in each direction, the center line marking may be a single solid line of 150 mm wide as in figure below, or double solid line of 100 mm wide separated by a space of 100 mm as shown in figure below.

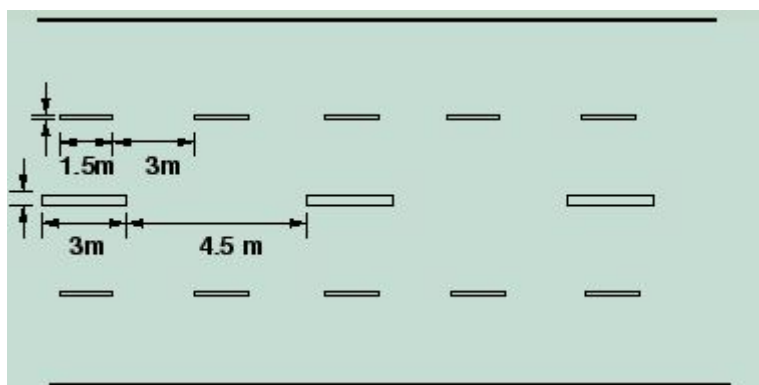


Figure : Center line and lane marking for a four lane road.

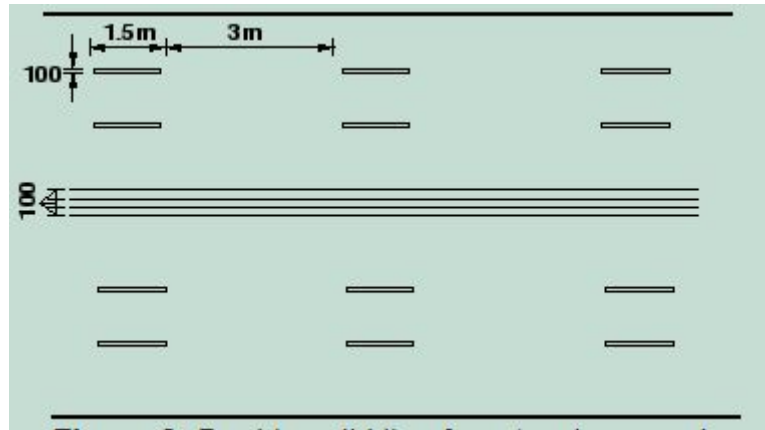


Figure: Double solid line for a two lane road.

The center barrier line marking for four lane road is shown in figure below.

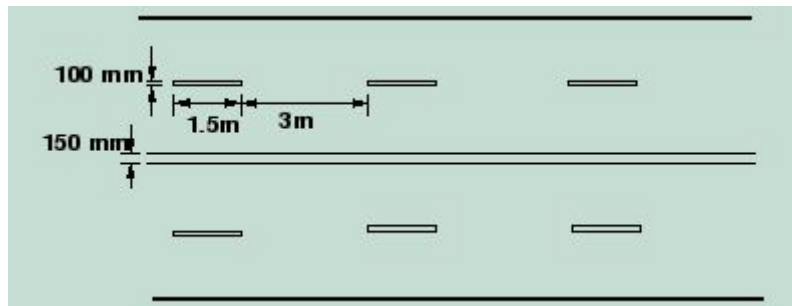


Figure: Center barrier line marking for four lane road.

Traffic lane lines

The subdivision of wide carriageway into separate lanes on either side of the carriage way helps the driver to go straight and also curbs the meandering tendency of the driver. At intersections, these traffic lane lines will eliminate confusion and facilitates turning movements. Thus traffic lane markings help in increasing the capacity of the road in addition ensuring more safety. The traffic lane lines are normally single broken lines of 100 mm width. Some examples are shown in figures below.

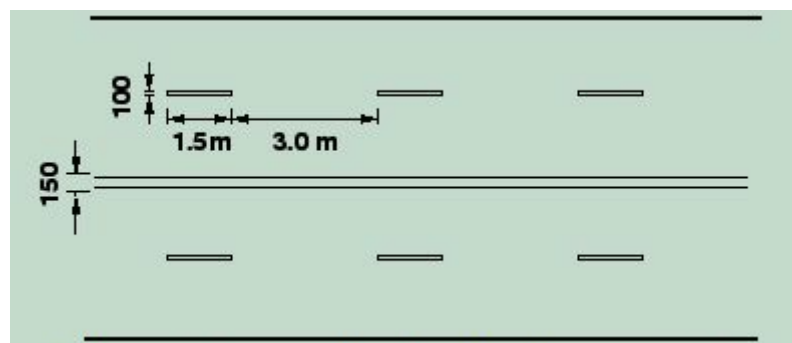


Figure: Lane marking for a four lane road with solid barrier line.

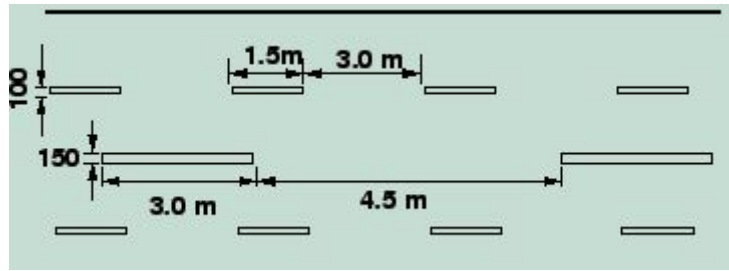


Figure: Traffic lane marking for a four lane road with broken center line.

No passing zones

No passing zones are established on summit curves, horizontal curves, and on two lane and three lane highways where overtaking maneuvers are prohibited because of low sight distance. It may be marked by a solid yellow line along the center or a double yellow line. In the case of a double yellow line, the left hand element may be a solid barrier line, the right hand may be either a broken line or a solid line. These solid lines are also called barrier lines. When a solid line is to the right of the broken line, the passing restriction shall apply only to the opposing traffic. Some typical examples are shown in figures below.

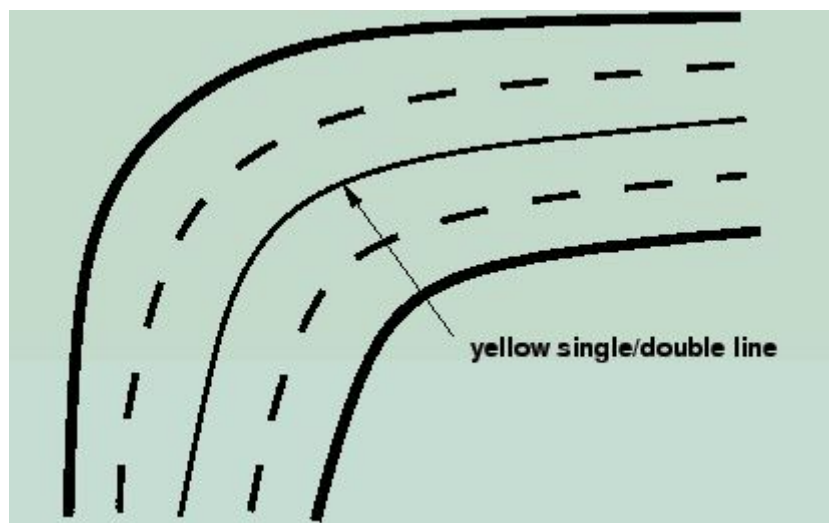


Figure: Barrier line marking for a four lane road.

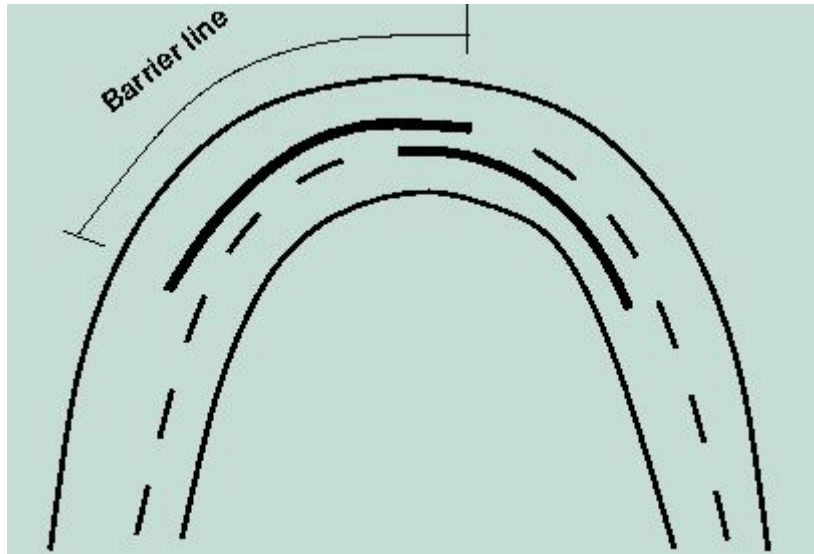


Figure: No passing zone marking at horizontal curves.

In the latter case, the no passing zone is staggered for each direction.

Warning lines

Warning lines warn the drivers about the obstruction approaches. They are marked on horizontal and vertical curves where the visibility is greater than prohibitory criteria specified for no overtaking zones. They are broken lines with 6 m length and 3 m gap. A minimum of seven line segments should be provided. A typical example is shown in figure below.

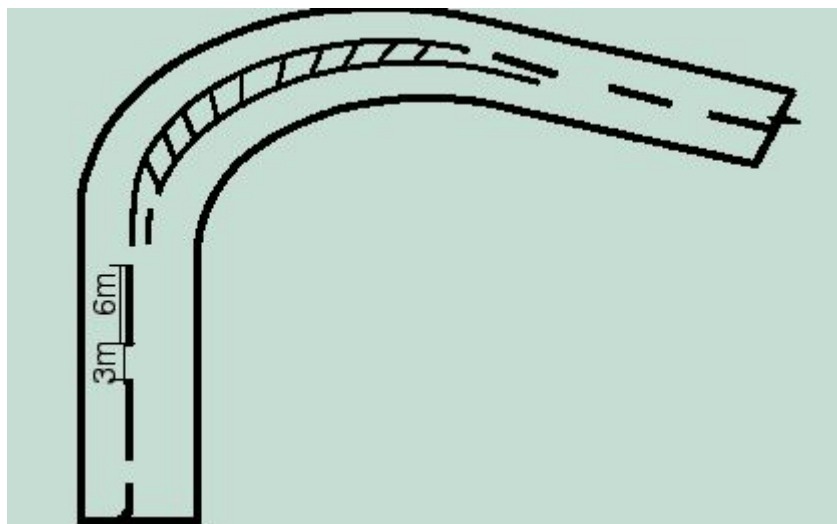


Figure: Warning line marking for a two lane road.

Edge lines

Edge lines indicate edges of rural roads which have no kerbs to delineate the limits up to which the driver can safely venture. They should be at least 150 mm from the actual edge of the pavement. They are painted in yellow or white.

All the lines should be preferably light reflective, so that they will be visible during night also. Improved night visibility may also be obtained by the use of minute glass beads embedded in the pavement marking materials to produce a retroreflective surface.

Transverse markings

Transverse markings are marked across the direction of traffic. They are marked at intersections etc. The site conditions play a very important role. The type of road marking for a particular intersection depends on several variables such as speed characteristics of traffic, availability of space etc. Stop line markings, markings for pedestrian crossing, direction arrows, etc. are some of the markings on approaches to intersections.

Stop line

Stop line indicates the position beyond which the vehicles should not proceed when required to stop by control devices like signals or by traffic police. They should be placed either parallel to the intersecting roadway or at right angles to the direction of approaching vehicles. An example for a stop line marking is shown in figure below.

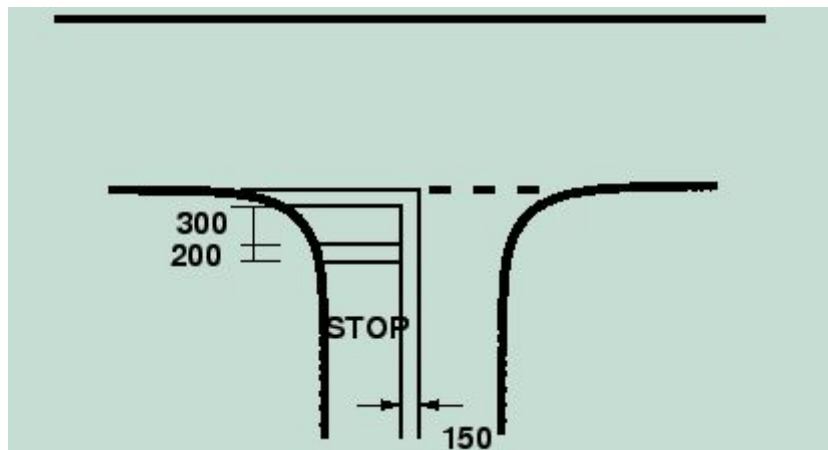


Figure: Stop line marking near an intersection.

Pedestrian crossings

Pedestrian crossings are provided at places where the conflict between vehicular and pedestrian traffic is severe. The site should be selected that there is less inconvenience to the pedestrians and also the vehicles are not interrupted too much. At intersections, the pedestrian crossings should be preceded by a stop line at a distance of 2 to 3m for unsignalized intersections and at a distance of one meter for signalized intersections. Most commonly used pattern for pedestrian crossing is Zebra crossing consisting of equally spaced white strips of 500 mm wide. A typical example of an intersection illustrating pedestrian crossings is shown in figure below.

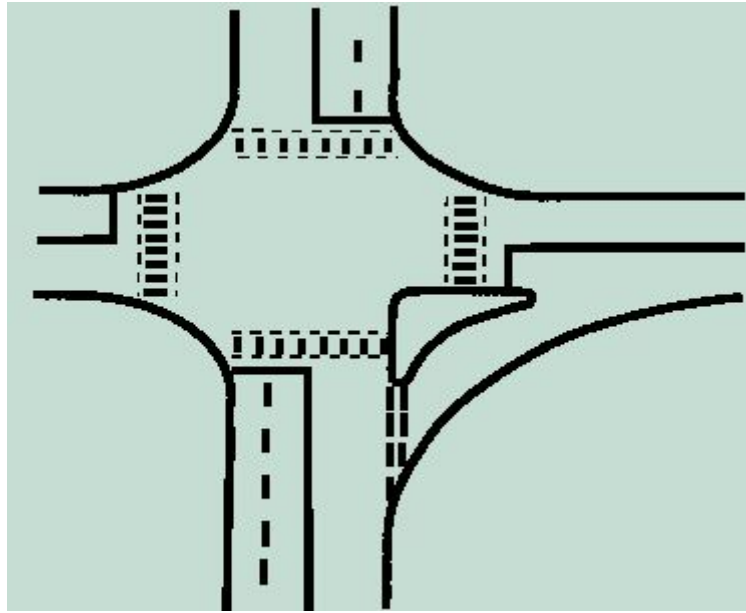


Figure: Pedestrian marking near an intersection.

Directional arrows

In addition to the warning lines on approaching lanes, directional arrows should be used to guide the drivers in advance over the correct lane to be taken while approaching busy intersections. Because of the low angle at which the markings are viewed by the drivers, the arrows should be elongated in the direction of traffic for adequate visibility. The dimensions of these arrows are also very important. A typical example of a directional arrow is shown in figure below.

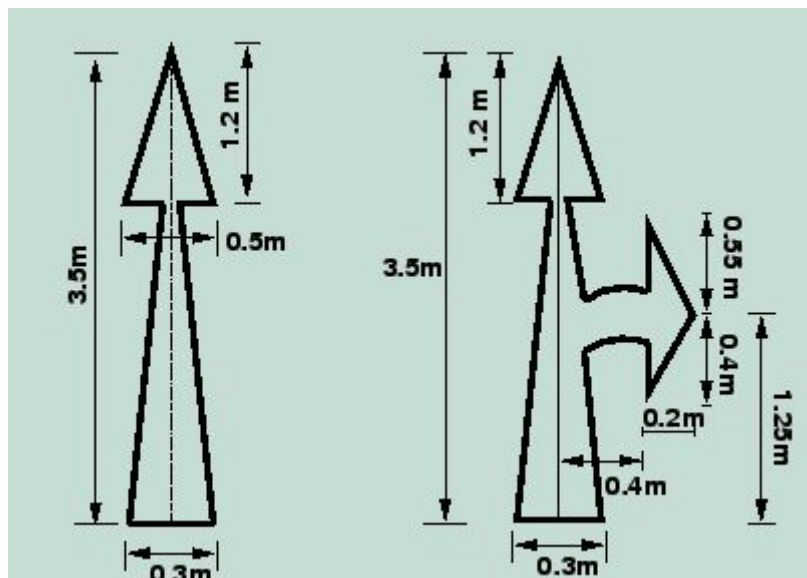


Figure: Directional arrow marking.