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**RECOMMENDED PRACTICE
FOR
THE DESIGN AND LAYOUT
OF
CYCLE TRACKS**

Second Reprint



THE INDIAN ROADS CONGRESS

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DESIGN AND LAYOUT OF CYCLE TRACKS

CONTENTS

	<i>Page No.</i>
1. Introduction	... 1
2. Scope	... 1
3. Definition	... 1
4. Justification for the Provision of Cycle Tracks and their Capacity	... 1
5. Types	... 2
6. Horizontal Curves	... 3
7. Vertical Curves	... 3
8. Gradients	... 3
9. Sight Distances	... 4
10. Lane Width	... 4
11. Width of Pavement	... 4
12. Clearance	... 5
13. Cycle Tracks on Bridges	... 5
14. General	... 5
15. Road Crossings	... 6
16. Riding Surface and Lighting	... 6



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RECOMMENDED PRACTICE FOR THE DESIGN AND LAYOUT OF CYCLE TRACKS

1. INTRODUCTION

Cyclists, using the carriageway along with motor vehicles and other road traffic, cause hazards for themselves and for others and impede the free flow of traffic. This is particularly so when cycle traffic is heavy. Under such circumstances, it is necessary to segregate cyclists from other traffic. With this end in view, the following principles have been laid down by the Specifications & Standards Committee of the Indian Roads Congress for general adoption.

2. SCOPE

The recommendations contained in this Standard are applicable to cycle tracks built along roads or independently of them.

3. DEFINITION

A cycle track is a way or a part of a roadway designed and constructed for the use of pedal bicycles, and over which a right-of-way exists.

4. JUSTIFICATION FOR THE PROVISION OF CYCLE TRACKS AND THEIR CAPACITY

4.1. Justification

Separate cycle tracks may be provided when the peak hour cycle traffic is 400 or more, on routes with a traffic of 100 motor

vehicles or more but not more than 200 per hour. When the number of motor vehicles using the route is more than 200 per hour, separate cycle tracks may be justified even if the cycle traffic is only 100 per hour.

4.2. Capacity

As a general rule the capacities of cycle tracks may be taken as given below :

Width of cycle track	Capacity in number of cycles per day	
	One-way traffic	Two-way traffic
Two lanes	2,000 to 5,000	500 to 2,000
Three lanes	over 5,000	2,000 to 5,000
Four lanes	—	Over 5,000

5. TYPES

5.1. Cycle tracks are classified into the following two groups:

I. Cycle tracks which run parallel to or along a main carriageway. These are further sub-divided into three classes:

- (a) *Adjoining cycle tracks* : These completely fit in with the carriageway and are adjacent to and on the same level with it.
- (b) *Raised cycle tracks* : These are also adjoining the carriageway but are at a higher level.
- (c) *Free cycle tracks* : These are separated from the carriageway by a verge and may be at the same level as the carriageway or at a different level.

II. Those cycle tracks which are constructed independent of any carriageway.

Note : A free one-way cycle track on each side of the carriageway is to be preferred. Adjoining cycle tracks should not be provided as far as possible.

6. HORIZONTAL CURVES

As far as possible, a cycle track should be so aligned that the radii of the horizontal curves are not less than 10 metres (33 ft). Where the track has a gradient steeper than 1 in 40, the radii of the horizontal curves should not be less than 15 metres (50 ft). Subject to the above mentioned minimum standards the radii of horizontal curves for independent cycle tracks should be as large as practicable.

7. VERTICAL CURVES

Vertical curves at changes in grade should have a minimum radius of 200 metres (656 ft) for summit curves and 100 metres (328 ft) for valley curves.

8. GRADIENTS

8.1. The length of grades should not exceed the following:

<i>Gradient</i>	<i>Maximum</i>	<i>length</i>
	Metres	(ft)
1 in <i>X</i>	(<i>Y</i>)	
1 in 30	90	(295)
1 in 35	125	(410)
1 in 40	160	(500)
1 in 45	200	(656)
1 in 50	250	(820)
1 in 55	300	(984)
1 in 60	360	(1,181)
1 in 65	425	(1,394)
1 in 70	500	(1,640)

8.2. The value of the maximum length may be approximately obtained from the formula—

$$Y = \frac{X^2}{10}$$

where Y = the maximum length in metres, and

X = the reciprocal of the gradient
(expressed as 1 in X)

8.3. Gradients steeper than 1 in 30 should generally be avoided. Only in exceptional cases, gradients of 1 in 20 & 1 in 25 may be allowed for lengths not exceeding 20 metres (65 ft) & 50 metres (164 ft) respectively.

8.4. Where the gradient of a carriageway is too steep for a parallel cycle track the latter may have to be taken along a detour to satisfy the requirements of this standard.

9. SIGHT DISTANCES

It is desirable that a cyclist should have a clear view of not less than 25 metres (82 ft). In the case of cycle tracks at gradients of 1 in 40 or steeper, cyclists should have a clear view of not less than 60 metres (197 ft).

10. LANE WIDTH

The width of a cycle at the handle bar, the widest portion, ranges from 45 centimetres to 50 centimetres (1 ft 6 in. to 1 ft 9 in). It is generally not possible for a cyclist to drive in a perfectly straight path. Therefore, allowing for a clearance of 25 centimetres (9 in.) on either side, the total width of pavement required for the movement of one cycle is one metre (3 ft 3 in.).

11. WIDTH OF PAVEMENT

The minimum width of pavement for a cycle track should not be less than 2 lanes, i.e., 2 metres (6 ft 6 in.). If overtaking is

to be provided for, the width should be made 3 metres (9.8 ft). Each additional lane where required should be 1 metre (3 ft 3 in.) wide.

12. CLEARANCE

Vertical clearance. The minimum head-room provided should be 2.25 metres (7.38 ft).

Horizontal clearance. At underpasses and similar other situations a side clearance of 25 centimetres should be allowed on each side. The minimum width of an underpass for a two-lane cycle track would, therefore, be 2.5 metres (8.2 ft). In such situations it would be desirable to increase the head-room by another 25 centimetres so as to provide a total vertical clearance of 2.5 metres (8.2 ft).

13. CYCLE TRACKS ON BRIDGES

Where a road provided with cycle tracks goes over a bridge, full width cycle tracks should be provided over the bridge also. Where the cycle track is located immediately next to bridge railing or parapet, the height of the railing or parapet should be kept 15 centimetres higher than required otherwise.

14. GENERAL

14.1. It is desirable that cycle tracks should be provided on both sides of a road and should be separated from the main carriage-way by a verge or a berm of as much width as possible, the minimum width of the verge being 1 metre (3 ft 3 in.). Under exceptional circumstances, e.g., in towns where the width of the road land (right-of-way) is inadequate, the width of the verge may be reduced to 50 centimetres (20 in.). For a width of 50 centimetres (20 in.) from the edge of the pavement of the cycle track, the verges or berms should be maintained so as to be usable by cyclists in an emergency.

14.2. Wherever possible, cycle tracks should be located beyond the hedge, tree line, or footpath. In shopping centres, however, footpaths should be nearest to the shops.

14.3. Cyclists are influenced considerably by obstructions near the side of the cycle track, like kerbs, hedges, ditches, tree roots, etc. Kerbs should be avoided as far as possible. A clearance of at least 50 centimetres should be provided near hedges and of 1 metre from trees or ditches.

15. ROAD CROSSINGS

Where a cycle track crosses a road, the carriageway should be marked with appropriate road markings.

16. RIDING SURFACE AND LIGHTING

To attract cyclists to use a cycle track, it is essential that cycle tracks should be constructed and maintained with care and should have riding qualities and lighting standard equal to or better than those of the main carriageway.
