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**TYPE DESIGNS  
FOR  
PICK-UP BUS STOPS  
ON RURAL  
(i.e. NON-URBAN) HIGHWAYS**



**THE INDIAN ROADS CONGRESS**



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# **TYPE DESIGNS FOR PICK-UP BUS STOPS ON RURAL (i.e. NON-URBAN) HIGHWAYS**

## **1. INTRODUCTION**

1.1. Buses standing indiscriminately on the carriageway to drop or pick-up passengers can seriously affect capacity of the roadway, besides being a source of accidents. It is, therefore, desirable that on all busy non-urban highways, consideration should be given to the construction of bus laybys of suitable design at required locations to ensure orderly movement of the through traffic.

1.2. Recognising the need for a standard on this subject, the Specifications and Standards Committee has evolved the type designs given herein covering the siting and layout of wayside pick-up bus stops, and these are recommended for general adoption.

1.3. These type designs were considered by the Specifications and Standards Committee in their meeting held at Gauhati on the 26th October, 1979. The Committee after reviewing the standard in their meeting held at Srinagar on the 20th August, 1980 set up a Working Group consisting of R.P. Sikka and Dr. N.S. Srinivasan to go into the test and finalise the same for further necessary action. The standard as finalised by the Working Group was processed and approved by the Executive Committee and the Council in their meetings held on the 11th August and 20th September, 1981 respectively.

## **2. SCOPE**

2.1. The standard applies essentially to wayside bus stops in non-urban locations meant for quick loading and unloading of passengers. It does not deal with more elaborate bus depots or terminals which are sometimes provided by the side of the road between the cities.

2.2. As regards design of on-street bus stops in urban or sub-urban situations, reference may be made to IRC : 70-1977 "Guidelines on Regulation and Control of Mixed Traffic in Urban Areas".

### 3. NEED FOR LAYBYES

3.1. The need for laybyes on a particular road will depend on factors like the volume of traffic, frequency of buses stopping to pick-up passengers, duration of bus stops etc.

3.2. Normally, provision of separate laybyes will be justified on all important trunk routes such as National Highways and State Highways, when :

- (a) the volume of traffic is such that through traffic movement will be unduly disturbed by buses stopping on the carriageway ;
- (b) buses are required to halt at a particular stop for considerable time for rest or loading/unloading of passengers and goods; or
- (c) the road is passing through a relatively congested locality like a village or a small town where besides waiting passengers the roadway is occupied by local traffic as well.

3.3. Usually, bus laybyes will not be required on lower category roads like Other District Roads and Village Roads where traffic is comparatively low and not many buses ply on the route. However, from safety considerations it may be desirable to provide separate laybyes at the bus terminal points.

### 4. GENERAL PRINCIPLES OF LOCATION

4.1. The governing considerations when locating pick-up bus stops are increased overall safety and minimum interference to the through traffic.

4.2. Normally the bus stops should be sited away from bridges and other important structures, also from embankment sections which are more than four metres high. As far as possible, these should not be located on horizontal curves or at the top of summit vertical curves. Moreover, the need for good visibility around corresponding to safe stopping sight distance should be kept in view.

4.3. Bus stops should not be located too close to the road intersections. A gap of 300 metres from the tangent point of intersection to start/end of the laybye will be desirable, particularly at junctions with main roads. In other cases, the distance may be relaxed to a certain extent having regard to the local conditions. At minor intersection (e.g. junctions with village roads), distance

of 60 metres may be accepted as a special case. However, if a substantial volume of buses is to turn right at the intersection, it is necessary that the bus stop should be located sufficiently ahead of the intersection so that the buses can be manoeuvred easily from the pick-up stop on the left hand side to the extreme right lane for turning.

4.4. At major four-way intersections involving transfer of a substantial number of passengers from one pick-up stop to the other, it might be desirable to construct a single, composite bus stop of suitable design to cater to all the bus routes collectively.

4.5. In hilly areas, the bus stops should be located preferably where the road is straight on both sides, gradients are flat and the visibility is reasonably good (usually not less than 50 metres). Subject to these requirements, it will be advisable to choose locations where it is possible to widen the roadway economically for accommodating bus laybys, passenger shelters, etc.

## 5. LAYOUT AND DESIGN

5.1. Typical layouts of laybys are given in figures 1 to 3. Selection of layout at a particular location should be based on local factors like the number of buses stopping at a time, the period of halt, volume of traffic on the road, number of passengers alighting at the bus stop etc. To determine the layout required, a careful study of various factors should be made and the bus authorities also consulted.

5.2. In the normal run, layout in Fig. 1 will be found suitable for bus stops on busy sections of the highways. For bus stops on lightly trafficked routes, or where the number of buses halting each day is nominal, the layout shown in Fig. 2 will be better suited. For hilly areas where there is a general constraint on space, the more simple layout indicated in Fig. 3 may be adopted. Length 'L' shown in Figs. 1-3 should be usually 15 metres, but may be increased in multiples of 15 metres if more than one bus is likely to halt at the pick-up stop at one time.

5.3. Normally the bus stops should be provided on both sides of the road for each direction of travel independently so that the buses do not have to cut across the road. Bus stops on opposite sides should be staggered to a certain extent as shown in Fig. 4 to avoid undue congestion on the highway. At intersections it may be preferable to locate the bus stops for up and down directions on farther sides of the intersection.

5.4. Ordinarily no structure other than sheds for passengers should be permitted at the bus stops. The sheds should be structurally safe and aesthetic in appearance, while also being functional so as to protect the waiting passengers adequately from sun, wind and rain. If the shed is constructed on the hill side, slopes should be properly dressed and suitably protected to avoid slips. The sheds should be set back from the kerb line by at least 0.25 metres.

5.5. On important bus stops, temporary type of toilet facilities with necessary arrangements for disposal of effluents (for instance with the help of soak pits) may also be provided close to the road land boundary away from the passenger shelters.

## 6. PAVING OF LAYBYE AREA

6.1. The pavement in the laybye area should have adequate crust with respect to the wheel loads expected. Also, the surfacing should be strong enough to withstand forces due to frequent breaking and acceleration by the buses. The colour and texture of the laybye surfacing should be preferably distinctive from that of the main carriageway.

6.2. Shoulders close to the laybies should be paved to some distance (see Figs. 1, 3 & 4) to permit parking of occasional vehicles and facilitate drainage. Brick-on edge; lean cement concrete, lean cement-fly ash concrete and lime-fly ash concrete either cast-in-situ or precast; precast tiles; stone slabs/blocks; water bound macadam with surface dressing etc., are some of the materials which could be considered for this purpose. Paved shoulders should be flush with the surface of the adjoining carriageway and slope away from it to enable drainage. Where the pavement and the shoulders are of the same colour, it will be preferable to provide edge lines at their junction in accordance with IRC : 35-1970 "Code of Practice for Road Markings (with paints)".

## 7. DRAINAGE

7.1. Laybies for pick-up bus stops should have proper cross slope to drain off the excess water. No water which is likely to splash on the waiting passengers should be allowed to collect near the bus shelters.

7.2. Along all kerbed edges it will be desirable to provide a suitable kerb-gutter section with requisite longitudinal slope and outlets at intervals to ensure quick disposal of water.



## 8. MARKINGS

8.1. Pavement markings at the bus stops should be provided as shown in Figs. 1-3 with the word 'BUS' written prominently on the pavement. Pedestrian crossings should be marked slightly behind the standing position of the buses in order to reduce pedestrian conflicts. Moreover, the kerbs should be marked with continuous yellow line to indicate no parking.

8.2. For more details about road markings reference may be made to IRC : 35-1970.

8.3. Markings should be kept maintained regularly.

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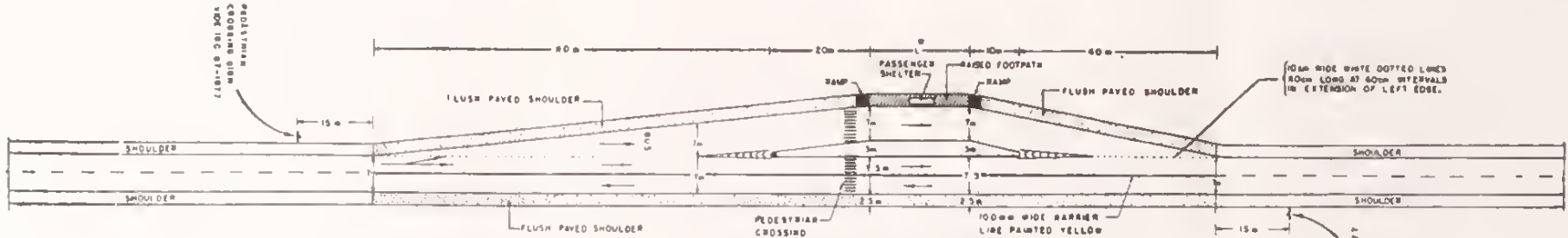


FIG 1 - LAYOUT FOR PICK-UP BUS STOP ON HIGHWAYS WITH HEAVY TRAFFIC

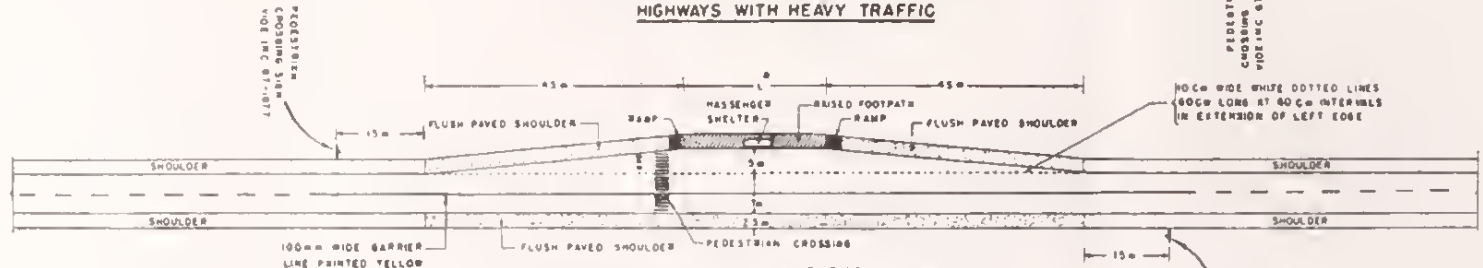


FIG 2 - LAYOUT FOR PICK-UP BUS STOP ON HIGHWAYS CARRYING MEDIUM TO LIGHT TRAFFIC

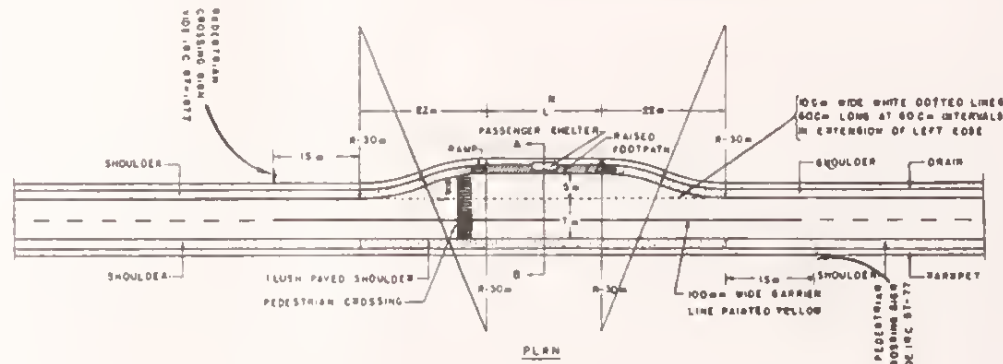
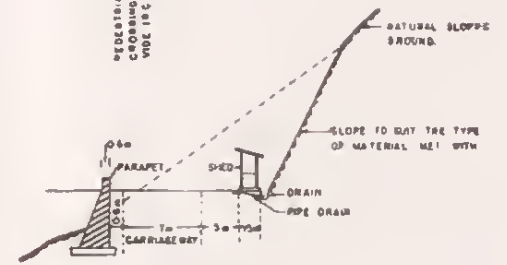


FIG 3 - LAYOUT OF PICK-UP BUS STOP ON HIGHWAYS IN HILLY AREAS



SECTION THROUGH ROAD ON A-B

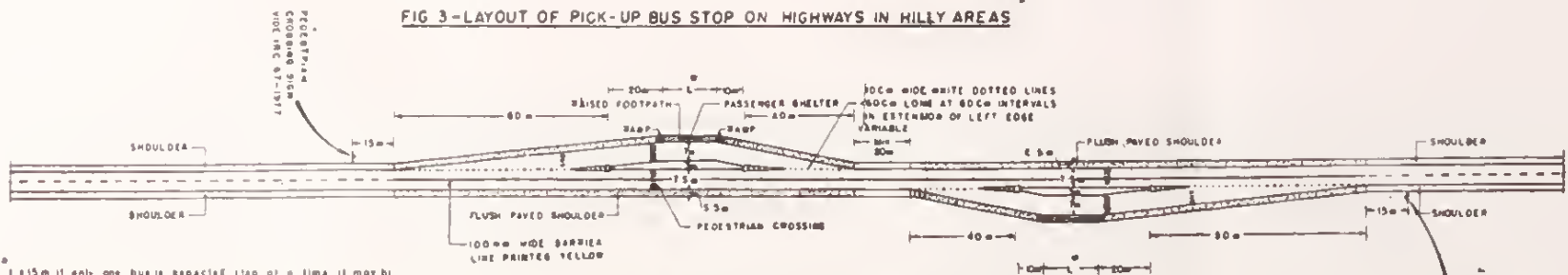


FIG 4 - LAYOUT OF STAGGERED PICK-UP BUS STOP

\* L=15m if only one bus is expected (up or a time) it may be increased by 15m for every additional bus expected to stop

PEDESTRIAN CROSSING SIGN VIDE IRC 87-1977





