

DESIGN STANDARDS FOR PLANNING A BUS TERMINUS

S.Logeswaran

(P.G Student) Department of Civil engineering,
Kalasalingam University, Krishnankil, Virudhunagar-626126

Abstract— A Bus station is a large structure than bus stop for boarding and dropping off the passengers or Bus terminus is a public area from where bus starts or ends its scheduled routes. It serves for the public for bus transportation. The size of the terminus can be decided by analysing its operational conditions, bus routes, scheduled timings and basic facility requirements. Bus terminus are provided with other facilities such as Shopping Complexes, toilet, drinking water, restaurant, hotels, water treatment plant, hospital, police terminus, auto stand, taxi stand, shopping malls, ATM. This paper explains the design factors and design elements to be considered for the bus terminus plan with the minimum standards.

Index Terms— Bus station or terminus, Platforms, Bay, Green vegetation

1 LAYOUT FACTORS

The factors affecting the layout of the bus terminus are,

1.1 DESIGN SPEED

Buses moving inside the bus terminus should travel at a speed lesser than the speed of adjacent

1.3 BAY WIDTH

Platform bay width includes width of the bus and clearance on both sides. In general the width of the bus lies between 8.5'-9'. The clearance width varies from 0.4'-0.5'. The width of bay lies between 9'-10'.

1.4 PASSAGE WIDTH OF BAY

The intermediate distance between departure bays and waiting bays is called passage width of platforms. It is provided for safe movement of public. The passage width should be at least 5'-10' for convenient and safe turning of buses. People can move easily with adequate space.

highway before entering into the respective platform. The design speed of the bus inside the terminal should be between 20kmph – 25 kmph.

1.2 PLATFORM WIDTH

Platform bay width varies depending on the type of parking of buses in bays. For 45 and 90 degree parking the platform width must be 100' and 70' respectively.

1.5 PARALLEL OFFSET

The minimum offset between two adjacent buses while waiting in a platform is ensured. It must be at least 5'. The 5 feet is the minimum distance that are required for safety movement for the passengers and gives easy turning of the buses while entering or leaving the bay.

1.6 TURNING RADIUS OF BUS

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The turning radius means the turning curve of the buses from the platform for departing is called as turning radius of bus. The turning radius of 36' length bus is 47.28 feet.

1.7 ROAD WIDTH AT ENTRANCE AND EXIT

The road width may be defined as the width of the carriageway with or without medians. For 2 lane road, road width is 25' and for four lane road, road width is 50'. For four lane road including Centre median, the road width varies from 51'-60'.

1.8 CENTRE MEDIAN WIDTH

The Centre median is placed at the Centre of a highway for opposite movement of vehicles or parallel movement of vehicles. The width of the median must be between 1'-10'.

1.9 BASIC AMENITIES IN BUS TERMINUS

- **Car parking:** size of the parking depends upon the type of parking will provide at the given location. When the parking demand is high (>3000), automated car parking can be suggested
- **Bike parking:** size of the parking depends upon the type of parking will provide at the given location. When the parking demand is high (>35000), automated bike parking can be suggested
- **Restaurant:** Restaurant is an area used by a public as a family or a group of people for foodies/entertainment. The size of the restaurant depends on usage, the number of food coats and the other facilities.
- **Hospital, Police terminus:** For bus terminus, railway junction, airport and harbour for emergency and safety for the public hospital and police terminus are needed. The size of the hospital depends on the passenger capacity. But due variation of passengers in year by year for safe and comfort of passengers it can be provided as a Multi-specialty hospital instead of

an emergency care. No size restrictions needs for Police/Hospital building.

- **Toilet:** Toilet is a common utility in public areas for both male and female. Toilet is also given for disabled people separately for both male and female
- **Administrative block:** It is an area where bus related activities such as ticket counter, ticket verification point, help desk, reception, etc., are available. Apart from that, shopping malls, entertainment halls, lodges, food coats, jewellery shops, gift shops and some extra facilities also available. The concept of planning the administrative building should be given due importance to avoid the unnecessary movements and congestion.
- **Passage for City Bus:** The passage of city bus depends on number of buses entering the bus terminus at a particular time. Also, the width depends on the turning radius of a bus. Minimum width provided for platforms should be 40' with turning radius as 50'.
- **Subway Width and Height:** The subway is an underground passage for safe and easy movement of people to cross from one side to other side. The height and width of the subway differ from place to place. In general, the minimum the height and width of the subway provided was 16' and 10' respectively with four steps on all sides.
- **Kiss and Ride Parking:** People generally access to the bus terminus by auto, tax other than city bus and own vehicles. For dropping the passengers coming by auto, taxi inside the terminus area the kiss and ride facility should be provided to reduce the walking and unnecessary movements.
- **Green Vegetation:** The green vegetation is the primary source needed for the public areas for breathing clean air. The green vegetation provides the hygienic environment for the people who using the terminus. So prime importance for vegetation should be given. But in any case it should not affect the sight distance of buses.

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- **Dimension of Bus Depot and Sewage Treatment Plant:** These are the secondary factors of a bus terminus which may or may not be provided inside the terminal area. For this study, it was considered that for the reduction of conflicts of bus depot should be provided. For utilizing the waste water from toilets and drinking, etc., the waste water treatment is necessary.

1.10 OTHER FACTORS

- ✓ **Shop:** The shops to be provided depend on the passenger capacity
- ✓ **Sight distance:** The eye level of a driver for safe riding of a bus or vehicles. It should not have any obstructions. The obstruction height should not exceed 0.5' from a driver's eye level of 3.9' high.
- ✓ **Width of main road:** Depends on the main road crossing the bus terminus the right and left turn movement of vehicles can be improved.

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