**Standard Operating Procedure
for
Assessing New or Existing Standard Bus Stop Locations**

* 1. **Definition**
	2. The generic term ‘bus stop’ is used in this document to cover requests for: new bus stops, suspension of existing bus stops, temporary bus stops and requests for bus shelters.
	3. **Guidelines**

2.1 This Standard Operation Practice (SOP) is intended to provide guidance for staff carrying out a safety inspection of a bus stop.

2.2 This SOP and the assessment form for the implementation of bus stops shall be applied to those bus stops that meet the minimum level of service only. The minimum provision is detailed in paragraphs 4.3 Key Bus Stops and 4.4 other Bus Stops in the SOP.

2.3 Bus stops with a higher level of service such as bus bays or lay-bys, bus boarders or new bus stops on high speed dual carriageway that entail material change to the highway are not covered by this SOP as they are subject to a full design and Road Safety Audit process.

2.4 Bus stops should be located where they are convenient to use and the safety of passengers and other road users has been taken into account. The objective is to allow easy unobstructed access to and from the stop. The proposed location shall be assessed to ensure that it achieves a level of service such that a **responsible person acting with ordinary prudence is able to use it safety**.  It is not possible to take into account the specific abilities of unknown individuals, although a wide range of users including those with disabilities and the elderly or infirm should be considered. The assessment should be undertaken on the basis that unaccompanied children have reached a level of maturity and road craft to be considered as a responsible person.

* 1. **General**

3.1 There are two primary objectives that relate to the siting of bus stops. These are:

1. Passenger Need

The selected location must address the needs of intending and potential passengers; and

1. Safety

The selected location must be acceptable from a safety perspective

3.2 All potential sites should be inspected for suitability by a Traffic Officer. Each bus stop proposal is to be evaluated with regard to sight lines, pedestrian safety and any operational problems for buses using the stop. In assessing the suitability of a potential site, the prime considerations will be road user and pedestrian safety. Other factors affecting the stop, such as conflicting demands for road space and the needs of frontagers shall also be considered.

3.3 Issues to be considered include environmental intrusion and road and pavement constraints. The following factors can influence the detailed location of a bus stop or bus shelter and should be taken into consideration during the assessment:

* Bus driver and waiting passengers are clearly visible to each other
* Proximity to adjacent junctions
* Proximity to pedestrian crossings
* The position of the boarding and alighting zone should avoid gullies
* Bends or crests in the road
* On-street parking
* Existing accesses to residential and business properties
* Footway or verge width
* Street furniture which prevents passengers boarding and alighting
* Allow the bus to line up parallel and within 200mm of and parallel with the kerb

3.4 Typical Bus Stop Activity.

The following are standard activities that occur at or around bus stop locations:

* Pedestrians walking along a road towards a bus stop.
* Pedestrians crossing the road to/from the bus stop.
* Pedestrians standing at the roadside waiting to hail a bus.
* Buses slowing down on approach to bus stop
* Bus stopped at bus stop; passengers boarding and alighting
* Bus departing bus stop
* Driver outside vehicle, assisting passengers and luggage.
* Private car activity; passenger set down/collection by private car near or at bus stop.
* Private car idling/parked, awaiting bus arrival.
* Buses laying over.

3.5 Potential Hazards

* Buses obstructing visibility splays
* Vehicles attempting unsafe overtakes on stationary buses
* Passengers and other pedestrians crossing in front/behind stationary buses
* Passengers on buses falling (e.g. traffic calming, road alignment)
* Crowding/obstructions on footways
	1. **General Road Layout Siting Considerations**

4.1 Stops should not be sited on the inside of bends as this can cause potential problems with bus driver visibility in mirrors when pulling away and restricts the forward visibility of following traffic.

4.2 Stops should not be sited on or the approaches to crests unless there is sufficient width to pass without conflicting with oncoming traffic (9m road width is sufficient in most cases).

4.3 Siting stops on the upstream side of side road junctions should be avoided.

4.4 Stops should not be sited in the upstream controlled zone (zig zags) on a controlled crossing.

* 1. **Intervisibility**

5.1 The location should ensure that the bus stop signs are clearly visible to pedestrians and bus drivers.

5.2 The bus stop flag indicates to passengers where they should wait and serves as a marker to drivers to indicate where the bus should stop. These guidelines are based on the bus stopping with the front of the doors in line with the flag and passengers boarding from the downstream side of the flag.

5.3 Darkness

During the hours of darkness, stopping buses and associated passenger activity may present additional issues that are not obvious during a daytime site visit. (For instance, in the absence of ambient lighting, passengers/pedestrians may choose to stand or walk on the road instead of a soft verge). This will need to be considered in the overall assessment of visibility.

* 1. **Stopping Sight Distance (SSD)**

6.1 The forward sight stopping distances for the Bus Stop SOP have been derived using the Design Speed in the Design Manual Roads and Bridges (DMRB) TD9/93 referenced to the posted speed limit (e.g. a posted limit of 40mph assumes a 70kph design speed), the Manual for Streets 2 (MfS2) deceleration rate for HGVs of 3.6 m/sec2 and MfS2 reaction time of 1.5 secs for roads 40mph or less. For roads 50mph and above the DMRB reaction time of 2 sec is applied. It includes the bonnet adjustment of 2.4m. One step below desirable minimum uses MfS2 deceleration rate of 4.41m/sec2.

6.2 Generally the SSD should be taken from the nearest edge of the assumed stationary bus position; however consideration will need to be given to the back end of any anticipated queue.

6.3 Where there are current speed survey results that are considered to be indicative of the location the measured 85%ile speed may be used at the discretion of the reviewing officer to determine the SSD using the [Bus Stop Stopping Sight Distance spread sheet](http://teamspace.westsussex.gov.uk/teams/RS/Road%20Safety/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fteams%2fRS%2fRoad%20Safety%2fShared%20Documents%2fBus%20Stop%20SOP&FolderCTID=0x012000B3650F3061427D4E8F5ADF3763A1CF3E) -

 When there is no speed data available, guidance on the appropriate SSD is given in the table below.

|  |  |  |
| --- | --- | --- |
| Table 1 |  | Sight Stopping Distance in meters |
| Speed Limit | 85%ile WetDesign Speed | Desirable Minimum | One Step below Desirable Minimum |
| MPH | KPH | KPH |  |  |
| 20 | 32 | - | 30 | 27 |
| 30 | 48 | 60 | 65 | 59 |
| 40 | 64 | 70 | 85 | 74 |
| 50 | 80 | 85 | 127 | 113 |
| 60 | 96 | 100 | 165 | 145 |

* 1. **Junctions**

7.1 Where a bus stop is to be located close to a junction, the preferable location for it is on the leaving side of the junction. This has the advantage that the presence of the junction keeps the approach to the bus stop clear of parked vehicles. Bus stops should be positions 15m clear of the junction with an absolute minimum of 8m.

7.2 The stopping position of the bus should have regard to visibility for drivers of vehicles leaving the side road. While a bus using the stop is a temporary obstruction, the bus stop post or flag, passenger shelter and waiting passengers should not unduly obscure sight lines.

7.3 Extra consideration needs to be given to stops at locations such as this where it is likely that two buses could arrive at the same time. In such circumstances, additional length needs to be provided for the buses to clear the junction.

* 1. **Pairing Bus Stops**

8.1 It is generally not advisable to position bus stops opposite each other on a two-lane carriageway. Safety and sightline considerations suggest a minimum separation of three bus lengths (36m), with the stops positioned in such a way that the buses stop ‘tail to tail’ and move off away from each other. This is not an issue where it is a very low frequency bus service (1 per hour or less).

* 1. **Boarding and Alighting**

9.1 Convenience of access to buses requires that the bus draws up close to and parallel with the edge of the footway so that passengers can step easily across between the kerb and the bus platform. For many passengers serious difficulty arises if they are obliged to enter or leave the bus from carriageway level.

9.2 School Transport pick up points in rural areas may have a much lower level of service than a commercial stop and passengers may have to alight from the verge or carriageway. The School Transport Team will be aware and make arrangements for pupils unable to cope with this level of service.

9.3 Footways should be hard surfaced and well drained; the area should be clear of street furniture or other obstructions. Footway crossfalls are also important and a steep backfall from the kerb is undesirable, a gradient of no more than 1 in 25 or 4% is advisable. Any SafetyPlus intervention level defects should be noted and processed accordingly.

9.4 Bus stops should be positioned away from local drainage facilities such as gullies. Slotted gratings can present difficulties for people with walking aids and those wearing shoes with pointed heels. Gullies can also block, causing ponding, which can be a major inconvenience to waiting passengers.

9.5 Typically footway widths should be a minimum of 2 metres in existing conditions, this is the width of footway needed is defined by the space required for a wheelchair or pushchair to manoeuvre.

9.6 Local reduction of this dimension to 1.8m may be acceptable where pedestrian movement is low, although consideration must be given to the needs of wheelchair users accessing the bus stop and space requirements for manoeuvring on and off any boarding ramp that may be fitted to the bus.

The Department for Transport’s Inclusive Mobility Guidelines state that a skilled manual wheelchair user should be able to complete a 360° turn in a space of 1500mm x 1500mm, therefore this is the minimum required space.

9.7 If it is proposed to install a bus stop on an adopted grass verge then there should be sufficient space to allow for a hardstanding provision for people to wait on and for boarding and alighting passengers. The area should be clear of street furniture or other obstructions. The potential for vegetation growth to infringe on the stop should be considered and recommendations with regard to future maintenance requirements should be made as appropriate.

* 1. **Street Furniture**

10.1 Bus stop poles should be positioned so that they cause the least possible obstruction to boarding or alighting passengers and to passing pedestrians, with the optimum location of the pole being at the back of the footway and the flag pointing towards the road.

10.2 If the pole must be erected close to the road edge, it should be positioned so that the flag points inwards, away from the road and does not hang over the carriageway. No part of the pole or flag should be closer than 450mm from the face of the kerb line.

10.3 Other street furniture should be set back a minimum of 450mm.

10.4 Minimum of 1m passage width should be maintained on the footway at pinch points formed by street furniture.

10.5 Ensure that street furniture does not block or otherwise hinder bus doors.

* 1. **Accessibility**

11.1 Some passengers may need to cross the carriageway either before boarding or after alighting a bus. General consideration should be given to what nearby facilities are present for pedestrians to enable them to cross the road safely and conveniently.

11.2 Where there are no crossing facilities pedestrians must have a clear view of approaching traffic in order to make their crossing decision. The extent of the view is based on the predicted time it takes to cross the road, e.g. if it takes 7 seconds to cross the road, then approaching vehicles approaching from the left must be visible when they are at minimum of 7 seconds travel time away from the crossing point. This shall be checked both sides of the road for both crossing directions.

The table below shows crossing times for different width roads based on elderly pedestrian walking speed of 0.85 m/sec.

|  |  |
| --- | --- |
| Table 2 |  |
| Approx. road width metres | Crossing time in seconds |
| 5 | 6 |
| 6 | 7 |
| 6.5 | 7.5 |
| 7.5 | 9 |
| 8 | 9.5 |
| 8.5 | 10.0 |
| 9 | 10.5 |
| 10 | 12 |

* 1. **Traffic Calmed Routes**

12.1 Where bus stops are to be introduced on traffic-calmed routes, account should be taken of the bus stop’s position to make allowance for buses needing to align with any speed cushions or other traffic-calming feature. There is also the possibility of incorporating bus stops into traffic calming features such as build-outs.

12.2 Check that traffic calming features do not cause bus stability problems.

* 1. **Signalled Controlled Crossings**

13.1 It should be recognised that usage of bus stops and signalled controlled crossings such as Pelican, Puffin and Toucan crossings may be interrelated. Safety considerations favour the placing of a bus stop on the leaving (downstream) side of the crossing.

13.2 The distance between the stop and the crossing depends on the ‘controlled area’, the length of which can vary in response to local road conditions. NOTE: a bus stop must NOT be placed within or partially within the upstream zigzag marking. However, it may be placed within or partially within the downstream zigzag marking.

13.3 Placing the bus stop downstream from a Pelican, Puffin or Toucan crossing has the benefit of keeping the approach to the bus stop clear of parked vehicles, and therefore allows the bus to pull safely into the kerb. This also ensures that the bus does not block others drivers view of pedestrians on or waiting at the crossing.

* 1. **Zebra Crossings**
	2. Care needs to be taken at Zebra crossings as a bus stopped at any location close to a Zebra crossing can block other drivers’ view of pedestrians on the crossing. It is therefore not advisable to locate bus stops in the immediate vicinity of Zebra crossings.
	3. **Uncontrolled Crossing**
	4. Bus stops should be located at least 15m from uncontrolled or informal pedestrian crossings and upstream (to the rear) of the bus stopping position.
	5. **Existing Bus Stop Assessments**
	6. In reassessing existing bus stop locations, it is important to take their safety record into account. There are many bus stop locations in rural areas that have been in place for numerous years, which have operated successfully and safely over those periods, notwithstanding that some of these bus stops may not be positioned where conventional road design approaches would suggest.
	7. **Consultations Regarding Safety**

17.1 If a bus stop location has been in operation for a number of years and does not have an adverse accident record, the presumption should generally be on the continuance of that location.

17.2 The Local Improvements Transport Team should consult with the bus operator, the County Road Safety Group, and the Area Highway Manager regarding any specific safety incidents (accidents, near misses, etc.) or concerns that they may have that could, or should be addressed in the continued operation of the bus stop. The consultations should be recorded as part of the decision process.

If subsequently it emerges that such incidents occurred at a particular bus stop, the local authority would be entitled to revoke the bus stop.

Note: Such consultation with the operator, the County Road Safety Group and the Area Highway Manager are specifically recommended in situations where the traffic regime on the road may have changed over time in terms of volumes, patterns, profile of road user mix, or speeds.