

# Bus Infrastructure & Information in Staffordshire - A Design Guide



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# Section 1

## Introduction

Bus Infrastructure in Staffordshire - This Design Guide is primarily intended to assist those directly or indirectly involved with the planning, provision and design of all future public transport related infrastructure, specifically in relation to new developments and associated with new bus infrastructure only.

This is not a document for comparison against the historical condition of existing bus stops and associated infrastructure. Staffordshire County Council will seek to maximize external opportunities to upgrade existing stops when funding becomes available.

Public transport is essential to meet government targets on accessibility and tackling congestion through providing an alternative travel choice to the car. The provision of an efficient, well connected and viable public transport system requires a partnership approach between bus operators and the local highway authority. It is envisaged that if this can be achieved, it will encourage more people to choose to travel by public transport and it will improve the ability of users to plan their journeys, making them feel more confident in their choice.

This guide seeks to ensure that the resultant design of mainstream highways' infrastructure in the county is constructed to a consistently high quality, is operationally efficient from a public transport perspective and facilitates its integration within the local environment and highway network.

Further, it strives to ensure that sustainable transport generally, and public transport more specifically, is increasingly considered as an attractive alternative to other motorised transport modes. In this regard it is preferable for public transport to be granted early access particularly where large developments are being constructed and, ideally, before the whole site is completed. In this way it can be easier to encourage early residents to consider the sustainable transport options from day one. Therefore, it will be important for the developer to plan a suitably staged construction and release of facilities. For example, thoughtful provision of bus turning facilities or roundabouts would enable buses to gradually penetrate a site as the development progresses.

The designs and recommendations in this document were derived from best practice examples tailored to suit the local circumstances, policies and strategies within Staffordshire.

With regards to the provision of infrastructure supporting the public transport network, there is no 'one size fits all' solution. There are, however, a number of basic fundamentals which will always hold true, thereafter there are a wide range of 'nice to have's' and 'sound advice/guidelines' to be considered, such as those



within this document which can assist significantly in the achievement of the optimum solution.

However, it is recommended that expert advice from the Staffordshire County Council (SCC) Local Bus and Community Transport Team of specialists is sought at suitable points throughout the development of project plans, in order to ensure that optimum benefit can be gained for all users of the site and in order to avoid potentially costly redesign work being required.

The early involvement of the Local Bus and Community Transport Team through the planning stage will also mean that the likely Section 106 expectations can be discussed, at least in outline, at project commencement; in this way SCC can guard against the potential public transport requirements of a development being seen as an add-on, as this can be unhelpful and cause friction between the developer and the County Council.

Further, the developer is afforded the opportunity at the earliest stage to calculate the potential true cost of the development with the knowledge of what the expectation will be. It is clearly better for all parties that such discussions are held and understood in the first instance.

## **Background**

This document covers essential design, style and location elements for a number of specific public transport infrastructure items, as well as offering advice on how other mainstream highway design aspects can be made more bus friendly. In most situations, it will be normal to see a combination of these elements, dependent on the extant circumstances at each location. The core items are described in outline alongside more specific construction/positioning guidance in section 2.

Through this document, SCC is committed to the continual improvement of passenger transport throughout the county. In its joint roles as the Highway and Local Transport Authority, it is able to make a significant difference to the efficiency and accessibility of the county's public transport network through the effective co-ordinated provision of suitable infrastructure.

The county is working towards obtaining funding through the appropriate channeling of funds from third parties, which could be in the form of secured government grants or developer contributions. Collectively this programme of works will potentially result in an overall improvement to countywide accessibility.

There are a number of powers and statutory duties bestowed upon the council through various parliamentary acts. The Acts shown in the box on page 6 are the ones which place the more prominent requirements on Local Authorities, and which are of more direct relevance to public transport infrastructure.





## Enabling Acts

Following the deregulation of bus services as a result of the Transport Act 1985, the provision of bus services (outside London) is largely carried out by private sector companies. Many services are provided on a commercial basis with all elements, such as fare levels, routes, vehicle types and frequencies determined by these commercial operators. The bus service routes and/or timetables can be altered, introduced or cancelled following 70 days' notice having been formally advised to the Traffic Commissioner

### Enabling Acts:

- Local Government (Miscellaneous Provisions) Act 1953 – section 4
- Highways Act 1980 (as amended by the Transport Act 1981)
- Road Traffic Regulation Act (RTRA) 1984
- Transport Act 1985 (as amended in 2000 and Local Transport Act 2008)
- Disability Discrimination Act 1995 (DDA) (as amended in 2001 and 2005)
- Road Traffic Reduction Act 1997
- Town & Country Planning Act 1990

## SCC Duties

The aforementioned Acts place a number of duties on Local Authorities which, in summary, include:

- The development of policies and strategies to promote and encourage safe, integrated, efficient and economic transport facilities and services to, from and within its area. These are largely contained within the Local Transport Plan (LTP) and its daughter documents.
- Provision of a bus strategy, within the umbrella of the LTP, which should provide a framework for improvements to bus services. This must have regard to the needs of the whole community, including the county's elderly, and residents and visitors with disabilities.
- To assess current and predict future increases in traffic levels and report these to the Secretary of State. The report must specify targets for reducing traffic levels or rates of growth.

- To make reasonable adjustments to premises and equipment to ensure that disabled persons are not unreasonably discriminated against with regard to access to premises and services.
- To consider any gaps in the transportation network provided by commercial operators and determine what action, if any, needs to be taken in order to ensure appropriate levels of accessibility are offered to the various communities which will necessarily vary from one to another.
- To ensure that the goods and services that it provides represents optimum value for money.

## Policy

Policy setting that affects the environment in which we live is determined at various levels. Some particularly relevant summary comments are below:

### Government Policy

Over recent years there has been a growing recognition that shortfalls in the transportation network can form significant barriers to social inclusion. In the report 'Making the Connections', the Social Exclusion Unit advised that the mutually reinforcing trends of increased car usage, as well as the decline in local services and growth of 'out of town' facilities, have exacerbated the problem of exclusion. Whilst there has been a rise in mobility for persons with access to a car, those who rely on alternative modes of transport have been increasingly marginalised.

It was further identified that difficulties in accessing employment and key services were as much due to the location of the facilities as with the quality of the transport links to them. The report called for greater weight to be given to accessibility in the formation of planning decisions. This resulted in the new requirement for Transport Authorities to produce Accessibility Planning Strategies as part of the Local Transport Plan. The DfT's Guidance on Accessibility Planning in Local Transport Plans recommends a partnership approach, emphasising the need to give greater consideration to the location of facilities in accessible areas and to consider more fully the range of options in considering the overall acceptability of proposed development layout design, especially sustainable transport.

In 2021, the Government introduced its 'Bus, Back, Better' National Bus Strategy for England outside of London. This strategy set out the Government's vision to deliver better bus services through ambitious and far-reaching reform of how services are planned and delivered. Under the strategy, LTAs should have in place either an Enhanced Partnership (EP) with local operators or be following the statutory process to implement bus franchising, or both; SCC has worked with local bus operators to form an EP, and this has been brought to fruition.

## SCC Policy

SCC Policy supports the need to promote the use of sustainable transportation modes. It considers that all significant new developments should be accessible by public transport which will ensure the potential for social inclusion for all. In this regard, it will also seek to encourage the more accessible development areas to be reserved for uses that are likely to generate higher trip levels.

Through appropriate levels of developer funding such as Sections 106 and 278, the County will continue to seek the provision of improved infrastructure and services in areas which are perceived to be detrimentally affected by new developments, or which create a new 'need'. It will also require travel plans to be submitted by developers of significant sites at the time of planning application in order to be able to satisfy itself that promotion of the sustainable transport agenda is intrinsically linked to the ethos of the development.

## Section 2

### Public Transport Specific Infrastructure

This section looks at the various public transport infrastructure elements and provides a commentary to assist scheme promoters to understand under what circumstances the various elements are likely to be required for new and existing developments.

It seeks to offer practical advice to ascertain that there is provision of appropriate public transport infrastructure located in optimum positions ensuring that this investment is positively supportive of the sustainable transport agenda generally, and the new development specifically.


In all instances it is preferable that developers/scheme designers approach a member of the SCC Local Bus and Community Transport Team ([public.transport@staffordshire.gov.uk](mailto:public.transport@staffordshire.gov.uk)) for the elements being undertaken prior to serious consideration of locations.

Where third party land is used for the siting of an infrastructure item such as a bus shelter, it will normally be required for this parcel of land to be adopted as part of the highway to ensure that the County Council will be able to guarantee maintenance and upkeep of the item in perpetuity, either directly or through a third party.

### 2.1 Bus Stop

#### What is it?

A bus stop is a designated place where buses and/or coaches may stop to enable passengers to board or alight. Bus stops are normally marked by a bus stop flag



(see section 2.3), however there are also many in more rural locations which are unmarked or operate a 'hail and ride' system: buses will stop when hailed wherever it is safe to do so. The operation of 'hail and ride' services hinder the ability to provide suitable DDA compliant infrastructure and as such are not the preferred style of operation.

Bus stop layouts can vary considerably, often dependent on the location; for example, these can take a roadside 'parallel' format, be incorporated within a lay-by or even a 'build out' arrangement.

In Staffordshire, all new bus stops must have a flagpole as per our specifications below. (see section 2.2)

## **What Should I Know?**

### **General location**

There are a surprisingly large number of factors that should be considered when determining the optimum location for a bus stop. Bus stops will, in the first instance, be located at either major attractors or generators of passengers. So, for example, within a housing development the bus stops will be located at points where footways converge, enabling easy access throughout the development. If services are likely to operate through a road junction from differing directions, wherever possible stopping arrangements should be such that buses serve a minimum number of stops, thus facilitating ease of interchange.

Meanwhile for key retail or leisure centres, the bus stops will need to be placed as close as possible to the focal point/entrance/reception area. Locating the bus stop at the optimum location for accessibility will also help to reinforce the sustainable transport message. In many locations a single length bus stop will be sufficient, however at some locations, such as substantial retail/leisure parks, town centres or railway stations, there may be a need for a larger extent of highway to be designated as the bus stopping area enabling a number of buses to serve the stop at the same time. In certain circumstances this will take the form of a number of different affiliated stops, which can be more operationally suitable. SCC will offer advice in such circumstances.

Stops are usually located in pairs (except where a road is likely to only ever be served by a unidirectional or circular service), it is highly desirable for the 'offside' stop to be approached about 30m before the nearside stop. This serves as a visual reminder to drivers and passengers alike that the next stop is approaching. Unless the highway is particularly wide, a pair of stops should not be located directly opposite one another as this can cause congestion.

### **Safety & Security**

Ideally bus stops should not be located in isolated areas as this may cause concerns with regard to personal security and perceived safety. It is



acknowledged however that this will not always be possible. In either instance, the bus stop should have access to an out-of-hours lighting source, usually a standard street lighting column, which should be suitably positioned to enable out-of-hours reading of the timetable information in cases. In some circumstances it may be appropriate to provide ambient lighting from a secondary source, such as solar power activated by motion sensors within the shelter itself. Whilst the bus stop may not be one that will be served by 'late' operating bus services, there are likely to be at least peak hour services operating which, in winter months, will be during the hours of darkness.



Figure 1: Shelter with living roof and solar panel - Festival Court, Cannock

### Suitable Highway Locations

It is important that bus stops should be located on straight sections of highway to enable buses to be able to align parallel to the kerb to afford easy access to the vehicle. Bus stops should, wherever possible, be sited on an area of hard standing which will facilitate access to the vehicles and provide a more pleasant waiting environment.

The stops should not be placed within 15m of a junction approach with a side road on either side of the main distributor road. Stops which are too close to a junction may hinder visibility and thus be a potential safety hazard. If the stop is to be equipped with a bus shelter, the hazard potential will be enhanced so this should also be considered in the positioning process. If it is unavoidable, then the

stop should be sited downstream of the junction. Similarly stops located near crossings should be positioned on the exit side.

Normally discussions regarding the final location for bus stops will be led by representatives of the SCC Bus Infrastructure and Information Team. At the early stages of planning a new development, these SCC Officers will be able to offer realistic advice with regard to the optimum location for stop(s).

### **Acceptable Walking Distances to Bus Stops**

The Institute of Highways and Transportation recommends that bus stops should be located such that all premises are located no more than 400m from them. This is not as simple as providing stops at 800m intervals along the length of a road however, as this would certainly mean that persons further into the development would need to walk more than the maximum recommended distance.

This 400m target can be achieved more easily if development design incorporates a suitable network of interlinked footways. It should be noted that these footways should be equipped with dropped kerbs to achieve DDA access across each road. If there is a change in gradient, then the 'reasonable distance' should be reduced by ten metres for every one metre rise.

The maximum acceptable walking distance could be reduced to 200m in certain circumstances such as in town centres or areas with a disproportionately high level of elderly residents, as well as for ensuring ease of access to major attractors.

Conversely bus stops should not be closer than 200m apart, the exception to this is if there is the need for a cluster of stops serving a number of routes (for example at a town centre).

The reality is that a well-designed development will normally require stops at around 300-400m intervals. This will generally serve to achieve the recommended walking limits outlined above. Whilst it is acknowledged that some people will be willing to walk further under certain circumstances to access a more frequent service corridor for example, there is suggestion that rural based residents have lower expectations of accessibility and therefore are willing to walk further than their urban cousins; this is the benchmark with which SCC expects its developers to align.

### **Highway Markings**

It is not a legal requirement for a bus stop to have any highway markings associated with it; however, it is good practice for bus stops to be protected by the provision of a 'bus cage'. This is also known as bringing a bus stop up to 'clearway' standard. It will discourage inconsiderate parking which prevents the bus from aligning parallel to the kerb; ideally the bus should be able to align within 50mm of the kerb edge.

The bus markings must have a single yellow line along the nearside edge of the highway supported by a 'no waiting' plate where the stop is only used for part of the day then hours of operation need to be displayed. Usually, such restrictions will prevent parking at bus stops throughout the day. In some circumstances there may be a specific timed restriction if the bus stops in question serve school buses only whereby access requirements are restricted to a very specific time band, for example. Time restrictions may also be appropriate in areas where residential parking is at a premium, often this will require an 0700-1900 prohibition. A 'no waiting' plate is not required for a 24-hr bus stop.

A standard bus stop marking will generally be 23m long by 3m wide comprising 18m for entry and straightening plus an exit area of at least 5m. Where there is conflict with driveways, the absolute minimum for entry and straightening can be shortened to no less than 14m.

Where on street parking is permitted on the exit to a bus stop, the exit area should be extended by up to 9m to reduce the effects of the rear overhang of the bus. Adherence to this will provide sufficient space for a bus to access a stop, align with the kerb and then exit unimpeded. The bus stop box markings should commence about 5m down from the bus stop flag.

### **Other Elements**

It should be noted that the bus stop itself is often only part of a package of items which would normally be found together; these are represented throughout the remainder of section 2. For example, where bus shelters are installed, they are normally equipped with some form of seating, however even in the absence of a shelter, the provision of seating should still be considered as a key design feature.

Bus stops should have litter bins positioned within easy access to discourage littering which will detract from the ambience and potentially cause conflict with neighbouring landowners. Such provision would normally need to be in partnership with Staffordshire's local district or borough councils who will be responsible for emptying them. Location of litter bins can make wheelchair access to a stop difficult if they are placed in the wrong place, so consideration must be made to their location.





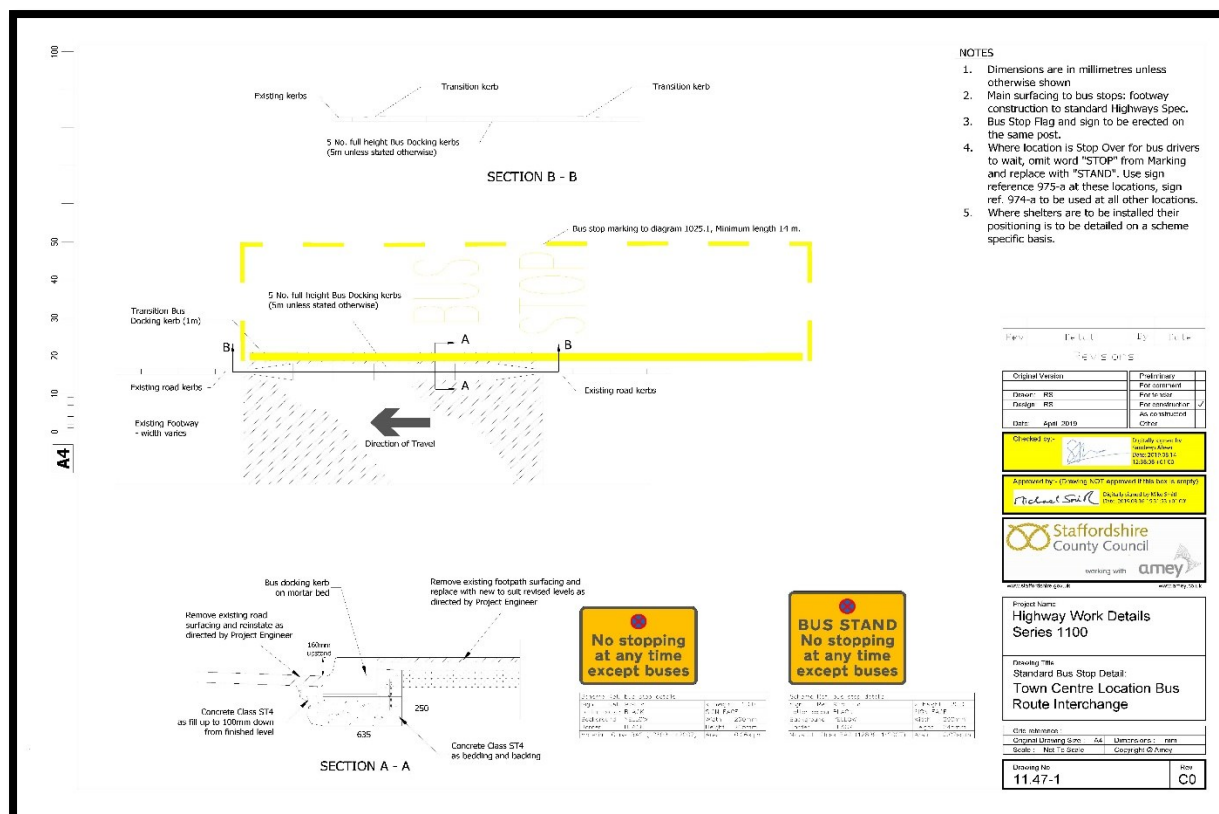


Figure 2: Standard Bus Stop - Town Centre Location

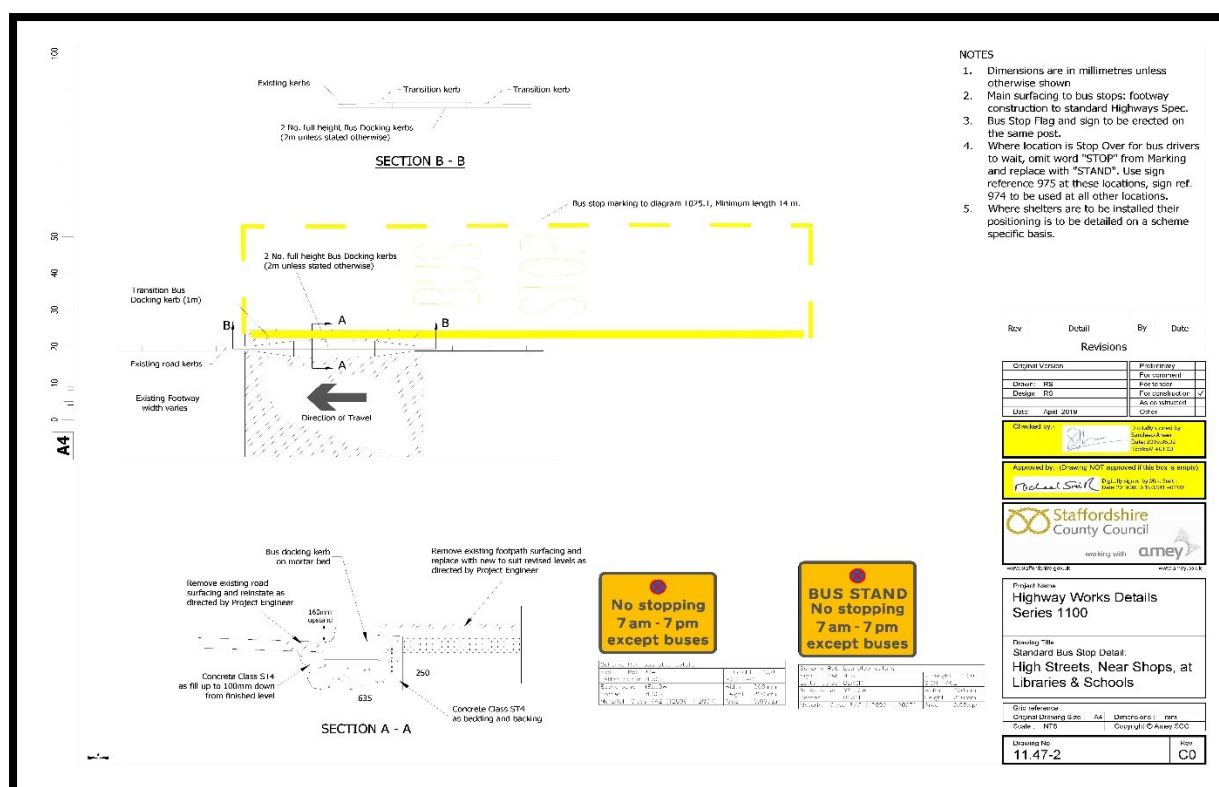


Figure 3: Standard Bus stop - High Street, near Shops, at Libraries &amp; Schools

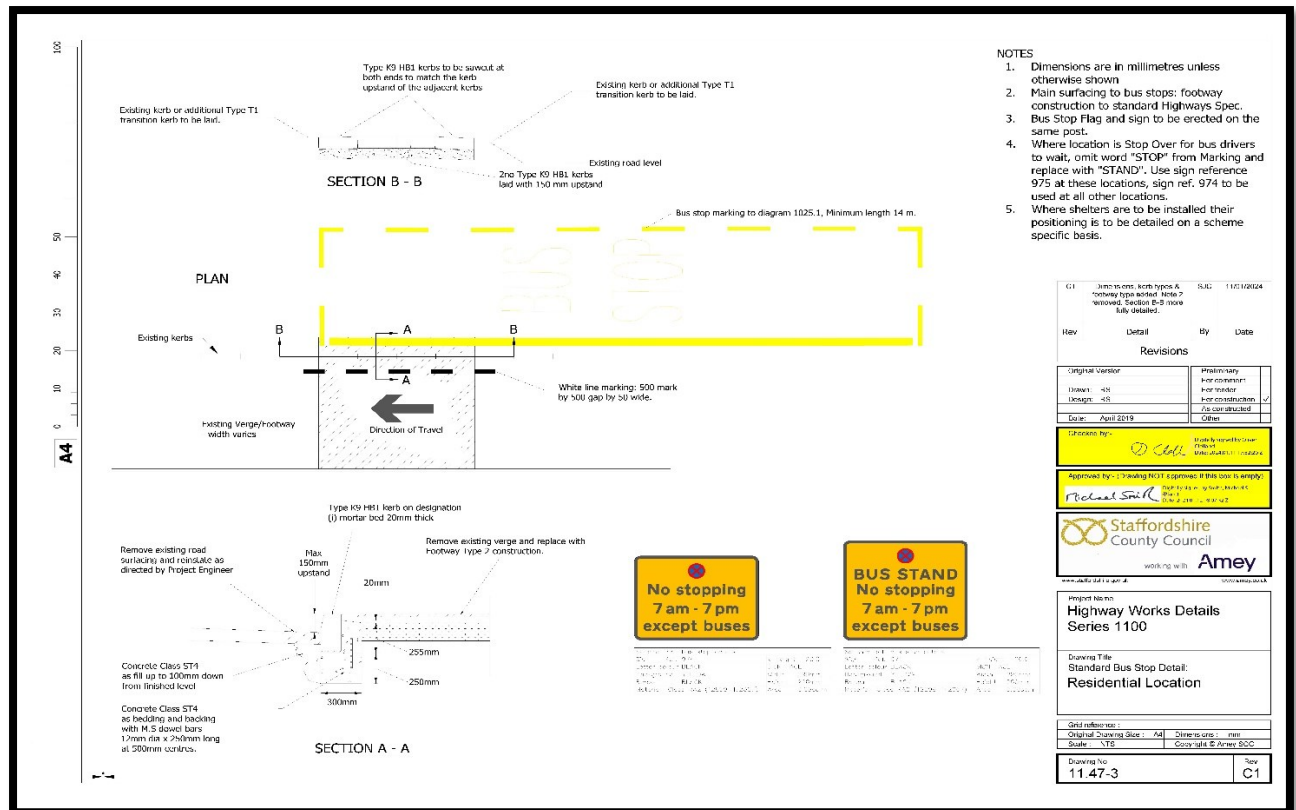


Figure 4: Standard Bus Stop – Residential Location

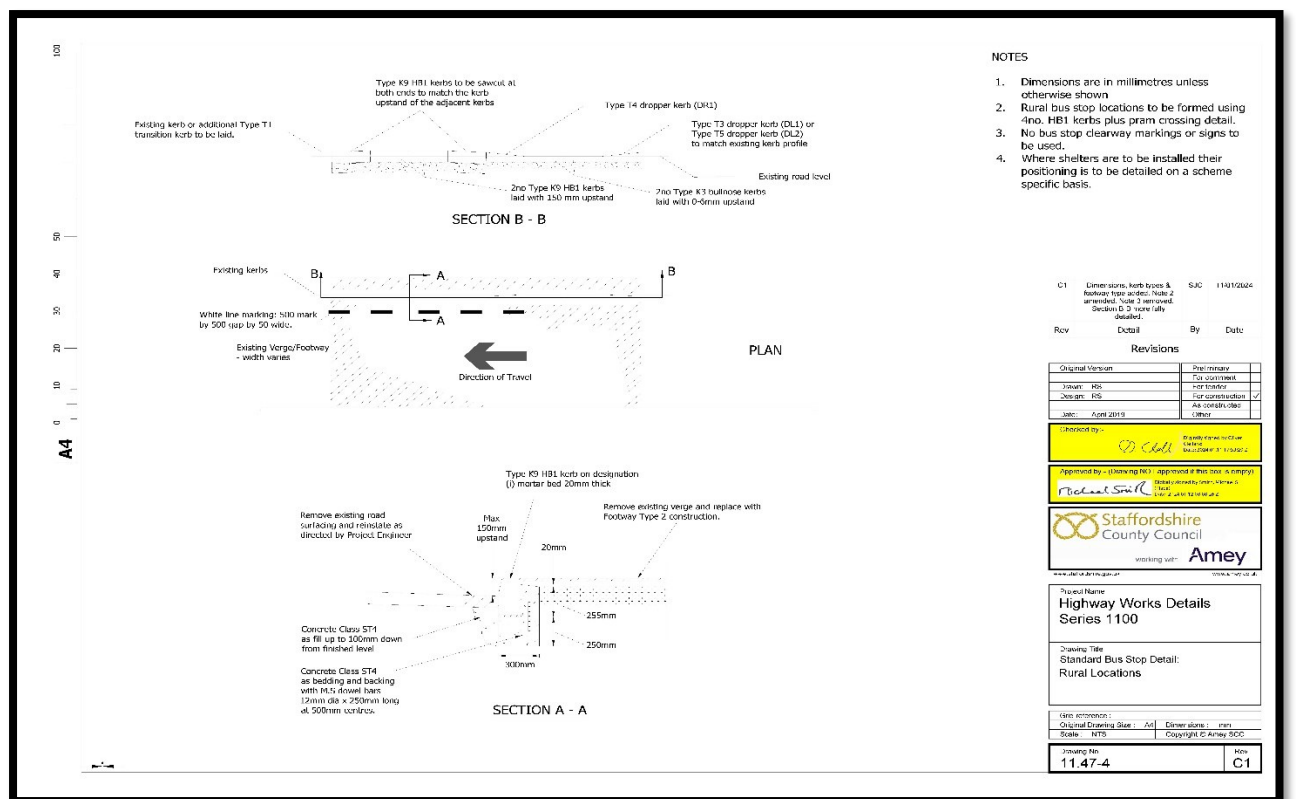


Figure 5: Standard Bus Stop – Rural Location



## 2.2 Bus Flagpole

### What is it?

It is a metal pole erected beside the bus stop to which a bus stop flag is affixed indicating the bus stop location.

The bus flagpole must be SCC's bespoke design which consists of an aluminium pole, vandal proof spine, solar RTPi bracket, large timetable case, reflective strip and DDA compliant recycled rubber footing. SCC's Local Bus and Community Transport Team will order and supply the poles for developers' use at a cost.

From January 2025, all flagpoles erected in Staffordshire must be of the above standard and ordered through the Local Bus and Community Transport Team.

Any unauthorised items attached to the flagpole will be removed and costs passed on accordingly.

### What should I know?

The bus stop flagpole must have at least 2.3m clearance below the Solar Display unit and should be located no closer than 500mm from the kerb edge (if a cycle route is present contact the Bus I&L Team to discuss an alternative). If a pole is placed on the back of a path, the flag should point towards the carriageway in the interests of visibility; if the pole is installed on the front of path, the flag should point towards the rear of the path to avoid contact with passing vehicles.

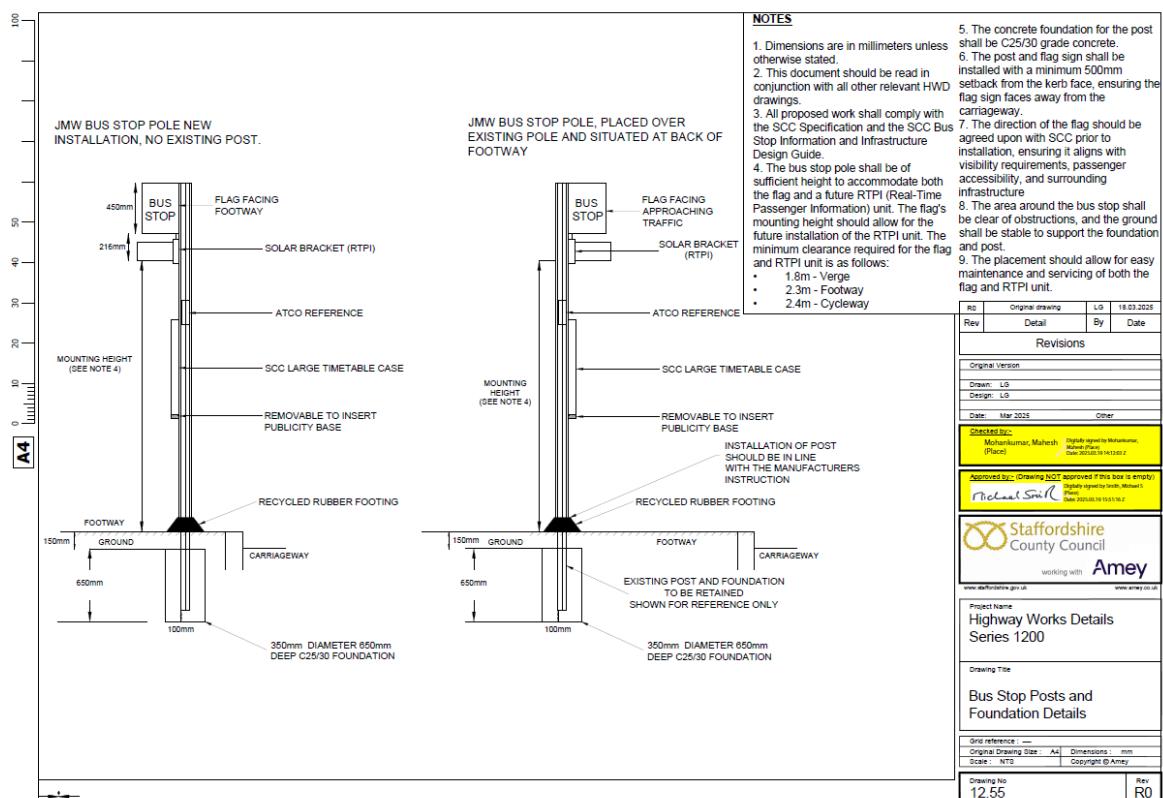


Figure 6: New Standard Bus Stop Flagpole with Foundation Details



Figure 7: New Bus Stop Flagpole in situ

## 2.3 Bus Stop Flag

### What is it?

This is a rectangular sign which is usually affixed to an item of street furniture. It serves to indicate to bus drivers the point at which they should align the front doors of the bus, and it shows passengers where they should start to form a queue.

In addition to the mandatory symbol and wording, the bus stop flag will also carry the name of the stop. These will be prepared and provided by SCC's Information and Infrastructure Team.

### What Should I Know?

The bus stop flag is the point at which a bus driver will align the bus's front doors. As such, it is important to ensure that mounting arrangements for the flag are carefully considered bearing in mind that the bus doors may not necessarily be located at the very front of the vehicle. Any remaining bus infrastructure should be

positioned in relation to the siting of the bus stop flag. This will ensure that shelters, access kerbs and real-time passenger information screens are suitably positioned relative to the ultimate bus position.

Bus stop flags were often positioned on lighting columns or on bus shelters, but from June 2026, no new bus stop flags are to be attached to lighting columns.

There are some essential elements which must be included within a flag design as specified within The Traffic Signs Regulations and General Directions 2002, Schedule 5. Further guidance on correct lines and signage for a development can be obtained from officers at Staffordshire Highways.



Figure 8: Staffordshire County Council Bus Stop Flag Design

## 2.4 Bus Shelter

### What is it?

A bus shelter is a structure which serves to provide protection from the weather for persons awaiting the arrival of their bus. They come in an assortment of formats offering different levels of protection. Shelters can be provided from a number of sources including Parish, District, Borough or County Council grants, as well as from Developers and commercial advertising shelter companies.

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## What Should I Know?

The provision of bus shelters should be positively considered wherever there are likely to be 'reasonable' (20 plus per day) numbers of passengers that would benefit from such a facility. These structures go some way towards making the use of public transport more acceptable for new and existing users alike.

In locating a bus shelter, it is important to ensure that the final position will not pose a particular inconvenience to others by hindering visibility from a nearby side road, restricting lighting into neighbouring residences or hindering access along the footway. No part of the shelter should be positioned less than 500mm from the kerb edge; equally the shelter should be positioned in such a way that its rear panel has at least a 300mm gap between it and the rear of the footway to facilitate cleaning and maintenance.

It should be noted that additional restrictions may apply to locating shelters within a conservation area or adjacent to listed buildings. From a planning perspective, non-advertising bus shelters are exempt from the requirements of the various town and country planning acts as the local authority has permitted development rights on highway land; however internally illuminated adverts require planning consent. SCC would prefer that shelters are located to the rear of the footway, ideally on a hardstand area behind the footway. It should be positioned such that persons waiting in the shelter can have clear visibility of the bus as it approaches.

Bus shelters come in a variety of styles: basic cantilever (a rear panel and a roof), partial or fully enclosed. Historically, they have been made from a variety of materials, but current versions tend to consist of a metal frame with either glass or polycarbonate panels.

The SCC preferred standard shelter is a three-bay, semi-enclosed shelter with metal lower panels and tarmac base which can be adapted in various ways to suit local needs.







*Figure 9: 3-Bay Enclosed Bus Shelter – Pets at Home, Redhill, Stafford*

Usually, shelters will have some form of seating available which can range from bench seating in or near the shelter, through tip-up seating (with or without arm rests) to perch seating. Modern shelters will have the seating constructed in a bright contrasting colour in order to assist the visually impaired. Shelters should be specified with suitable ducting and supporting brackets to enable the potential for retro fitting of Real Time Passenger Information screens. It is important to note that a clearance of 2.3m must be maintained below any items overhanging the footway. Particular care must also be taken where an off-highway cycleway is in situ to ensure at least 2.4m vertical clearance.

Shelters normally contain timetable cases (see section 2.12 below) the size and style of which can vary according to the prevailing local style and the required amount of information to be displayed. SCC's Information and Infrastructure Team will supply these on request.

Shelters should be specified to include a suitable mounting bracket for the bus stop flag.

**It Should Be Noted That All Shelters in Staffordshire Are Subject To A No Smoking Policy.**



It is imperative that the ongoing maintenance of a shelter is considered prior to installation. The shelter will need regular cleaning, as well as graffiti removal and, from time to time, the requirement for structural repairs. Often this is the responsibility of SCC and managed by the SCC's Local Bus and Community Transport Team apart from where District, Borough or Parish Councils own the shelter (subject to change).

Developers should be aware that shelters are installed by means of embedding a metal base plate within concrete foundations beneath the footway. As such, it is important for the shelter base to be installed prior to footway works being completed. These works may also require ducting where the shelter is likely to need an electricity supply for lighting and Real Time Passenger Information screens. It is preferable for an electricity supply feeder pillar to be installed at the time of shelter installation if there is a likelihood of a power supply being required in the future. Installation at this stage can result in a significant saving in time, cost and effort when compared to retro-installation at a later stage.

For any enquiries regarding bus stops or shelters in the county, please email: [busstopsuspensions@staffordshire.gov.uk](mailto:busstopsuspensions@staffordshire.gov.uk)

## 2.5 Bus Lay-by

### What is it?

These are specific areas for the use of buses which enable them to pull off the main highway, typically this enables traffic flows to be maintained and can represent an important safety element for some localities. They may also be used where it could be unsafe to encourage traffic to overtake a bus serving a bus stop. The benefits to traffic flow have to be considered against the potential difficulty that the bus may experience in trying to re-join the main carriageway which may unduly add to journey times, especially in peak periods.

There is also a very real potential for bus lay-bys to be misused by parked cars therefore it is important to ensure that the feature carries the relevant road markings and signs, and that arrangements are in place for them to be enforced.

Apart from the situations below, another occasion when it may be appropriate to construct a bus lay-by is where the location represents a timing point or terminal point for a service. As such the lay-by would serve to enable the bus to await its time away from the main highway. For this to happen, the layby would need to be a Bus Stand (see 2.10 Bus Stand, p. 30) as bus stops are only allowed to be used for up to two minutes for the purpose of passengers boarding or alighting the vehicle.





Figure 10: Bus Lay-by - Greensome Lane, Doxey, Stafford

## What Should I Know?

Lay-bys can be full width or half width; the narrative below explains the key features and usage of each form.

### Full Width

Bus lay-bys are not normally introduced in areas where the prevailing speed limit is 30mph or below. Where the speed limit is 40mph, a lay-by will only be implemented if required by the SCC Bus Infrastructure Officer, Staffordshire Police or as a result of a safety audit. Conversely, at speeds above 40mph, a bus lay-by should be used as a matter of course unless agreed otherwise by these parties. These are guidelines however, and individual circumstances may dictate a need for varying the course of action to be taken through agreement with the SCC Network Management Team.

Lay-bys should have a minimum length of 23m, this consists of a 5-metre exit taper and 18m for entry and alignment with the kerb. The recommended length is 33m, forming a 13m entry taper, 15m straightening and 5m exit taper.

Traffic regulation orders are not required for clearway markings as the road marking is unique and only has one intention: to protect an area of highway for bus services to operate. A clearway order sign is required only if "relaxed" from 24/7 in order to ensure that it remains accessible and not subject to illegal parking.

## Half Width

In some instances, it may be appropriate to consider use of half width lay-bys. These may assist a bus in regaining its place in the main traffic flow more easily without causing total disruption to traffic whilst it is serving the bus stop. Other principles relating to full-width bus lay-bys remain equally valid with both half and full-width lay-bys. Lay-bys may also be necessary if there are concerns over highway safety with regard to forward visibility, particularly at junctions and pedestrian/cycle crossing points.

## 2.6 Bus Boarder

### What is it?

Bus Boarders, in contrast to bus lay-bys, assist the bus in retaining their position on the highway. They consist of a built-out area of kerbing, typically within a parallel parking area, enabling the bus to align with a suitable boarding platform which it might otherwise be unable to do. In this way accessibility is maintained for the bus passengers and parking is also able to be retained.

Bus boarders can be a good solution where space availability is too limited to enable construction of a bus layby. In some areas it has been common practice to provide half width bus boarders, however these are generally not considered as an acceptable option as they do not provide for the installation of a DDA compliant access kerb and therefore reduce the accessibility criteria for the bus stop, as the bus is likely to be unable to align itself parallel to the kerb.

As bus boarders typically keep the bus in the main traffic lane, consideration needs to be given as to whether the road width and traffic volumes are suitable for such an arrangement. A photograph of a bus boarder on Waterloo Road, Burton-upon-Trent is below.

### What Should I Know?

Bus boarders should normally only be considered in 'full width' format, which is to say that the kerb extension forming the bus boarder actually abuts the highway lane; in this way level access to boarding of the bus can be achieved. The boarder should ideally be constructed with at least four metres in length of DDA height kerbing in order to accommodate boarding and alighting passengers. Where the boarder has a bus shelter installed, the length of DDA access kerbing should ideally be extended to 7m to ensure an adequate pedestrian circulatory area.

At locations with a bus boarder, the length of 'clearway' can be reduced to match the length of the bus boarder although the bus cage should be retained in its entirety.







Figure 11: Bus Boarder - Waterloo Street, Burton-Upon-Trent



Figure 12: Bus Boarder - Waterloo Street, Burton-Upon-Trent

## 2.7 DDA Access Kerb

### What is it?

Buses operating in Staffordshire are designed to a 'low floor' format as this is a requirement of the Disability Discrimination Act 1995. Therefore, in order for passengers to be able to benefit from this important accessibility design feature, there needs to be boarding points pitched at a similar height level to the bus boarding platforms.

The bus boarding platform and the kerbside should be at the same height enabling easy, level boarding / egress particularly assisting the elderly, those in wheelchairs, parents with buggies and persons carrying heavy loads.

### What Should I Know?

The point at which passengers would board/alight from the bus should be located on an area of hard standing wherever possible. Within the hard standing there should be a kerb installed that is compatible with DDA recommendations.

The boarding/alighting platform should be constructed such that it is 150mm in height but no greater than 180mm, this will enable level access from the kerb to the bus. Staffordshire's current policy is to use 150mm high HB1 kerbs but if the location is more high profile, e.g. a bus exchange, High Street or near a larger passenger generator, then consideration would be given to swapping to a Kassel kerb.

The kerb is likely to be sited within a standard height footway (typically 125mm). In such cases, the footway should be designed to achieve a gradual transition from the standard height to the raised section allowing suitable crossfall for drainage purposes.

## 2.8 Bus Priority

### What is it?


This is a general term applied to a highway measure that is designed to give buses a benefit over other mainstream traffic. This can take a number of forms, examples include provision of a short section of dedicated highway link (Bus Gate), Bus Advance Area and Selective Vehicle Detection Systems.

### What Should I Know?

There are a number of forms of bus priority measures, which include the following:

#### 2.8.1 Bus Advance Area

This is a facility which enables buses to get to the head of a traffic queue at a signalised junction, often located at the exit of a bus lane. Wherever possible, these should be introduced without the need to reduce overall capacity.





As a guideline, the setback length (in metres) should be twice the green signal time (in seconds). Such provision will normally allow a bus to clear the first available green signal phase. The 'set back' area may be shorter if the bus lane continues downstream of the junction. In all such cases it is recommended that full design should be undertaken and modelled by a recognised signals design engineer.

In determining the size of a bus advance area, consideration has to be given to the likely onward direction of the buses after leaving the bus advance area; for example, often the likely approach to such an area will be from the nearside (however, some buses may need to turn right at this junction). As such, the bus will need sufficient space and time to be able to position itself safely for undertaking this manoeuvre at the next change in signals.

Suitable signage forms an important part of conveying the bus priority message to users and non-users alike.

This mechanism is used to greater effect as an element of a wider bus management & RTPI system (see section 2.12). Essentially, the system is aware of the scheduled departure times for the individual buses passing the signals, and it compares this to the actual time of arrival. Therefore, if the bus is running late, the green signal will be held in order to assist in maintaining the schedule; conversely if the bus is running early, then the red phase can be initiated sooner.

### **2.8.2 Bus Gate**

This is a hard engineering measure that enables buses to move more rapidly through an area than mainstream traffic, usually by means of a short length of bus-only access road. It also enables buses to make a movement at a junction that other modes of transport would be excluded from making or enable more rapid access/egress from an estate area to re-join the main carriageway.

Such links require some form of access control as well as being covered by a Traffic Regulation Order (TRO) to formally prevent alternative modes from deriving the benefit of the access route.

As with bus lanes, it is preferable for bus gates to be operable 24 hours a day and covered by a suitably worded TRO in order to reduce the potential for misuse. In their most basic form bus gates may be denoted by basic lines and signs advising that the access way is for use by certain modes only.

In some areas, particularly where the likely incidence of misuse is perceived to be high, more formal methods of control may be preferable such as bus activated signals, rising bollards or barriers. These may be operated by a variety of means from pressure pads, bus mounted proximity sensors or driver activated means. Rising bollards and barriers are gradually being phased out, due to ongoing maintenance costs and issues with public liability when private vehicles

inadvertently follow buses through the control feature, these are generally being replaced with ANPR.

In Staffordshire, there are six ANPR enforced bus gates in place, access for five of which is controlled by Automatic Number Plate Recognition (ANPR):

1. High Street, Burton-upon-Trent
2. South Walls, Stafford
3. I54 Business Park between Valiant Way and Innovation Drive
4. Stone Business Park, Stone
5. Between Gainsborough Drive, Perton and Yew Tree Lane, Wolverhampton
6. The sixth gate, on Lower Outwoods Road, Burton-upon-Trent, is live but enforcement by ANPR is not yet in place.

A TRO supporting the introduction of such access restrictions would normally reference sections 92-94 of the Road Traffic Regulations Act (RTRA) 1984. The Highway Authority will naturally remain mindful of its obligations in terms of a duty of care to the public, to ensure the safety of pedestrians, cyclists and other vulnerable road users in particular, when considering the installation of such devices.

It is essential to ensure that access for emergency vehicles is maintained through bus gates. As such, suitable liaison should take place prior to installation in order to ensure agreement of the suitability of the control measure(s) employed. This is a much easier proposition with the use of ANPR, as vehicles operating blue lights to attend an emergency call are exempt from being issued tickets.

A significant form of bus priority is the bus lane, key features of which are explained in section 2.8.



Figure 13: Bus, Cycle & Taxi Gate - South Walls, Stafford

## 2.9 Bus Lane

### What is it?

Bus Lanes are normally reserved for use by 'Buses' only; the term 'Buses' is as construed in The Traffic Signs Regulations and General Directions 2002 (TSRGD). Buses, in the context of these regulations, include all motor vehicles constructed to carry more than eight passengers, as well as any local buses not so constructed or

adapted when operating a local service. Additional modes can also be allowed to access a bus lane if required: in Staffordshire it is usual for cycles to be accommodated, where it is safe and feasible to do so. Bus lanes can take a number of formats, such as with-flow, contra-flow or tidal flow, these are detailed further below and can all be operative on a full or part-time basis (although full-time is preferable).

#### 2.9.1 With-Flow Bus Lane

With-flow bus lanes enable traffic flows to be relocated to a downstream section where sufficient capacity exists. It is an area of highway whereby buses have their own running lane thus enabling them to have an unimpeded path through areas that are typically troubled with congestion. These are important for two main reasons: firstly, in ensuring that consistent journey times and therefore reliability are achieved, and secondly, in demonstrating the benefits of bus travel in more urban areas which has the secondary benefits of contributing to reducing congestion and pollution levels.

#### 2.9.2 Contra-Flow Bus Lane

Contra-flow bus lanes, as the name implies, allow buses to travel in the opposite direction to the general traffic flow. As such they can enable buses to avoid unhelpful diversions thus enabling operational efficiencies to be maximised and consistent routings to be maintained which is a clear benefit to operators and passengers alike. Contra-flow bus lanes should always be operative on a 24hr basis.

#### 2.9.3 Tidal Flow Bus Lane

Tidal flow bus lanes can assist in situations where congestion levels are an issue in peak times, and where the bus has no bus stops to serve. Whilst remaining as bus only lanes throughout the day, the direction of operation changes during the operating day. These would normally only be sited in the central lane of a particular highway.

#### 2.9.4 Shared Use Bus Lane

A variation on the standard bus lanes are shared use lanes which are more difficult to enforce than the bus only version; they specify that lanes can be used by buses



and other permitted vehicles. These can be used effectively on more major distributor roads particularly where bus frequencies are low. It is the use by additional vehicle types that can help to justify a business case for their implementation. Typically, the additional modes permitted to use shared bus lanes include taxis, cycles and, on occasion, motorcycles. Emergency vehicles should automatically be able to use them also.



Figure 14: Bus Lane - Barracks Road, Newcastle-Under-Lyme



Figure 15: Bus & Cycle Lane - Chell Road, Stafford

## Other Bus Operations

It is worth noting that Dial-a-Ride and community transport type operations may need to be specifically permitted within a TRO for them to legitimately be allowed to use bus lanes.

## Taxis

Within Staffordshire, taxi operators may make requests for their services to use bus lanes, such requests will be carefully considered. Elements such as their set-down/pick-up behaviour and in particular the ease with which they can be identified (for enforcement purposes) will be considered prior to a final decision being made. In London only Hackney cabs are permitted to use bus lanes. Private hire vehicles are not covered by this exemption.

## Motorcycles

Motorcycles are not normally permitted to use bus lanes in Staffordshire, as they tend to travel at the same speed as general traffic and it is considered that permissive use of bus lanes by this mode may encourage weaving, as well as under/overtaking to take place which are potentially safety issues.

Violation of bus lanes became a decriminalised offence, with penalties recoverable through civil action, as a result of amendments to the Transport Act.

## What Should I Know?

In areas where congestion is or could become an issue, the potential benefits of introducing a bus lane should be considered alongside other bus priority infrastructure. They can be of particular benefit on the approaches to signal-controlled junctions or roundabouts, as they can enable the bus (and other permitted modes) to gain advantage over other queuing traffic. In some instances, even a short length of well-located bus lane can make a significant difference to bus reliability.

On a section of highway where no bus stops exist where congestion is considered to be an issue for bus service reliability, the potential for peak hour 'tidal flow' bus lanes to be introduced in the middle of a carriageway could be considered as an option.

Inclusion of bus lanes will mean designing roads with or creating sufficient width to accommodate an additional lane.

The location and design of the entrance and exit from a bus lane will be key to its overall effectiveness. The entrance must be slightly upstream of the predicted traffic queue with a sufficiently safe distance offered to non-priority vehicles for merging safely in advance of this. Wherever reasonable, the exit of a bus lane should be at a recognisable juncture, a signal stop line or give way line for example. It is important to remember that left-turning traffic also needs to be



accommodated safely and that right turning traffic may need to be accommodated in such a way as to avoid restricting flow in the non-priority lane. Where feasible, it can be beneficial to consider the provision of 'pre-signals' and a bus advance area.

In the Highway context, the term 'Buses' has a specific meaning, (see the opening paragraph of section 2.8). It will be important to determine whether this definition is likely to be suitable for the expected use. Local Authorities may make local traffic regulation orders to restrict lane use to 'local buses' and to control picking up and setting down points. Any variations from this standard meaning will need to be reflected in the resultant Traffic Regulation Order (TRO) where feasible (see below).

Bus lanes will need to be supported by a TRO, to enable them to be enforced. Whilst it is recognised that some bus lanes may only genuinely be needed at certain times of the day, it is recommended that these are introduced on a 24 hour basis. This significantly reduces the scope for misuse as it removes the potential for confusion over operating hours. The reality is that the additional lane space will rarely be required in off peak times, hence the limited benefit of having a part time bus lane. If variations are to be considered, it is important that these are assessed more holistically with other measures on the same corridor in order to prevent confusion for road users with different operational periods.

Restricted operation bus lanes may be the best compromise position in locations which have many frontage loading requirements, where the premises cannot reasonably be served by side streets or rear access to premises. Access issues are likely to present a greater challenge where contra-flow bus lanes are located.

Bus lanes must be clearly marked with specific signage present indicating the hours of operability of the bus lane. Standard signage and road markings to be used for bus lanes are prescribed within the TSRGD 2002. It is particularly important to ensure the suitability of highway design, lines, and signs in and around a contraflow bus lane, where the potential hazards are greater.

In some locations, and with particular regard to contra-flow and tidal flow bus lanes, pedestrian guard rails could be considered in order to encourage pedestrians to only cross the road at designated safe crossing points. Generally speaking, the use of guardrails should be as a last resort where there is a specific, identified safety need.

Cameras may be fitted to buses to record the presence of other vehicles in bus lanes and can be used as admissible evidence in cases of prosecution.

Where cycles are permitted to share a bus lane, it is recommended that the lane should be 4.5m (an absolute minimum of 4m) in width, in order to afford a reasonable safety provision for all users.



## 2.10 Quality Bus Corridor

### What is it?

This is the name given to an extended stretch of highway whereby a number of measures are brought together with the express purpose of facilitating bus travel.

This 'whole corridor' approach is beneficial in ensuring that effective management of bus priority in one area does not culminate in the resultant dispersed traffic adversely affecting other sections of the bus route.

Typically, this will include bus lanes and bus priority measures as well as an enhanced level of overall provision and quality of bus passenger infrastructure such as shelters and information.

### What Should I Know?

Quality bus corridors (QBC) can be an effective way for the local authority to contribute meaningfully to a Bus PIP (Performance Improvement Plan). It is likely (although not essential) that an extended length of bus lane will form an important element of such a scheme. There will certainly be various other bus priority measures involved ensuring that the reliability of bus services operating along the corridor can be assured.

It is also likely that particular effort will be employed in ensuring that bus stop infrastructure is generally upgraded along these corridors in order to further increase the attraction of bus travel to the public.

There is no absolute answer to what constitutes a QBC: in principle it could be applied to many areas where a combination of 'pro-bus' elements have been incorporated in a structured way to complement each other.

## 2.11 Bus Stand

### What is it?

Bus stands differ from standard bus stops as they are locations where buses may spend a period of time whilst awaiting commencement of their next trip. Typically, these will be at route termini. Passengers may not necessarily be required to board / alight at these points, as such there may not be a requirement for DDA compliant kerbing.

### What Should I Know?

In planning the layout of the development, reasonable consideration must be given to how the site is likely to be served by public transport. In many instances it is likely that a site would be served by a service diverted from its previous routing. In other instances, a development may demand its own service. As such, it is likely to need a bus stand to be provided. It may be that a suitable turning point also needs to be provided to enable the vehicles to turn around. The size, usage and

importance of the site will help determine the number and size of bus stands required.

Ideally bus stands should be sited slightly away from core residential areas in order to reduce the potential nuisance to be caused to local residents. Equally, the positioning of the bus stands should not be in 'isolated' areas which could

potentially pose a safety risk to the bus operating personnel. Unlike a normal bus stop, marking the highway as a bus stand will often require a TRO.

## 2.12 Transport Interchange

### What is it?

This is a location where passengers can typically catch buses for a range of destinations thus they can 'interchange' easily between different routes. As these facilities are generally sited at key locations, they also serve as a central point at which persons can access the wider area facilities from their point of origin. They can vary from a small cluster of stops in proximity to a more substantial purpose-built facility (Bus Station).

Bus interchanges would typically be found in town centres, at hospitals, larger out-of-town retail and leisure parks as well as some larger supermarkets. These locations lend themselves well to enabling the interchange to be included within the security/CCTV systems of the facility they serve. They should be well signposted to/from the local facilities in order to further promote the degree of ease with which the public transport network can be accessed. Signage and general promotion of the location of interchanges should take into consideration the needs of disabled persons, including those who may be mobility or visibility impaired.

The level of quality, and ease of use, both from the travelling public and the transport operators' perspectives, will contribute towards the overall perception of the Staffordshire Public Transport system both locally and countywide. It is therefore important to ensure that these facilities are constructed to a suitable level of quality and are equipped with appropriate facilities.

Bus interchanges generally take one of two basic operational formats: Drive In, Reverse Out (DIRO) or Parallel Alignment

In many locations a combination of these styles is used in order to maximise the use of the space available and to accord with different operational needs. Within these two forms of operations, there are a number of variations in terms of the overall layout, which include those listed below:

### Single Island Concourse

Here all buses can be accessed from a single passenger concourse. Where possible this is the preferred format as it optimises the potential for efficient

interchange and significantly reduces the risk of conflict between pedestrians and buses. With the use of 'Drive In, Reverse Out' (DIRO) style operation, this format can be the most space efficient so long as there is suitable room to safely accommodate reversing buses.

### Multi Island

This is where buses depart from a series of 'in-line' bus stands often located on a series of longer length islands or passenger concourses. This can be a suitable alternative for a long, relatively narrow site. The main disadvantage being that the requirement for passengers to cross vehicle lanes to access their departure bay increases the potential for conflict between pedestrians and vehicles when compared to single island concourses.



Figure 16: Bus Interchange - Gaol Square, Stafford

### Perimeter layout

Here buses align with the kerb around the outer edge of the interchange, the central area often being used for bus layover bays. This form of layout can encourage pedestrians to avoid safe designated walking routes in order to follow their natural desire line, thus causing them to access the main vehicle manoeuvring area. If this style is to be utilised, consideration must be given to how pedestrian safety can be assured.

### Multi Modal

Multi Modal Interchanges are similar to Bus Interchanges, however as the name implies, they involve other modes, typically rail services. They could equally well serve to facilitate interchange with buses at airports or seaports.



## What Should I Know?

### Accessibility

Normally an interchange will be located at the closest feasible point to the attractor it serves, thus a town centre bus station should be located as close as possible to the retail heart of the town and with excellent DDA compatible pedestrian links to the remainder of the central business district area. At a leisure complex, hospital or supermarket, the interchange should be sited as close as possible to the main entrance to the facility. In any instance, the interchange should be no further than 200m from a main access point. Passengers arriving by public transport should be alighting closer than they would have had they used non-sustainable modes in order to emphasise the benefits of public transport. Equally, pedestrian access across a site should seek to encourage the following of safe routes which should be designed to comply with likely key pedestrian desire lines, the overall intention being to reduce the potential for conflict between pedestrians, cyclists, public transport and cars, i.e. the achievement of mode segregation wherever feasible and desirable.

Suitable and easy access routes for vehicles serving the interchange also have to be considered when determining a location. Buses will need to radiate in all directions from the interchange, and thus all potential movement requirements need to be considered and catered for within the wider highway access.

### Size Considerations

It is not necessarily true to say that interchanges need to be large in size; there is a certain amount of convenience and comfort that can be conveyed within a smaller footprint. The most important factor to consider is the overall fitness for purpose, this primarily means ensuring that it is capable of handling the anticipated numbers of vehicles and passengers. Particularly in the case of facilities at new retail developments, it is important to strike the right balance such that the required capability of the interchange is not compromised at the expense of retail space maximisation.

Where an on-street interchange is being constructed, it can be beneficial to construct the highway and footways within the outer confines of the stops in varied materials or in subtly different coloured materials to those used beyond. This creates the feel of a special area, which can help to reassure passengers that they are in the correct location and encourage other road users to exercise still greater caution and awareness as they pass through.

### Design Features

In designing an interchange, it is important to consider the maximum hourly bus stand requirement likely to be needed from the outset, and then to assess the likely effect of future service enhancements taking into account known

development plans in the area. Future proofing is an element that is often overlooked in the design of such facilities.

A further design element that is often overlooked is the provision of bus layover bays. These are areas of parking for the buses to use in-between trips. They are not necessarily required at all interchanges as some are only ever likely to be served by 'through' services, however others, more particularly at town centre locations, will certainly require layover bays in order to ensure effective and efficient bus service operation.

The size and location of the interchange, as well as its relative importance, all need to be considered in determining the resultant quality of finish and necessary facilities. Where feasible, it is highly desirable for an interchange to have some form of staffed presence which may be provided from suitably located retail outlets/kiosks. The presence of staff helps to convey a level of security to waiting passengers and can serve to discourage antisocial behaviour.

As has been mentioned elsewhere, a number of elements will typically come together in differing combinations at various locations, as such the reader is reminded of the need to consider elements such as Bus Shelters, DDA Access Kerbs, electronic and paper-based Information and pedestrian access routes, when designing interchanges.

### **Multi Modal Interchange**

For a multi modal interchange the design elements of a standard bus interchange form a sound base point. These locations are more likely to be competing for prime position with other modes, predominantly cars. It is important to ensure that sustainable modes are catered for relative to their sustainable credentials. Thus, in terms of ease of access to the secondary mode, wherever possible the order of proximity priority should be Pedestrian/Cycle/Bus & Coach/Taxi & minicab/Car. This will not always be reasonably achievable; however, it forms a sound basis on which to commence design options.

Another element that has to be considered at bus/rail interchanges is the ability of the facility to be able to accommodate rail replacement bus services when rail services are disrupted. Whilst this should not necessarily materially affect designs for 'day to day' operation, it is worth considering how the facility would be expected to operate in such situations. This may result in more prudent lane width or space allocation within the available footprint.

## **2.13 Passenger Transport Information**

### **What is it?**

There are principally two types of bus information: electronic and paper based.



## Electronic Bus Information

### Passive

This is the provision of timetable or departure information to the travelling public via digital means:

Real Time Passenger Information (RTPI) consists of an electronic information screen, typically located at a bus boarding point which displays in minutes the time until the next bus on a particular route arrives.

Pole-mounted Solar RTPI situated in low to medium footfall bus stops in urban and rural areas.



Figure 17: Pole Mounted Solar RTI Screen

Pole-mounted 32" RTPI screens situated at medium to high footfall bus stops in urban areas.



Figure 18: Pole Mounted 32" RTI Screen

Pole-mounted/in-shelter LED RTI screens at medium to high footfall bus stops in urban and rural areas



Figure 19: Pole-mounted LED RTI screen





Figure 20: In-shelter LED RTI Screen

Integrated RTPI/Digital Publicity Information displays located at bus service interchanges/bus stations



Figure 21: Integrated RTI Screen - Stand 2, Cannock Bus Station

Bus Service information Totems situated in high footfall areas of towns displaying RTPI and local information.



Figure 22: Bus Information Totem - High Street, Newcastle-Under-Lyme

It should be noted that the Bus Information Totems monitor their internal temperature along with other environmental sensors, and when the temperature goes beyond 65C the screens are turned off to reduce the heat being generated within the unit itself, and more importantly to protect the screens from heat damage.

Once the temperature inside the unit falls below a lower level (approximately 50C) the screens are switched back on.

It is worth noting that most RTI systems will be programmed to revert to scheduled style of information under certain circumstances, primarily this will relate to whether or not the vehicles operating the service are equipped with a fully functioning set of equipment.

SCC is moving towards a system whereby information is sent upon request to an individual's mobile phone, rather than to designated static 'at stop' displays. As such the extent of RTPI screen installation roll out is likely to be restricted to more major attractor/generator stops.

Where electronic bus information is likely to be required at a stop, it will be necessary to ensure that an electricity feeder pillar is provided at the time of highway construction, unless solar RTPI is being installed. Otherwise, the highway surface will be unnecessarily damaged in order for the pillar to be installed at a later juncture.

### Paper Based Information

Printed timetable information is provided by SCC and bus service operators at most bus stops in timetable frames on poles or in shelters. They provide details of

all bus services serving that particular bus stop. SCC will supply these items upon application for new stops within future developments.

Timetable cases are generally in one of two sizes although there are many variations to these. They are essential elements for inclusion at main bus stops, even where electronic displays are present, as the manual information format enables a different range of information to be provided.

All cases should be lockable with a tamper proof mechanism. From January 2025, all new timetable cases erected at bus stops will be to SCC standard design: black bordered measuring 767 x 257 x 40 mm.

Timetable cases will normally be affixed to the infrastructure item which bears the bus stop flag, normally a bus stop pole, bus shelter, lighting column or in some cases a wall. Whenever these are located on the property of a third party, there needs to be a written agreement in place with that party to confirm that the item may be so affixed and to enable the timetable case contents to be updated at reasonable times.

Onward travel information is particularly important at interchanges or railway stations where many services meet and where passengers require information whilst changing from one service to another.

All Staffordshire railway stations are equipped with poster sites displaying double-royal (DR) size information listing A-Z of places served directly by bus, a locality map of services, PLUSBUS information and, in many cases, a detailed map of the nearest bus stops and where to board each of the services.

There are four bus stations in Staffordshire: Leek, Newcastle, Cannock and Lichfield. Stand information is provided by First Potteries at Newcastle bus station, and Cannock Chase District Council at Cannock bus station. SCC provides timetable information for Leek and Lichfield bus stations; the other bus stations have operator provided timetable information and/or RTPi.

## Section 3

### Highway Infrastructure

It is essential that any sizeable development considers the need for a distributor road through the site to enable buses to enter, traverse and exit the development suitably. If necessary, access through these points can be restricted by some form of highway engineering measure such as a bus gate (see page 23 & 24) in order to restrict usage to certain modes and promote sustainable transportation credentials, providing a time benefit over non-sustainable modes for such journeys.



It is also worth noting that all roads within a development could be accessed by community transport / dial-a-ride type vehicles serving the less mobile members of the community. Thus, it is important for developments to provide suitable turning heads for such vehicles and for overall carriageway widths, roundabout radii and so forth to be planned with accessibility in mind including the likely demands on road space due to residents parking. Often a lack of consideration of this latter element can lead to severe difficulties when the development goes live.

### **3.1 Pedestrian Access**

A key, often forgotten element, is the provision of suitable pedestrian through routes to locations where persons can access the passenger transport network. In Section 2.6 above, the importance of enabling DDA access to vehicles was explained, however the provision of accessible kerbing for boarding the vehicles is to a degree irrelevant if the same passengers are unable to get to and from the public transport network in the first place due to a deficiency in the footway provisions.

At the base level, this means that there needs to be a suitable network of footways and dropped kerbs enabling level access from the hinterlands through to the bus network access points (bus stops and interchanges).

Pedestrian access throughout the development should be designed to radiate from bus stops and to allow easy (step free) access through the site to be achieved.

It is recommended that dropped kerbs are installed within 15m of a bus stop in order to facilitate reasonable two-way access across the highway. It should be noted that where dropped kerbs are provided, the pavement width needs to be sufficient to enable a wheelchair or buggy to use the kerb and turn appropriately for onward transit.

It is good practice where the footways provide access through an inclined area, to provide handrails to assist the mobility impaired in progressing along the footway. These are particularly useful in winter months when there is a greater risk of slips and trips occurring.

Equally there are sectors of the community who cannot walk excessive distances. As such it is preferable, where space allows, to provide bench or perch seating at regular intervals through a development.

Section 2.1 'Bus Stops' sets out guidelines in terms of reasonable walking distances to bus stops, however these are guidelines. Thus, if a couple of residences fall a few metres outside of this, they should not automatically be classified as inaccessible, much will depend on local circumstances. Equally this does not prevent the developer from seeking to exceed the minimum standards and thus demonstrate that their development exceeds accessibility expectations.

