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CHAPTER 1 INTRODUCTION

The purpose of this booklet is to provide assistance with the planning and design of bus stops within Greater Manchester. This booklet is intended for anyone who is actively involved in the design, planning, funding of infrastructure and facilities to make bus travel more attractive.

The designs in this booklet were developed following a wide consultation and research exercise undertaken in 2000 by GMPTE at a specially constructed bus stop test site in Hattersley, Greater Manchester. As a result of this many bus stops were upgraded as part of the Quality Bus Corridor (QBC) programme. During the construction of these upgraded stops, improvements have been suggested that are reflected in the advice in the booklet.

All of the design information will be subject to a process of continuous development to reflect the changing requirements of passengers and bus operators and to reflect legislative changes, particularly those concerning disabled access.

If you have any comments or suggestions regarding the contents of this document, please contact

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2.0 BUS STOP AUDITS

Prior to any development work on bus corridors, GMPTE undertakes an audit of all existing bus stop facilities.

2.1 SITE VISITS

Where an existing bus stop is being upgraded and is not moving, GMPTE and the Highway Authority need to visit the site to assess what work is needed.

2.2 BUS STOP SITE INSPECTIONS

Bus stop site inspections are organised by GMPTE for new stops or where a stop is proposed to be moved. These site inspections should involve the following personnel:

- GMPTE District Service Manager or Route Development Officer
- Representative of the appropriate highway authority
- Representative of Greater Manchester Police
- Representative of shelter contractor if shelters are to be affected.

Bus operators must have an input into the assessment work because changes to bus stop positions could have an impact upon bus operations. An example of this is if additional stops are introduced.

Each bus stop is evaluated with regard to sight lines, pedestrian safety and any operational problems for buses using the stop, for example access and egress. At the stop all factors affecting the stop, such as conflicting demands for road space and the needs of frontagers should be considered.

2.3 BUS STOP DESIGN DRAWINGS

Once all the relevant bus stop locations have been agreed, a design should be agreed for each bus stop.

It is recommended that the drawings are produced at 1:500 scale and include the following information:

- Title block showing the road or street name and GMPTE bus stop reference number
- Proposed location of each bus stop pole and plate
- If a shelter is to be erected, the proposed location should be shown, the shelter size and whether or not the shelter will include advertising.
- Location of existing or proposed controlled or uncontrolled crossing facilities, dropped crossings and refuges
- Location of existing or proposed lamp columns with reference numbers
- Location of any other street furniture
- Direction of travel
- Ducting arrangements and the position of the electrical feed pillar.
3.0 BUS STOP CONSULTATION

The introduction or relocation of bus stops and shelters can be highly controversial amongst residents and owners of business.

Consultation with residents and commercial people has to be undertaken before new stop positions can be established and new shelters can be installed.

The process followed by GMPTE involves:

- Letters sent by GMPTE to properties located within 25 metres of proposed bus stops and shelters. Each consultation letter includes an explanation of the proposals.
- Letters to ward councillors
- Objections received from the consultation reviewed by GMPTE
- A final decision on whether to proceed with a move or shelter made by a Senior Manager from GMPTE.

3.1 BUS STOP USAGE SURVEYS

Where necessary, GMPTE arranges for bus stop usage to be surveyed. Stops are surveyed over a minimum 12-hour period. The GMPTE policy is that proposals to introduce shelters should only be taken forward if at least 40 passengers use the bus stop within the surveyed period.

On Quality Bus Corridors, the aspiration is, where possible, to have a shelter at every stop. Bus stop usage surveys are not carried out therefore on these routes.
4.0 BUS SHELTERS

GMPTE has a number of factors to consider when looking to site a passenger waiting facility. These include whether a shelter is to be provided, what type and size of shelter and where to site any facilities.

4.1 FOOTWAY WIDTHS

During site inspections it is decided which type and arrangement of a shelter is suitable for proposed stops.

The recommended minimum footway width required after the installation of a shelter is 1.8 metres.

Where a shelter is erected with the screen to the rear of the footway, a minimum gap of 300mm is required between the shelter and the back of the footway, to allow for cleaning and maintenance.

4.2 ADVERTISING SHELTERS

Advertising revenue is a source of income to help to pay towards the cost of shelters.

Proposals to erect advertising shelters are made by JC Decaux, based upon commercial decisions and subject to safety requirements being met, especially in relation to sight lines.

Advertising shelters require planning consent and this needs to be taken into account when implementation work is programmed. JC Decaux is responsible for submitting planning applications to the relevant local authorities. Decisions on planning consent typically take 8 weeks.

Advertising shelters incorporate a double sided, internally illuminated advertisement panel.

The minimum footway width for an advertising shelter is 3.1 metres; the minimum width of the shelter roof is 1300mm.

4.3 GLASS AND POLYESTER SHELTERS

The standard material for the screens in a shelter is glass. At sites that are vandalised frequently, opaque polyester screens may be installed as an alternative.

4.4 LIGHTING

When considering the lighting of shelters, the power supply is a factor. Lighting is provided by fluorescent tubes controlled by a photoelectric light sensor.

GMPTE has installed a number of solar powered shelters. These can obviate the need for electrical connections in future.
4.5 SEATS IN SHELTERS

Seats are provided as standard within shelters when side panels are fitted.

4.6 SHELTER BASES

Shelters have to be erected on a base that is installed beneath footway level.

It is critical therefore, that work at bus stops are programmed carefully so that shelter bases are installed before any footway works are undertaken. See paragraph 4.8 on ducting.

4.7 ELECTRICAL SUPPLY PILLARS

GMPTE recommends that an electrical supply pillar with at least 2 electrical feeds be provided at each bus stop where a shelter exists or one in proposed. One of the feeds can be used for lighting and the other can be used for ancillaries.

Although there is a cost involved with the provision of an electrical supply pillar, in the long term the provision of this equipment is recommended to save time, money and the involvement of an additional party if works are undertaken at a bus stop in future. For example, it can take utility companies up to 3 months to connect or disconnect an electrical supply at a stop that is not equipped with an electrical supply pillar. This can delay implementation works that are proposed at bus stops and the utility company make a charge every time they make a connection or disconnection. Care must be taken that the feeder pillar does not affect the minimum 1.8-metre footway clearance necessary and does not obstruct the opening of the advertisement case.

4.8 DUCTING FOR BUS STOPS

It is recommended that ducting be installed before any new footway materials are laid down at bus stops.

4.9 LIFTING OF SHELTERS

Shelters may need to be raised in height, or “lifted”, to allow raised platforms to be constructed. Most shelters may be able to be lifted by 600-700mm. However it is important that the shelter provider and GMPTE are involved at the early planning stages to advise and co-ordinate the works to lift shelters.
5.0 **THE BUS STOP PLATFORM**

During 2000, a special test site was set up by GMPTE at the former bus interchange site at Hattersley Railway Station. The purpose of this site was to evaluate a range of proprietary kerbs and footway materials and to undertake an extensive consultation exercise with users, especially people with disabilities.

A recommended general arrangement for footways at bus stops was devised and is shown on figure 3. Essentially it consists of:

- A band of colour along the kerb edge
- A rectangular block of colour at the boarding point
- A band of colour at the end of each bus stop at right angles to the kerb
- The remaining areas within the stop boundaries to be surfaced in a contrasting coloured textured material

5.1 **ACHIEVING CONSISTENCY AND CHOICE OF COLOURS FOR FOOTWAY SURFACES**

For consistency, it is recommended that the colours and textures of the footways at bus stops are the same throughout each corridor.

The reason for installing coloured pavements at bus stops is to make them more prominent. Introducing new footway materials improves the character, appearance and overall attractiveness of the bus stop environment. As more stops are upgraded around Greater Manchester, the value of having a standard template is increased.

A wide range of preferences was expressed by the consultees. In relation to the choice of colours, there was a strong preference for buff and russet. The use of a deeper red than russet was considered by partially sighted people to be unsuitable. One of the reasons for this was that deep red is already used for pedestrian crossings and could potentially encourage partially sighted people to walk onto the carriageway.

5.2 **TACTILE SURFACES**

There is no national standard tactile surface to highlight the edge of kerb at bus stops and for this reason GMPTE recommends that no tactile surfaces are introduced at bus stops. However GMPTE recommends that the textures of the contrasting coloured footway surface material, the russet red and buff, should differ from the prevailing surface materials if possible.
5.3 RECOMMENDED KERB HEIGHTS & TYPE OF KERB

It is recommended that the minimum kerb height at bus stops is 160mm. Research undertaken on behalf of GMPTE in 2004 suggested that there was no benefit from installing specialist kerbs. On corridors where proprietary kerbs have been used as standard, these kerbs should continue to be used. On other stops standard kerbs set at 160mm height should be used.

Kerbs that are 220mm high can provide level access in limited situations, but buses can be damaged if they overhang a kerb that is this high. 220mm kerbs should only be provided at bus stops where buses always have clear, unimpeded access to the boarding point.

Proprietary kerbs are manufactured in 1-metre units, standard kerbs are usually 900mm.

5.4 BUS LAY-BYS

Bus drivers can experience difficulties when pulling out of lay-bys to rejoin the traffic flow. This can cause delays to the bus service and may lead to bunching of buses.

It is recommended that lay-bys are not provided except at timing points. Full depth lay-bys, over 1.5metres wide, should not be provided at bus stops unless there are specific operational or safety reasons so to do. For example they may be necessary where there are a number of routes serving a double bus stop within a bus lay-by, to allow buses to overtake a stationary bus without having to enter the general traffic lane or to prevent obstruction of trams where Metrolink runs on street.

5.5 RAMPS ON FOOTWAYS LEADING TO BUS STOPS

The recommended ramp gradient on footways is 1:20 and the maximum acceptable gradient is 1:12 (provided the gradient is over a short distance of approximately 1 metre).

5.6 LITTERBINS

The provision of a litterbin at each bus stop can help to keep the bus stop environment tidy and promote an image of quality. It is desirable, therefore, to have a litterbin in the vicinity of each stop. If this cannot be achieved, it is recommended that priority is given for free standing litterbins that are situated in busy town and district centres, or at bus stops sited near places that generate litter such as hot food take away shops.

Care must be taken to ensure that freestanding litterbins do not create an obstruction to pedestrians and that they do not obscure advertising panels on shelters. Litter bins are provided at the discretion of the Local Authority, who need to supply, install, empty and maintain the litterbins.
5.7 BUS STOP POLES AND PLATES

The bus stop pole and plate perform a number of functions including, most importantly, helping the bus to pull up at the same position when picking up and setting down passengers. The bus stop pole and plate helps to show the public where the bus stops along the road.

GMPTE’s preferred location for the bus stop pole is at the kerb edge rather than at the back or middle of the footway. This is where it is most prominent. See figures 3, 4, 5, 6, and 7.

It is recommended that the bus stop pole is 400mm from the top of the ramp and 600mm back from the edge of the kerb. Care must be taken to ensure that street furniture does not obstruct the opening advertising panels on shelters; 2.3-metre clearance is recommended.

5.8 RECOMMENDED LENGTHS OF RAISED KERBS AT BUS STOPS

It is recommended that the following minimum lengths of raised kerbs be provided at bus stops:

- 4 metres at lightly used or alighting only stops
- 7 metres at single bus stops where only one bus is scheduled to arrive at any one time and a standard shelter is provided
- 16 metres at a double bus stop.
- 26 metres at a double bus stop used by articulated buses.

5.9 FOOTWAY BUILD OUTS (BUS BOARDERS)

Bus boarders project into the carriageway and are a space efficient way to ensure a bus can park parallel to the kerb whilst minimising the amount of lost parking. The recommended minimum length of raised kerbs at bus boarders is 4 metres. Where a shelter is provided, the minimum length of raised kerbs is 7 metres. At these locations the length of clearway can be reduced to the length of the boarder.

5.10 DISCOURAGING PARKING AT BUS STOPS

Indiscriminate parking can create serious problems at bus stops: Buses may not be able to dock correctly at the stop, forcing passengers to walk in the carriageway to reach the bus. This can cause real problems for disabled passengers or those with prams and pushchairs.

It is recommended that all bus stops are protected by a 24-hour Bus Stop Clearway order, or where specific site conditions prevent this at least to cover the times when bus services are in operation.

5.11 RED COLOURED CORDON CARRIAGeway MARKINGS FOR BUS STOPS

The use of red cordon markings is recommended around yellow bus stop box clearway markings. These types of marking are common in Greater Manchester and have proven to be very effective at highlighting the bus stop area and in deterring indiscriminate parking. See figure 8.
5.12 RECOMMENDED LENGTH OF BUS STOP MARKINGS

It is recommended that the minimum length of bus boxes at bus stops is 23metres. This is made up of a 5m exit taper and 18m for straightening and entry. Ideally the length should be 33m, consisting of a 5m exit taper, 15m straightening and a 13m entry taper.

For articulated buses, the length of the bus stop clearway should be 35m minimum, consisting of a 5m exit taper and 30m for straightening and entry. Ideally the bus stop clearway length should be 45m, consisting of a 5m exit, 24m straightening and a 16m entry.

These ideal distances can be reduced where the approach is protected by zigzag lines or a junction mouth. However as loading can occur on other waiting restrictions, these should not reduce the minimum distances stated above.

Where on street parking is permitted on the exit to a bus stop the exit taper should be extended to up to 9m to reduce rear overhang of the bus. This is a site-specific decision that should be taken when a bus stop is upgraded.

5.13 POSTITION OF THE YELLOW BUS STOP BOX CARRIAGEWAY MARKING IN RELATION TO THE BUS STOP POLE

The yellow bus stop box carriageway marking is mandatory where a clearway is in operation. It deters parking, highlights the bus stop and makes it more prominent. It is recommended that the front of the yellow bus stop box be painted at least 5 metres downstream from the bus stop pole.

5.14 LIGHTING OF THE BUS STOP ENVIRONMENT

It is recommended that the bus stops be illuminated to the highest possible standards. If new lamp columns are introduced, care must be taken to ensure that they do not obscure advertising panels on shelters and that they do not create an obstacle for pedestrians.
## APPENDIX I  BUS STOP DRAWINGS

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Figure: 3
Recommended general arrangement of the footway and kerbs for bus stops.

Date: July 2007
Figure: 3b

Recommended general arrangement of the footway and kerbs for bus stops with forward facing queues.

Date: July 2007
Figure: 4

Recommended general arrangement of the footway and kerbs at lightly used and alighting bus stops.

Date: July 2007
Figure: 4b

An example of a layout for the footway and kerbs at a bus stop with a forward facing queue, with a shelter that is sited with the screen next to the kerb.

Date: July 2007
Figure: 5
An example of a layout for the footway and kerbs at a bus stop with a shelter that is sited with the screen next to the kerb.

Date: July 2007
All sides of shelter require 300mm for maintenance and access.

**Figure: 6**
An example of a layout for the footway and kerbs at a bus stop with a shelter that is sited with the screen at the rear of the footway. The width of the footway in this example is 3200mm.

**Date:** July 2007
Figure: 7
An example of a layout for the footway and kerbs at a bus stop boarder. Where the footway has been extended into the carriageway (bus stop boarder).

Date: July 2007

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Figure: 8
Recommended carriageway markings for bus stops.

Date: July 2007