Part 3

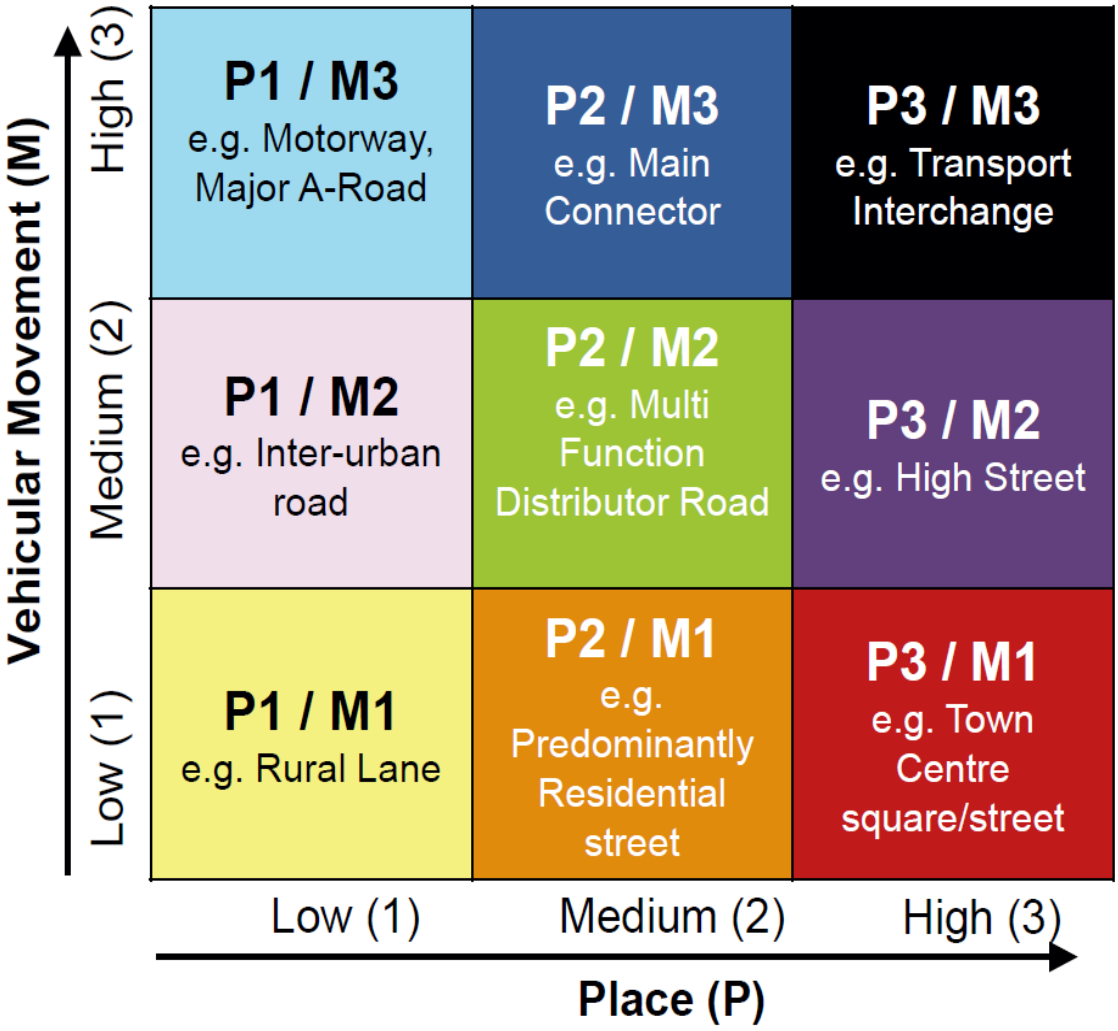
Chapter 8 – Planning Highway Links

1 Introduction

1.1 This chapter sets out the principles of highway layout primarily focusing on geometric design of highway links for motorised and non-motorised users.

1.2 LTP4 is the primary influence in applying design standards within Hertfordshire. In particularly Policy One; Transport User Hierarchy and Policy 13: New Roads and Junctions.

1.3 The types of highway links within Hertfordshire are discussed in Part 2 Chapter 5: Providing for Place & Movement both in terms of their 'Place & Movement' function and their status within the Road Hierarchy



1.4 All new or improved highways will be assigned an appropriate character selected from Hertfordshire's 'Place and Movement' matrix and agreed by HCC through the Planning Application process.

1.5 The performance of a highway link is interrelated with its junctions. Therefore, the two functions (link and junctions) should be considered together to avoid highway links and junctions becoming motor vehicle dominated or the provision of Active Travel measures becoming disjointed.

1.6 As indicated in Part 1, Chapter 8: Standards & Departures, the requirements set out in this guide take precedence in situations where this guide differs from other standards.

1.7 Scheme Promoters shall adopt Recommended standards, wherever feasible, particularly for the provision of new facilities, as their use is most likely to contribute positively to the objectives of LTP4 and sustainable and responsible development.

1.8 Acceptable Standards may be necessary where improvements are required within existing highway boundaries.

1.9 Designing facilities below Acceptable Limits will result in a poor standard of provision and constitutes a 'Departure from Standards'. The scheme promoter should submit the scheme proposal to a Design Review Panel so that the overall objectives of the scheme can be reviewed and potential alternative solutions can be discussed.

2 General Geometrical Design Requirements for Place & Movement

2.1 HCC's highway geometrical design standards for highway links with provision for motorised vehicles have been primarily derived from Manual for Streets (MfS) and Design Manual for Roads and Bridges (DMRB) and applied to the different Place & Movement Categories as appropriate.

2.2 Roads and streets shall be designed to the standards set out for each P&M category. **Where the carriageway is contiguous to the provision for active travel modes then the more onerous design parameters will be used.**

2.3 The scale and configuration of the **provisions for walking and cycling** shall be determined in accordance with Part 3, Chapter 3: Planning for Walking and Part 3, Chapter 4: Planning for Cycling.

2.4 **Appropriate speed management** should be achieved by designing to this guidance document.

- Master planning should have created a proposed environment in which vehicle speeds will be managed naturally within the resulting development or scheme so as to avoid the need for supplementary traffic calming features in new highways.
- On new streets speed can be managed by using curving alignments, carriageways of appropriates widths, landscape and/or different materials.
- Minimum horizontal radii are specified to aid speed management and carriageway widths are specified as narrow as possible to aid speed management and to give higher priority to the provision for active travel within the highway.

2.5 **Carriageway widths** are set out in the design parameters tables below.

- The widths will still need to allow for the passage of refuse vehicles, emergency vehicles and buses in appropriate locations and the routing should be agreed at the Master planning Stage.
- Scheme promoters should not provide wide carriageways and then install measures to reduce speeds. Providing wider carriageway to accommodate loading or parking is acceptable but the areas should be clearly defined so that

when not occupied by vehicles they continue to serve their speed management purposes (see Part 4: Chapter 8: Speed Management features).

- Where necessary, allowance shall be made for the additional space required for the swept path of turning vehicles. Widening of the carriageway on small radius curves may be required to allow easy access for larger vehicles and shall be confirmed by vehicle tracking.
- Additional carriageway width may be required in a side road at a junction with a higher category road with a higher speed limit. This is to allow for the safe entry and exit of traffic from the side road, without causing an unnecessary obstruction or hazard on the major road but bearing in mind that too large an access will encourage high entry and exit speeds. Further advice on this is provided in Part 3, Chapter 9: Planning for Highway Junctions.

2.6 **Visibility requirements** as set out in the design parameters tables follow the principles set out in MfS and CD109 as appropriate.

- On tighter curves the preference is to create splays by securing additional land rather than adopting shallower curves.
- If a new development or scheme is being developed in hilly or undulating environment vertical visibility shall be checked and confirmed pre-application. Forward vertical visibility is the primary consideration and then road user comfort.
- Allowance shall be made for the growth of trees and shrubs.
- The juxtaposition of signage, street lighting and planting and their impact on visibility shall be considered.

2.7 **The application of superelevation** may be required for roads designed to 70kph or greater on tight radii to avoid adverse camber, where this might lead to loss of control incidents, particularly in wet or icy conditions.

- On small radius curves, the application of superelevation may be required to avoid severe adverse camber that may be hazardous for cyclists and cause discomfort, particularly to users of passenger transport vehicles.
- However, the use of superelevation in urban environments should be avoided if it is likely to encourage inappropriate speeds around a bend.
- Guidance on the application of superelevation is given in the DMRB and CD109 as appropriate.

2.8 **The crossfall** of a carriageway is governed by the need to remove water from the running surface of the road to the drainage channels and should be 2.5%. The carriageway cross section should generally be cambered, with the high point at the centreline. The recommended crossfall for Active Travel Links is between 1% and 2%.

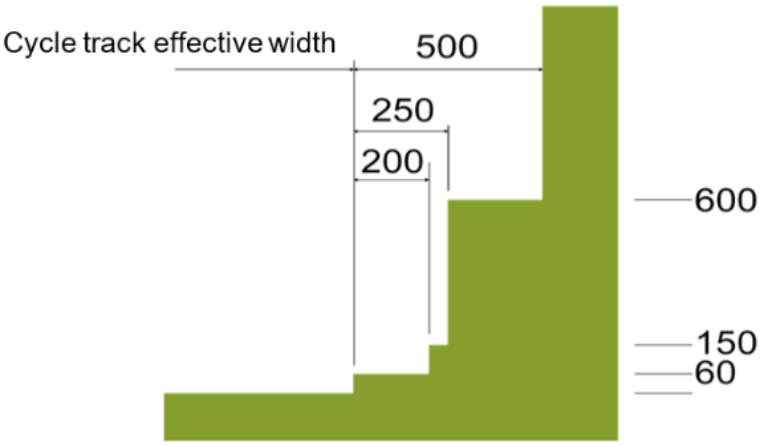
2.9 **The minimum longitudinal gradient** is governed by the need to provide adequate drainage of the surface and shall be greater than 1%.

2.10 **The maximum longitudinal gradient** for motorised vehicles is reliant on factors such as increased braking distances downhill, problems for HGV's or buses travelling uphill and shall not exceed 5%.

2.11 **Parallel or more direct routes for walking and cycling shall be provided where the carriageway design cannot meet the standards for Active Travel Links**. This is to avoid the carriageway dictating the gradients for walking and cycling.

2.12 **Horizontal clearances** set out in the design parameters tables for each P&M category below are measured from the nearest edge of the running lane to the particular obstacle in question.

- If security, garage or gate facilities are provided on residential premises, they shall be sited at least 6m from the highway boundary or back of footway as appropriate. This is to avoid waiting vehicles obstructing traffic, cycles and footway users passing the site. This may be reduced to 5.5m if the gates or doors do not open outwards.
- The minimum clearances to trees and shrubs shall be the greater of the minimum clearances to obstructions set out in the tables below and the following dimensions:
    - Shrubs used in edge planting not to be planted within 0.5m from the edge of the carriageway
    - Medium size trees (tree girth less than 450mm) and pollards (such as Platanus, Tilia etc.) no closer than 1m
    - Larger, un-pollarded trees (tree girth greater than 600mm) no closer than 2m unless otherwise agreed by HCC
- Lamp columns should be located at the back, but within the footway wherever possible, or positioned in the easement strip where no footway exists.



- Additional widths are required to maintain effective widths along cycle tracks at fixed objects as follows, in accordance Part 3, Chapter 4: Planning for cycling:

Footway Boundary Clearances	
Up to 1.2 m high	Above 1.2 m high
0.25 m	0.5 m

- The boundary clearance for a footway is the required distance between each edge of the footway and any continuous fixed vertical obstruction such as a wall, fence and vegetation. These clearances are required **in addition** to the total widths in the Active Travel Links table at para 4.30, below.

2.13 **Vertical clearances** are taken from the highest point on the running lane to the lowest point on the overhanging obstacle. The lowest point on the obstacle shall be measured at any point that is over the carriageway or within a horizontal distance of 500mm of the carriageway.

- The headroom to structures over the highway (such as bridges, lamp columns or archways) where there will be motorised traffic should be at least 5.3m.
- Structures over access roads to car parks or shared areas may be lower. Assessment should be made on a case-by-case basis.

2.14 **Geometric design parameters from drainage requirements** include:

- Footways, cycleways, shared-use paths and verges should generally drain onto the adjacent carriageway.
- SuDS features shall have slopes no steeper than 1 in 3 to ensure they are self-supporting under most geological and weather eventualities
- Trees and shrubs shall not be planted within highway SuDS features that have slopes steeper than 1 in 5

- Note that SUDS are an additional spatial requirement and should be provided in addition to minimum verge requirements
- A berm, or grass filter strip of 1m minimum width is required between any hardscape and the slope of a SuDS feature.

2.15 **Verges** should not generally be provided between the back of a footway and the highway boundary where there will be motorised traffic.

2.16 **Geometric design parameters from bus requirements** include:

- New highway design should negate the requirement for the provision of bus laybys in most circumstances. They should only be required where it is expected that buses will lay over for timetabling purposes, or for highways designed for 40mph speed limits and above. The provision of bus laybys should only be considered necessary within the P1/M2, P1/M3, P2/M3 and the higher speed P2/M2 categories.
- Passive provision should be made for future installation of bus shelters at all bus stops on new highways. The Recommended width of footway at bus stops is 5m for P1, P2 & P3 categories up to 30mph speed limits, and the Acceptable Minimum is 3.8m. The Recommended width of footway at bus stops is 3.8 m for P1& P2 categories over 30mph speed limits is 3.8m and the Acceptable Minimum is 3.1m.
- Accommodating the supporting facilities required at bus stops which may include: shelter; seating; cycle parking; Real Time Passenger Information.
- The Recommended minimum width for exclusive Bus lanes and contraflow bus lanes is 3.5m with an Acceptable minimum width of 3.1m in 20mph areas only.
- The Recommended minimum width for bus lanes and contraflow bus lanes accommodating cyclists is 4.5m with an acceptable width of 4.0m
- Dedicated space for cycling should continue past bus and tram stops but it is essential that the needs of pedestrians are taken into account, particularly disabled people. Bus stop boarder and bus stop bypass arrangements may be used and should be designed in accordance with the guidance in LTN 1/20. Particular attention should be paid to the needs of people with disabilities and impairments and to the interactions between bus passengers and people cycling.

2.17 **Geometric design parameters from parking requirements** are described in detail within Part 4: Chapter 6: Designing for Parking. In summary:

- Recommended minimum footway width required for perpendicular cycle parking is 5.2m. (Acceptable Minimum of 4m)
- Minimum footway width required for parallel cycle parking is 3.6m
- Powered two-wheeler parking bays should be 2.5m x 1.5m
- Standard car parking space should be 6m x 2.5m
- Disabled parking bays should be 6.5m x 2.9m (plus 1m clearance)

- Recommended minimum separation between parking bay and cycle track is 1m (Acceptable Minimum of 0.5m)

3 P1/M1: Rural Lane

3.1 The vast majority of Hertfordshire's rural lanes are historical and do not conform to currently recognised standards.

3.2 The direct use of DMRB and the MfS (particularly DMRB) is not suitable for designing new, extended or diverted rural lanes and could give rise to unwelcome consequences such as an increase in motor vehicle dominance.

3.3 Scheme Promoters should look to take a risk-based approach recognising local character, the surrounding environment and usage of the local Highway Network considering the two standards and:

- Environmental Guidelines for the Management of Highways in the Chilterns, Chilterns Conservation Board (2009)
- Traffic in Villages: Safety and Civility for Rural Roads; A toolkit for communities. (2011) Dorset AONB Hamilton-Baillie Associates
- Design concepts for Zonal 40mph (e.g. New Forest)

3.4 In the absence of an obvious, appropriate design approach a Design Review should be sought in accordance with Part 1, Chapter 8: Standards & Departures.

3.5 The following Table sets out the geometric design parameters that will influence the design of P1/M1 rural lanes.

P1/M1

Minor road within rural setting (within countryside or within a hamlet or small village). Typically narrow roads, with widths under 5.5 m

Classification	Rural Local Distributor

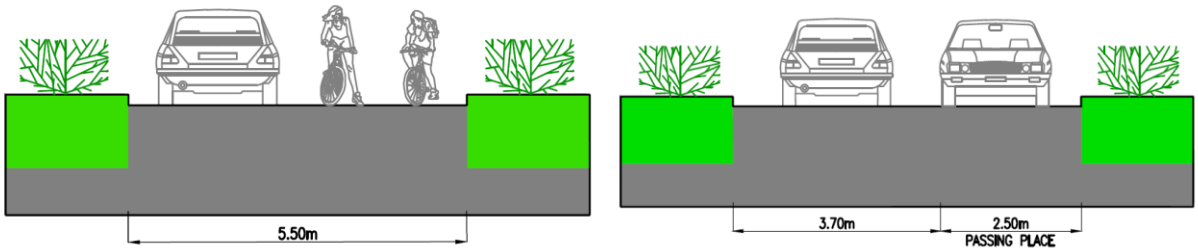
Characteristics affecting Geometric Design
Recognises and maintains local character, the surrounding environment and usage of the local highway network. Low vehicle trips with pedestrians and cyclists sharing carriageway Design speed no greater than 30mph (50kph) Local considerations for farm access/vehicles may require a wider carriageway Passing bay provision in single lane situations Verges accommodate places of shade, shelter and rest as appropriate. Consideration given to how verge overruns can be avoided

Walking Provision	On-road. Give consideration of whether walkers should be able to walk on the verge.
Cycling Provision	On-road
Provision for Passenger Transport	Not expected to be on bus route
Frontage access	Yes
Maximum Dwellings	40 per km
Other Access Forms	Simple bell-mouth
Gateway	Desirable
Junction Forms	Simple Junctions
Street Lighting	Unlit
Provision for Commercial Vehicles	HGV through trips discouraged. Area wide HGV restrictions may be appropriate
Car Parking	No provision or controls

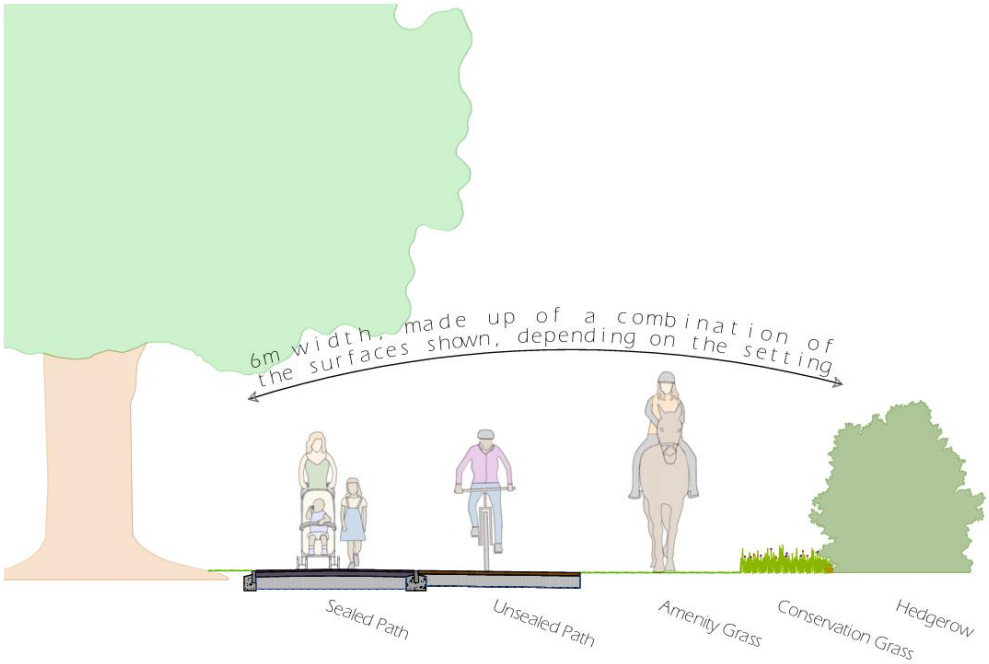
Geometric Design Parameters

Design speed:	70kph (40mph)
Min forward visibility:	120m @ 70kph
Junction spacing:	CD123
Carriageway width:	5.5m or 3.7m with Passing Places
Minimum horizontal curve (radius):	Not Specified
Reverse curves (min separation):	Not Specified
Superelevation	Only as a remedial measure
Max distance between speed restraints:	150m
Min K Value	DMRB (70kph)

3.6 The following illustrations show typical cross-sections for rural lanes:



4 P2/M1 Active Travel Links



4.1 Active Travel Links (ATLs) are provided within urban, semi-urban, semi-rural and rural settings for walking, cycling and potentially horse riding as non-motorised routes away from the County's road system.

4.2 Part 2 Chapter 5: Providing for Place & Movement sets out the formal status an Active Travel Link could have.

4.3 Scheme Promoters should have agreed with HCC the proposed formal status of the ATL at the Master Planning stage to understand the long-term maintenance responsibilities.

4.4 Whilst the landscape character may vary, the required design geometry for the links is consistent for all settings and for whatever their legal status is.

4.5 ATLs shall be of minimum 6m width made up from a permutation of the modules shown below depending on the setting and proposed usage.

Hedge	1m	1m
Wildlife margin	1m	1m
Amenity margin	1m	1m
Unsealed Surface	2m	-
Sealed Surface	2m	-

4.6 Additional 0.5m increments can be added to, or removed from, the module widths providing the following minimum 6m overall width is met.

4.7 As ATLs may be connecting locations traditionally served directly by all-purpose roads, it is possible that public utilities plant may need to be accommodated within ATLs. Public utilities shall not be laid longitudinally underneath unsealed or sealed surfacing and the ATL shall be wide enough to accommodate future access for safe utilities maintenance without closure of the ATL.

4.8 The provision for hedges shall be 2m width but could be 1m within the ATL width and 1m over the boundary, subject to the agreed maintenance regime.

4.9 An Amenity Margin shall be 0.5m minimum width and include scalloped edges where possible. The minimum width for equestrian usage shall be 3m.

4.10 A Wildlife Margin shall be 1m minimum width and include scalloped edges where possible.

4.11 Sealed and unsealed surfaces shall each be minimum 3m width.

4.12 The requirements for cycling shall generally dictate the ATL design standards for:

- The modular widths for segregated and unsegregated cycle tracks
- Horizontal radii & vertical curves
- Stopping sight distances and visibility splays

4.13 ATLs can be constructed with either a crossfall across the whole paved width or a central camber to help surface water to clear.

4.14 The Recommended limits for crossfall or camber are 1% minimum and 2% maximum, with an Acceptable Limit maximum of 2.5%. A steeper crossfall will constitute a Departure from Standards because it could cause wheels to slide in icy conditions and will only be considered where existing ground levels make it impractical to achieve the acceptable limits specified. Adequate drainage must be ensured, and particularly where shallower gradients are used.

4.15 People can cycle steep gradients that are fairly short but cannot maintain high levels of effort for longer distances.

4.16 The Recommended longitudinal gradients are 1% to 2%. Acceptable Limits and Absolute Limits (which constitute a Departure from Standards) summarised in the table at the end of this section are derived from the strictest needs of those walking or cycling.

4.17 Sections of minimum 5m length at a maximum incline of 1.67% (1:60) shall be required between sections with gradients steeper than 2%.

4.18 A landscape-led approach should be taken and absolute limits will only be considered where existing ground levels make it impractical to achieve the specified acceptable limits.

4.19 Adequate drainage must be ensured, and particularly where gradients less than 1% are proposed.

4.20 Where ramps in a zig-zag arrangement are required, horizontal curves should be provided at the ends of the ramp sections with a minimum outer radius of 5m, so that cyclists can maintain some momentum. Where this cannot be achieved, the ramp must be laid out so that it can be used by the Cycle Design Vehicle (see LTN 1/20)

4.21 Where a ramp may be used by both cyclists and pedestrians, gradients should be suitable for wheelchair users and other people with disabilities. It is preferable that ramps consist of a separate footway and cycle track.

4.22 Shallower gradients should be used where possible and the approach to the structure should be on the desire line, such as where a cycle track alongside a road is gently raised to bridge level.

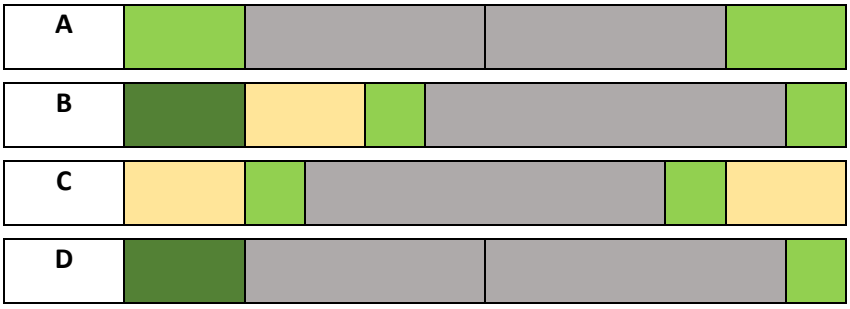
4.23 Ramps of 5% gradient and above should be divided into sections no longer than is shown in the table below, with intermediate resting places at least 2m long.

4.24 Stepped ramps should not be provided because they are inaccessible for cyclists and mobility impaired people. Wheeling ramps are only usable by some bicycles: they are not inclusive and should therefore only be used where an alternative route is provided that will cater for all users.

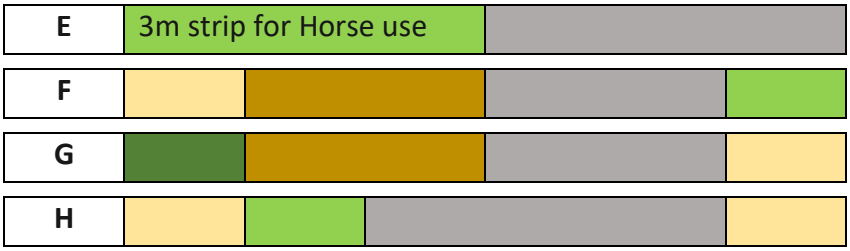
4.25 The ATL geometric design should also accommodate places of shade, shelter and rest as appropriate.

4.26 Urban ATLs are likely to require a sealed surface due to high level and type of everyday use, routes to employment, education, retail and public transport. Walking and cycling may be segregated depending on the expected level of use.

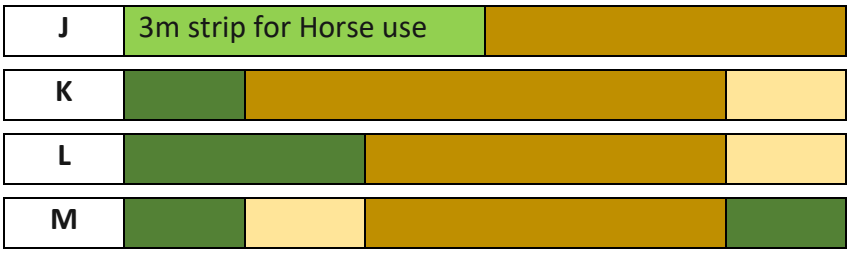
4.27 An ATL in an urban area may typically be composed of the modules as set out in examples A to D below:



4.28 An ATL in a semi-urban area may typically be composed of the modules set out in examples E to I below potentially involving a mix of sealed and unsealed surfacing. These can also apply to ATLs in semi-rural and rural areas.



4.29 An ATL in semi-rural and rural areas may typically be composed of the modules set out in examples J to M below involving unsealed surfacing.



4.30 The following tables set out the geometric design parameters for Active Travel Links

P2/M1 Active Travel Links

Non-motorised links within urban, semi-urban, semi-rural and rural settings for walking, cycling and potentially horse riding as non-motorised routes away from the County's main road system

Classifications	Public Bridleway Public Restricted Byway
Street Lighting	Part Night Lighting
Junction Forms	Simple Simple Priority
Gateway	Required to filter access Consider whether access for emergency vehicles is required
Minimum width for Walking	Recommended – 3.0m Acceptable – 2.0m

Minimum widths for cycling

Direction	Peak hour cycle flow	Recomm-ended width	Acceptable limit width at constraints	Absolute limit
1 way	<200	2.0m	1.5m	N/A
1 way	200-800	2.2m	2.0m	N/A
1 way	>800	2.5m	2.0m	N/A
2 way	<300	3.0m	2.0m	N/A
2 way	300-1,000	3.0m	2.5m	N/A
2 way	>1,000	4.0m	3.0m	N/A

Minimum widths for unsegregated shared use

≤ 300 Cycles per hour	3.0m
> 300 Cycles per hour	4.5m

Provision for Horses	3m width of amenity margin
Provision for Utilities	Public Utilities shall not be laid longitudinally underneath unsealed or sealed surfacing and the ATL shall be wide enough to accommodate future access for safe utilities maintenance without closure of the ATL
***Planning for Temporary* Works**	A minimum clear width of 3m shall be required for walking and cycling during periods of maintenance of any form

Design Speed

Gradient	Recommended	Acceptable Limits
General off-carriageway cycle tracks	30 kph	20 kph
Downhill >3%	40 kph	N/A

Minimum forward visibility

Design Speed	Recommended	Acceptable Limits
40 kph	47 m	N/A
30 kph	31 m	N/A
20 kph	17 m	N/A

Visibility Splay X-Distance

Recommended	4.5m	4.5m
Acceptable	2.4m	2.4m

Minimum link radii

Design Speed	Minimum horizontal radius	Acceptable Limits

40 kph	40 m	N/A
30 kph	25 m	N/A
20 kph	15 m	N/A
10 kph	4 m	N/A
Acceptable	2.4m	2.4m

Minimum Radii at Junctions	4m
Recommended Longitudinal Gradients	1% to 2%

Maximum Longitudinal Gradient

Gradient	Max Length: Acceptable Limits	Max length: Absolute Limits (departure from standards)
2.0%	150m	250m
2.5%	100m	160m
3.0%	80m	110m
3.5%	60m	80m
4.0%	50m	65m
4.5%	40m	50m
5.0%	N/A	6m
6.0%	N/A	5m
7.0%	N/A	4m
7.5%	N/A	4m

Minimum Sag K Value

Minimum Sag K Value	Gradient ≤ 3%	Gradient >3%
Recommended	5.0	7.5
Acceptable	3.5	5.0

Minimum Crest K Value	6.0

Vertical Clearances

Vertical Clearances	Minimum	Minimum at Obstruction
Maintenance Vehicle Access	3.5m	3.5m
Equestrian	3.4m	2.8m
Walking & Cycling	2.7m	2.7m

5 P2/M1: Sustainable Travel Links (STLs)

5.1 Sustainable Travel Links provide connections within urban, semi-urban, semi-rural and rural settings, as appropriate, for:

- Passenger Transport
- Active Travel modes
- Emergency services
- Limited local access for motor vehicles by design
- Limited local access for motor vehicles by regulation

5.2 The setting and proposed function of STLs are the key determinants in their geometrical design and, particularly any provision for buses.

5.3 STLs accommodating a busway and limited access for other motor vehicles may be designed for one-way shuttle working up to a length of 80m providing that access is signal controlled, access is enforced and a safe waiting area is provided at each end.

5.4 The Busway element of a STL shall be designed to the standards set out in the table at the end of this section, except where the provision of a busway is adjacent to the provision for active travel modes when the geometric design parameters for Active Travel Links shall where more onerous dictate the STL design standards for horizontal radii, vertical curves, Stopping Sight Distances, visibility splays and longitudinal gradients.

5.5 Busways shall have a minimum 0.5m separation from the provisions for walking and cycling.

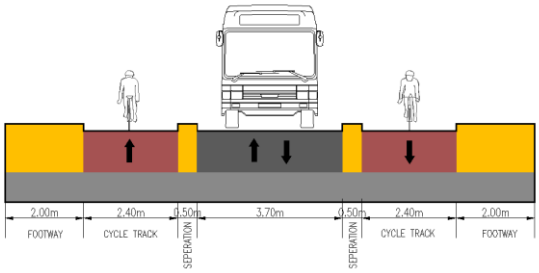
5.6 The scale and configuration of the provisions for walking and cycling shall be determined in accordance with the geometric parameters for Active Travel Links.

5.7 As STLs may be connecting locations traditionally served directly by all-purpose roads, it is possible that utilities' plant may need to be accommodated within STLs.

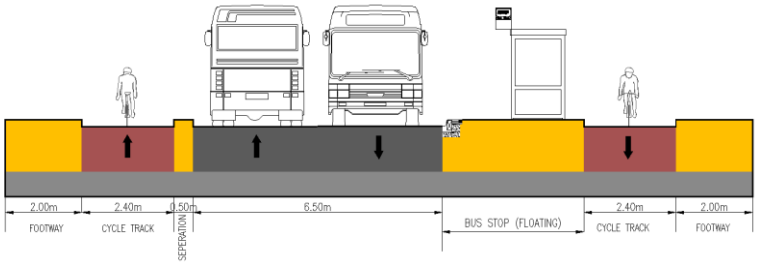
5.8 Underground utilities shall not be laid longitudinally underneath unsealed or sealed surfacing and the STL shall be wide enough to accommodate future access for safe utilities maintenance without closure of the STL.

5.9 STLs shall be designed such that a minimum clear width of 3m will remain available for walking and cycling during periods of maintenance of any form.

5.10 The following illustrations show typical cross-sections for 30mph STLs providing a busway (and potentially limited access for other motor vehicles) with contiguous provision for walking and cycling.



STL - Single Way Busway



STL – Two Way Busway

5.11 Cycle streets provide high quality walking and cycling connections in urban areas whilst providing limited access to motor vehicles.

Figure 1 Cycle street in Cardiff
(photo by Catriona Swanson)

5.12 These are streets designed so that cycles are the vehicles that dominate visually and motorised traffic is tolerated as a guest.

5.13 As such:

- The street design should encourage cyclists to assume priority with drivers of motor vehicles behaving as 'guests': road signs alone are inadequate.
- They should carry at least 1,000 cyclists per day including forecast traffic cycle growth, motor traffic flows should not exceed 500 vehicles per day and through traffic is typically not permitted (e.g. by using filtered permeability).
- The design should provide cyclists with a level of service comparable to that provided by an Active Travel Link.
- Sections over which a motor vehicle has to follow a cyclist should be limited to 400m.
- The design requires more than just traffic signs to show clearly that cycle traffic has priority over motor traffic. It can be helpful to construct the buffer between parking and carriageway in a different material, such as block paving, contrasting surfacing or imprint as agreed with HCC.
- Traffic signals should detect cycles and give them priority and quick phase change.

5.14 There are limited UK examples and design guidance for cycle streets to draw from, but the following European guidance will form a good starting point in a Design Review that should be held for such proposals in accordance with Part 1, Chapter 8: Standards & Departures prior to the submission of any planning application to establish feasibility and design parameters.

- 1.8 Cycle streets (europa.eu)
- https://transport.ec.europa.eu/document/download/d59fad69-c693-40dc-accc-d5fa082050fd_pl
- CROW, Design Manual for Bicycle traffic V12, V13 & V14

5.15 A Quiet Street can be designated or created where a cycle route uses a low speed quiet street (e.g. a residential road, a town centre back street or a road through a park). It should typically:

- Provide a convenient and direct route between key destinations
- Give cyclists priority on the road itself and right of way at junctions
- Carry no more than 2,5000 motor vehicles per day

5.16 Quiet Street features may include:

- 20mph speed limits

- Point closures with cycle gaps (modal filters, e.g. for removing rat-running traffic)
- Psychological and physical traffic calming
- Banned turns with exemption for cyclists
- Changed priorities
- Cycle priority at road crossings
- One way with contraflow cycling
- Surface markings

5.17 Creation and design of Quiet Streets should be made in collaboration with the local community, including residents and businesses, as part of a planned programme of engagement.

5.18 Master Planning may identify the rare requirement for a new STL or to repurpose existing rural lanes that do not need a busway but need to accommodate limited access for motor vehicles.

5.19 In such a case a Design Review shall be sought prior to the submission of any Planning Application to establish feasibility and design parameters.

5.20 The parameters set out in P1/M1: Rural Lanes will be of consideration in designing a STL for limited motor vehicle access, but with greater emphasis on the provision for active travel and on recognising the sense of ‘place,’ including reinforcing local character and biodiversity and providing for shade, shelter and rest.

5.21 The following table sets out the geometric design parameters for Sustainable Travel Links.

P2/M1 Sustainable Travel Links

Classifications	• Public Bridleway • Public Restricted Byway • All-purpose Unclassified road
Characteristics	• Short links providing direct, comfortable and convenient access between zones in urban and semi-urban areas for sustainable transport modes. • Other vehicles (if permitted) are considered as a guest. • Cycle streets provide high quality walking and cycling connections in urban areas whilst providing limited access to motor vehicles. • Quiet Lanes provide clean, pleasant and quiet routes for walking and cycling providing connection with nature including places of shade, shelter and rest.

Busways

STLs accommodating a busway and limited access for other motor vehicles may be designed for one-way shuttle working up to a length of 80m providing that access is signal controlled, access is enforced and provision is made for a safe waiting area at each end.

Speed Limit	30mph for interurban busways 20mph for urban and semi-urban busways

Geometric Design Parameters

Active Travel Provision	• Geometric parameters as per Active Travel Links • ATL parameters dictate the STL design standards for horizontal radii, vertical curves, Stopping Sight Distances, visibility splays and longitudinal gradients if adjacent to busway.

Busway Provision	**Busway (30mph)**	**Busway (20mph)**

Frontage access	No	No
Access control (restricted to authorised users)	Yes	Yes
Min forward visibility	51m	25m
Carriageway width (Single Way)	N/A	3.7m
Carriageway width (Two Way)	6.5m	6.2m
Minimum horizontal curve (radius)	44m	16m
Reverse curves (min separation)	20m	14m
Maximum distance between speed restraints	100m	80m
Min K value	6.5	2
Longfall - Carriageway	1% to 5%	1% to 5%
Minimum horizontal clearance to street lighting column	0.8m	0.8m
Minimum horizontal clearance to other obstructions	0.5m	0.5m
Minimum horizontal separation between carriageway and cycle track.	0.5m	0.5m

6 P2/M1: Predominantly Residential Street

6.1 The default is that residential P2/M1 streets are designed in accordance with Manual for Streets as 20mph Areas with cycling on street and tight radii (4m max) at junctions

6.2 The street environment should engender 85th percentile speeds of 22mph or lower, if on-street cycling is proposed.

6.3 Further relevant advice and ideas can be found in Street Design for All (2014) DfT, CIHT guidance, Civic Voice & Public Realm Information & Advice Network.

6.4 The following Table sets out the design parameters that will influence the design of P2/M1 residential streets.

P2/M1 Streets

Classifications	L2 Local Access
Characteristics	*Existing streets typically 30mph speed limit and with lighting* *New streets to be 20mph areas with road markings at junctions only – no centre lines*
Speed Limit	*20mph*

Active Travel Provision

Recommended Standard	• Footways & on-street cycling for new highways by street design • Segregated provision for ATLs & STLs
Acceptable Standard	• Footways & parking controls and traffic calming to achieve 85th percentile speeds of 22mph or lower to enable on-street cycling • Shared facilities for ATLs & STLs. Unless the ATL is on a main route on the local cycle network in which case it should be fully segregated. • Footways & contraflow cycle lanes
Notes	• Cycle Streets in urban areas • Wayfinding signage • Cycle parking • Places to stop and rest

Provision for Passenger Transport	Not expected to be on bus route
Street Lighting	Part Night Lighting
Maximum dwellings:	300 per km
Frontage Access:	Yes
Access Forms	4m radius bell-mouths Vehicle crossover for up to 2,000 PCU per day on the entry arm.
Junction Forms	Simple Priority

Gateway:	No
Pavement Materials	Bituminous
Planting	Standard specification trees, no need for enhancement
Provision for Commercial Vehicles	Consider how home deliveries and house moves are to be
Car Parking	No footway parking

Geometric Design Parameters

Design speed:	20mph
Design Vehicle	Max 11m refuse vehicle. Allow to swing out over centreline when turning.
Min forward visibility:	33m
Junction spacing:	20m opposite 33m adjacent

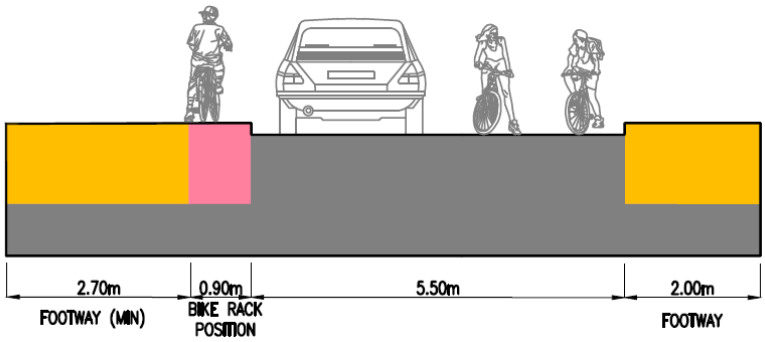
Minimum Footway width	**Total**	**Effective**
Recommended	3.1 m	2.6 m
Acceptable	2.0 m	1.5 m

Minimum Footway widths including cycle parking	**Perpendicular**	**Parallel**
Recommended	5.2m	4.0m
Acceptable	4.0m	3.6m

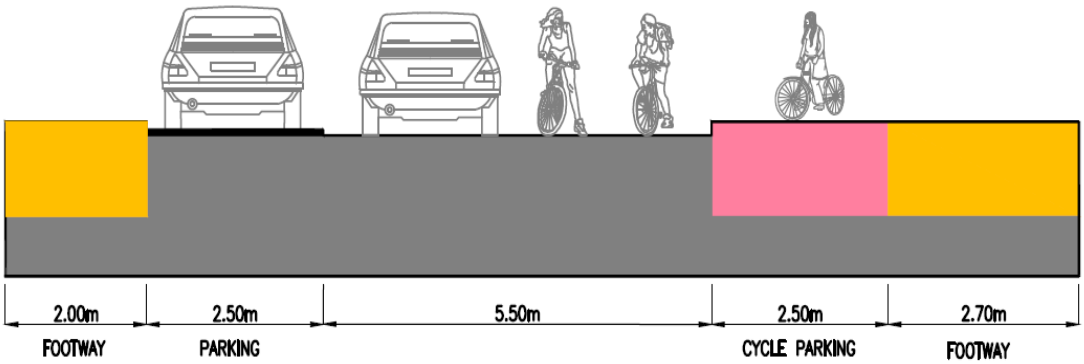
Minimum Cycleway width	See Active Travel Links
Minimum cycle lane width	2.0m
Carriageway width:	5.5m
Minimum horizontal curve (radius):	40m

Reverse curves (min separation):	17m
Super elevation	N/A
Max distance between speed restraints:	70m
Min K Value	2
Longfall - Carriageway	1% to 5%
Longfall – Active Travel provision	See Table for Active Travel Links
Minimum horizontal clearance to street lighting column	0.8m
Minimum horizontal clearance to other obstructions	0.5m
Recommended minimum horizontal separation between carriageway and cycle track. (Acceptable)	0.5m (0) 2m adjacent to a Blue Badge parking bay

6.5 The following illustrations show typical cross-sections for residential streets



Residential Street (with space for cycle parking) - Cycle parking parallel to kerb



Residential Street (Local access) (with space for car and cycle parking)
Cycle parking perpendicular to kerb

6.6 The following illustration from Manual for Streets shows the relationship between the minimum trafficked carriageway width and the actual carriageway width which is dedicated (or repurposed) for other uses, such as parking.

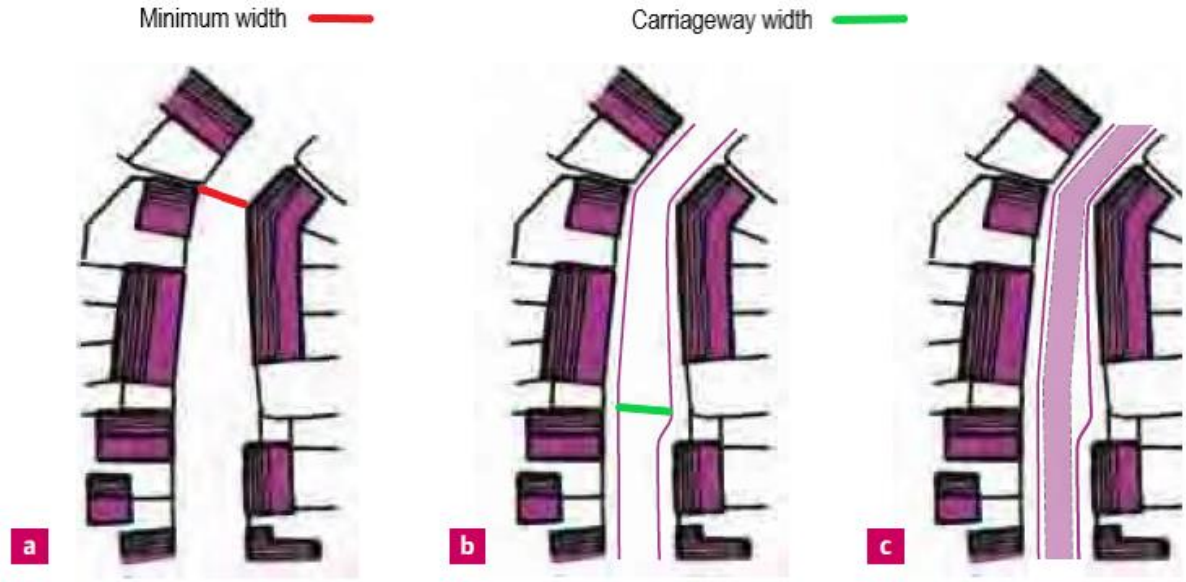


Figure 7.4 Left to right: (a) the buildings and urban edge of a street help to form the place; (b) the kerb line can be used to reinforce this; and (c) the remaining carriageway space is tracked for movement and for the provision of places where people may park their vehicles.

7 P2/M2: Residential Distributor Roads

7.1 Design codes for P2/M2: Residential Distributor Roads are:

- DMRB for Main & Secondary Distributor
- MfS for L1 Local Distributor and L2 Local Access

7.2 P2/M2 is the minimum standard for scheduled bus services in new developments and these roads should not be cul-de-sac to motor vehicles.

7.3 The following Table sets out the design parameters that will influence the design of for P2/M2: Residential Distributor Roads.

P2/M2 Residential Distributor Roads

Classifications	Main Distributor Secondary Distributor L1 Local Distributor L2 Local Access
Characteristics	Existing multifunctional inner urban/suburban roads, typically A, B or C roads often on bus routes, connecting different parts of an urban settlement and non-residential access road including to and within industrial estates. P2 /M2 also connect to P1/M3 and P2/M3 road category types within an urban setting.

Speed Limit

Main & Secondary Distributor	40mph
L1 (Local Distributor)	30mph
L2 (Local Access)	20mph

Active Travel Provision

Recommended Standard	Segregated footways & cycle track Segregated Shared Use Footways & Stepped Cycle Track
Acceptable Standard	Footways and Light segregation or cycle lanes for existing highways with constrained widths. Footways and on-street cycling where motor traffic 85th percentile speeds of 22mph or lower are achieved and if parking controlled for L2.
Notes	Signal Controlled Crossings Zebra & Parallel Crossings for L1(Local Distributor) & L2 (Local Access) Bus stop bypasses or bus stop boarders

	Direction Signage Priority at side roads.

Provision for Passenger Transport	Bus lanes Bus Priority at Junctions Bus stops & RTPI Potentially laybys on Main / Secondary Distributors for safety purposes At least passive provision for shelters, seating & cycle parking.
Frontage access	Not normally
Maximum Dwellings:	-
Other Access Forms	-
Gateway	None

Junction Forms

Main & Secondary Distributor	Continental / Compact roundabouts Signal Junctions Priority Junctions Ghost Islands
L1 Local Distributor L2 Local Access	Continental / Compact roundabouts Signal Junctions Priority Junctions

Street Lighting	Part Night Lighting
Pavement Materials	Bituminous
Planting	Standard specification trees, no need for enhancement

	No planting in SUDs features with slopes steeper than 1:5
Provision for Commercial Vehicles	-
Car Parking	Restricted / Controlled on-street parking
Drainage	SuDS features shall have slopes no steeper than 1 in 3 A berm, or grass filter strip of 1m minimum width required between any hardscape and the slope of a SuDS feature

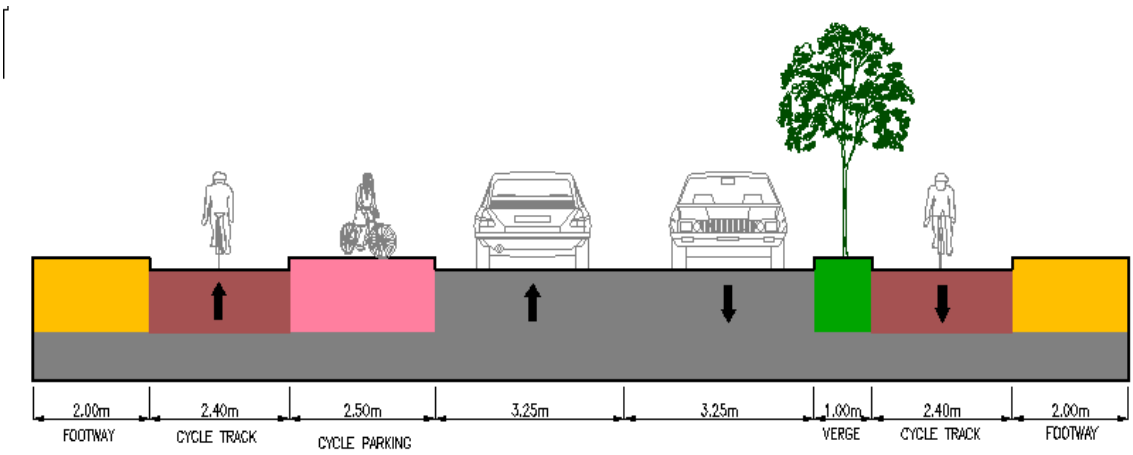
Geometric Design Standards

Road Hierarchy Designation	**Main & Secondary Distributor**	**L1 Local Distributor (30mph)**	**L2 Local Access Road (20mph)**
Min forward visibility	120m	43m	25m
Junction spacing	CD123	30m opposite 43m adjacent	20m opposite 45m adjacent
Carriageway width	7.3m	6.5m	6.2m
Minimum Recommended Footway width (Total / Effective)	2.6m / 2.6m	3.1m / 2.6m	3.1m / 2.6m
Minimum Acceptable Footway width (Total / Effective)	2.0m / 2.0m	2.0m / 1.5m	2.0m / 1.5m

Minimum Footway widths including cycle parking	Recommended	5.2m Perpendicular	4.0m Parallel
Minimum Footway widths including cycle parking	Acceptable	4.0m Perpendicular	3.6m Parallel
Minimum Footway widths at Bus stops	Recommended: 5.0m Acceptable: 3.8m	Recommended: 5.0m Acceptable: 3.8m	Recommended: 5.0m Acceptable: 3.8m
Minimum Cycleway width	See Active Travel Links	See Active Travel Links	See Active Travel Links
Minimum Cycle lane width	Recommended: 2.0m Acceptable: 1.5m	Recommended: 2.0m Acceptable: 1.5m	Recommended: 2.0m Acceptable: 1.5m
Minimum horizontal curve (radius)	DMRB standard	44m	16m
Reverse curves (min separation)	DMRB standard	20m	14m
Transition Curves	DMRB standard	Not applicable	Not applicable
Maximum distance between speed restraints	Not applicable	100m	80m
Min K value	DMRB standard	6.5	2
Longfall - Carriageway	1% to 5%	1% to 5%	1% to 5%
Longfall – Active Travel provision	See Table for Active Travel Links	See Table for Active Travel Links	See Table for Active Travel Links
Access type	DMRB standard	Bell-mouth	Bell-mouth
Minimum Verge Width (with utilities)	DRMB	1.5m (2m)	1.5m (2m)

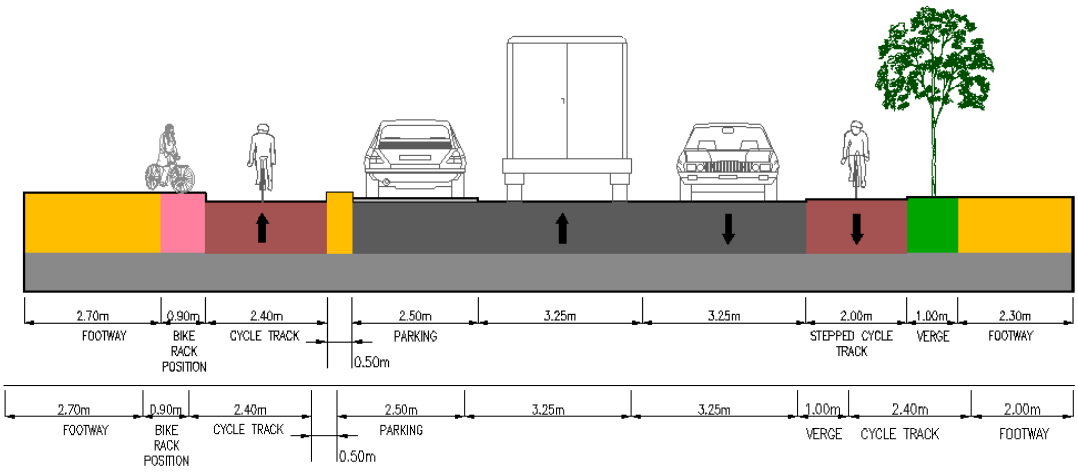
Minimum horizontal clearance to street lighting column	1.0m	0.8m	0.8m
Minimum horizontal clearance to other obstructions	0.6m	0.5m	0.5m
Recommended minimum horizontal separation between carriageway and cycle track. (Acceptable)	1.0m (0.5m)	0.5m (0m)	N/A

7.4 The following illustrations show a range of typical cross-sections for Residential Distributor Roads



Distributor Road (with small median and verge)

Distributor Road with vehicle parking



Distributor road with vehicle parking and stepped cycle track

8 P2/M2: Industrial, Commercial or Service Roads

8.1 Any road likely to be used by large vehicles shall be designed to accommodate such vehicles. This might include roads serving industrial estates, offices, retail outlets or leisure facilities.

8.2 Separate, segregated facilities for walking and cycling shall be designed from inception. Shared facilities for pedestrians and cyclists should be avoided.

8.3 Access roads may be cul-de-sacs or loop roads, however in general loop roads providing connected networks are preferred over the use of cul-de-sac layouts.

8.4 Active Travel Links should be provided to connect cul-de-sacs and to connect to the wider highway network, as appropriate.

8.5 Where a cul-de-sac is used it should not normally exceed 200m in length. If it does exceed this length, a full turning facility for motor vehicles should be provided every 200m.

8.6 If security or gate facilities are provided at accesses where long vehicles are expected, they shall be sited at least 20m from the highway boundary. This is to avoid waiting vehicles obstructing traffic on the road passing the site.

8.7 The following Table sets out the design parameters that will influence the design of for P2/M2: Industrial, Commercial or Service Roads

P2/M2 Industrial, Commercial or Service Roads

Classifications	L1 Local Distributor
Characteristics	Non-residential access road including to and within industrial estates.
Speed limit	30mph

Active travel provisions

Recommended Standard	Segregated footways & cycle track Segregated Shared Use Stepped Cycle Track
Acceptable Standard	Footways & light segregation or cycle lanes for existing highways with constrained widths
Notes	Signal Controlled crossings Zebra & Parallel Crossings Bus stop bypasses or bus stop boarders Direction Signage Priority at side roads.

Provision for Passenger Transport	Bus Lanes Bus Priority at Junctions Bus stops & RTPI At least passive provision for shelters, seating & cycle parking.
Frontage access	No
Other Access Forms	Bell-mouths
Gateway	Normally signing
Junction Forms	Continental / Compact Rbts Signal Junctions Priority Junctions
Street Lighting	Part Night Lighting

Provision for Commercial Vehicles	Specifically for their use
Car Parking	Restricted / Controlled on-street parking

Geometric Design Standards

Min forward visibility (Enhanced for HGVs)	51m
Junction spacing	30m opposite 50m adjacent
Junction Type	Compact roundabouts Signal Junctions Priority Junctions
Carriageway width	6.5m

Minimum Footway width	**Total**	**Effective**
Recommended	3.1 m	2.6 m
Acceptable	2.0 m	1.5 m

Minimum Footway widths including cycle parking	**Perpendicular**	**Parallel**
Recommended	5.2m	4.0m
Acceptable	4.0m	3.6m

Minimum Footway widths at Bus Stops

Recommended	5.0m
Acceptable	3.8m

Minimum Cycleway width	See Active Travel Links

Cycle lanes	Not Acceptable

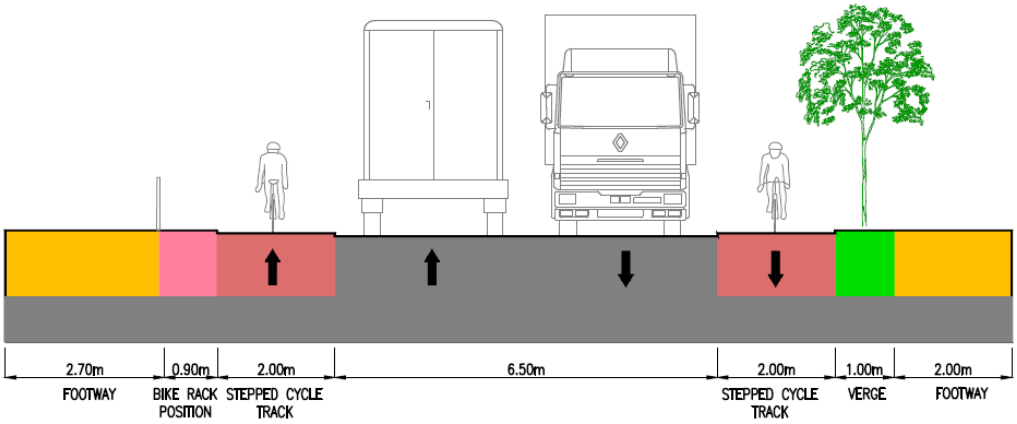
Minimum exclusive Bus lane width	3.5m

Minimum Bus Lane width including cycling

Recommended	4.5m
Acceptable	4.0m

Minimum horizontal curve (radius)	44m
Reverse curves (min separation)	20m
Transition Curves	Not applicable
Maximum distance between speed restraints	Not applicable
Min K value	6.5
Longfall - Carriageway	1% to 5%
Longfall – Active Travel provision	See Table for Active Travel Links
Minimum Verge Width (with utilities)	1.5m (2m)
Minimum horizontal clearance to street lighting column	0.8m
Minimum horizontal clearance to other obstructions	0.5m
Recommended minimum horizontal separation between carriageway and cycle track. (Acceptable)	0.5m (0)

8.8 The following illustrations show a typical cross-section for an Industrial estate road.



Industrial Estate (with stepped cycle tracks)

9 P2/M3: Main Connector

P2/M3

Main Connector linking a strategic road (P1/M3) usually to a settlement. The roads should be over 5.5 m wide and are predominantly A roads.

Classifications	Rural Main Distributor Rural Secondary Distributor

Characteristics

Speed Limit	50 mph

Active Travel provision

Recommended Standard	Segregated footways & cycle tracks Segregated Shared Use
Acceptable Standard	Unsegregated Shared Use
Notes	Signal Controlled Crossings Priority at side roads. Direction Signage Bus stop bypasses or bus stop boarders

Provision for Passenger Transport	Bus Priority at Junctions Bus stops & RTPI Potentially laybys for safety purposes At least passive provision for shelters, seating & cycle parking.
Frontage access	Not normally
Other Access Forms	Not generally
Junction Forms	Roundabouts (Conventional or Signalised) Signal Junctions Ghost Islands
Street Lighting	Part Night Lighting

Provision for Commercial Vehicles	
Car Parking	Parking is not normally permitted

Design codes	DMRB

Geometric Design Parameters

Design Speed	40mph
Min forward visibility	120m
Junction spacing	40m opposite 66m adjacent

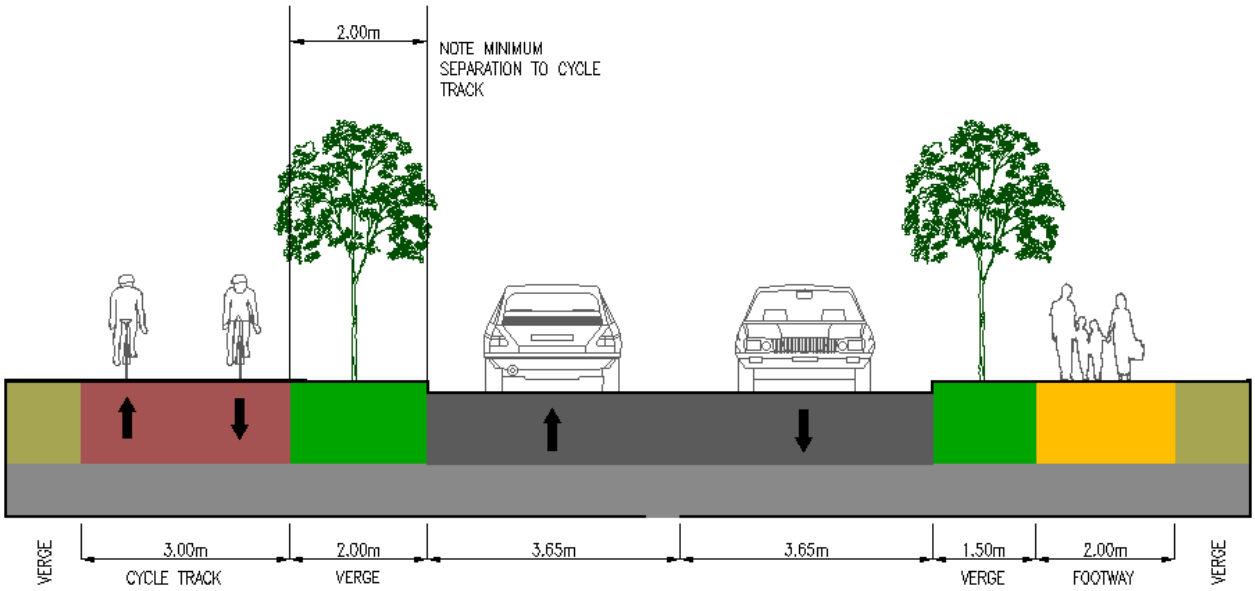
Minimum Footway width	**Total**	**Effective**
Recommended	2.6m	2.6m
Acceptable	2.0m	2.0m

Minimum Footway widths including cycle parking	**Perpendicular**	**Parallel**
Recommended	5.2m	4.0m
Acceptable	4.0m	3.6m

Minimum Footway widths at Bus stops	**Distance**
Recommended	5.0m
Acceptable	3.8m

Minimum Cycleway width	See Active Travel Links
Carriageway width	7.3m
Minimum horizontal curve (radius)	DMRB standard
Reverse curves (min separation)	DMRB standard
Transition Curves	DMRB standard

Maximum distance between speed restraints	N/A
Min K value	DMRB standard
Longfall - Carriageway	1% to 5%
Longfall – Active Travel provision	See Table for Active Travel Links
Minimum Verge Width (with utilities)	2.0m
Minimum horizontal clearance to street lighting column	1.0m
Minimum horizontal clearance to other obstructions	0.6m
Recommended minimum horizontal separation between carriageway and cycle track. (Acceptable)	2.0m (1.5m) 50 mph 1.0m (0.5m) 40 mph
Drainage	SuDS features shall have slopes no steeper than 1 in 3 A berm, or grass filter strip of 1m minimum width required between any hardscape and the slope of a SuDS feature No planting in SUDs features with slopes steeper than 1:5



Main connector/ Interurban road (50mph)

10 P1/M3: Major A-road

10.1 Some existing P1/M3 roads pass through the centre of urban areas and while the category is aimed at mass movement the inclusion of a P1/M3 will create severance for Active Travel modes.

10.2 In new developments this classification shall be routed away (to bypass) urban settlements with connections from lower movement classes as appropriate.

P1/M3

Major A road or Motorway or Primary Road connecting two large urban settlements and carrying more strategic traffic. Identified using the Strategic Road Network, Primary Road Network and Major Road Networks.

Classifications	Primary Distributor Urban Main Distributor

Characteristics

Speed limit	Rural: National Speed Limit Semi-Urban: 50mph Urban: 40mph

Active Travel Provision

Recommended Standard	Segregated footway & cycle track Segregated Shared Use
Acceptable Standard	Unsegregated Shared Use (Urban)
Notes	Signal Controlled crossing points or grade separation at junctions or desire lines Direction Signage Cycle priority at side roads

Provision for Passenger Transport	Bus Priority at Junctions Potentially laybys for safety purposes Bus lanes Bus stops & RTPI At least passive provision for shelters, seating & cycle parking.
Frontage access	No
Other Access Forms	Not generally.
Gateway	No
Junction Forms	Grade separation (Rural)

	Conventional Roundabouts Signalled Junctions Ghost Islands
Street Lighting	Unlit except at safety features
Frontage access	No
Gateway	No
Provision for Commercial Vehicles	Laybys for short stops only
Car Parking	Laybys for short stops only
Restraint Systems	Road restaint systems and passive posts.

Design Codes	DMRB

Geometric Design Parameters

Design Speeds

Speed Limit	Design Speed
40mph	70kph
50mph	85kph
60mph	100kph
70mph	120kph

Min forward visibility	
Junction spacing	

Minimum Footway width	Total	Effective
Recommended	2.6m	2.6m
Acceptable	2.0m	2.0m

Minimum Footway widths including cycle parking	Perpendicular	Parallel
Recommended	5.2m	4.0m

Acceptable	4.0m	3.6m

Minimum Footway widths at Bus Stops

Recommended	5.0m
Acceptable	3.8m

Minimum Cycleway width	See Active Travel Links
Carriageway width	7.3m
Minimum horizontal curve (radius)	DMRB
Reverse curves (min separation)	DMRB
Transition Curves	DMRB
Maximum distance between speed restraints	DMRB
Min K value	DMRB
Longfall - Carriageway	1% to 5%
Longfall – Active Travel provision	See Active Travel Links
Access	DMRB
Minimum Verge Width (with utilities)	2.5m
Minimum horizontal clearance to street lighting column	1.5m @ National Speed Limit 1.0m @ 50mph
Minimum horizontal clearance to other obstructions	1.2m @ National Speed Limit 0.6m @ 50mph
Minimum horizontal separation between carriageway and cycle track. (Acceptable)	3.5m (3.0m) @ National Speed Limit - dual 2.5m (2.0m) @ National Speed Limit - single 2.0m (1.5m) @50mph
Drainage	SuDS features shall have slopes no steeper than 1 in 3

	A berm, or grass filter strip of 1m minimum width required between any hardscape and the slope of a SuDS feature No planting in SuDS features with slopes steeper than 1:5

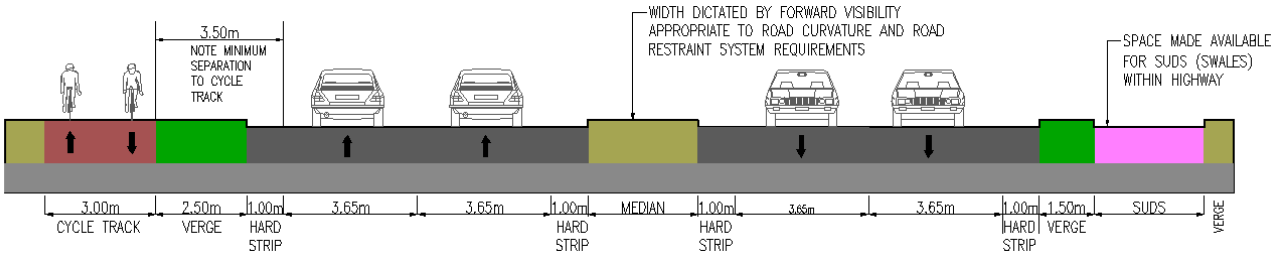
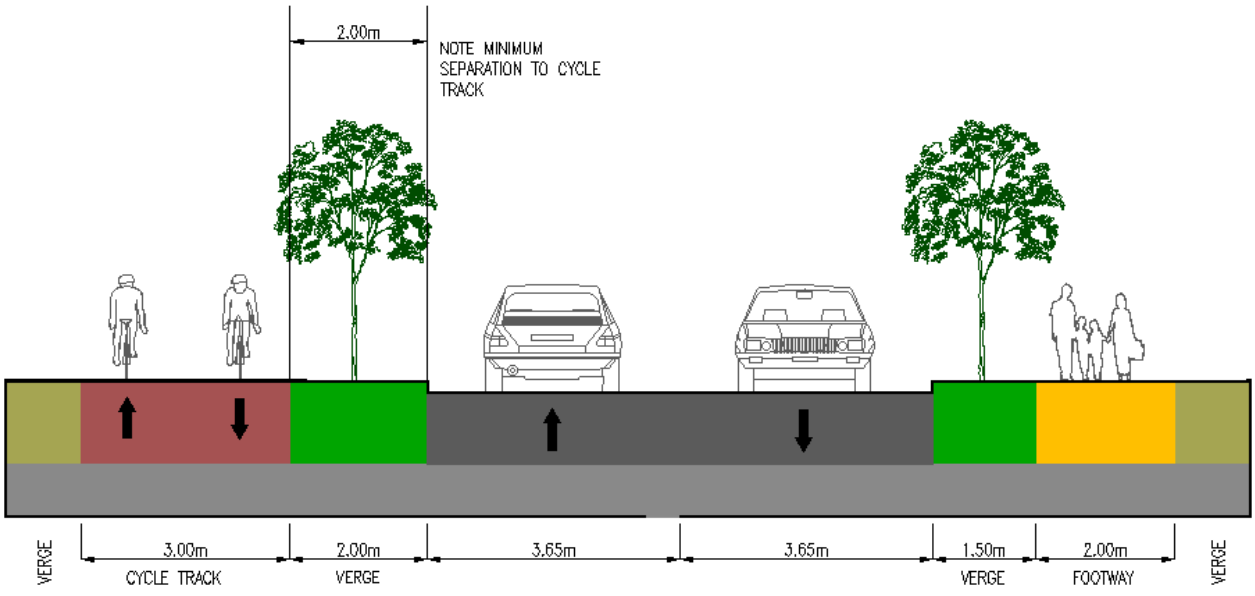


Figure 2: P1/M3 dual carriageway (with space for SUDS and National Speed Limit)



P1/M3 with footway (50mph)

11 P3/M1 Residential Streets

11.1 The parameters to be considered in designing P3/M1 residential streets are discussed within Part 3, Chapter 2: Planning Public Realm

11.2 Relevant design advice and ideas can be found in

- Street Design for All (2014) DfT,
- Streetscapes: How to design and deliver great streets by Colin J Davis
- CIHT guidance,
- Civic Voice
- Public Realm Information & Advice Network

11.3 Mews cul-de-sacs for motorised traffic serving up to 25 dwellings, Mews Streets of 50 dwellings served by a Local Access road at either end and Informal Streets serving up to 5 dwellings are exempt from the current pause on the use of shared space.

11.4 All other P3/M1 streets shall use kerbing a minimum of 50-60mm to define areas used by motor vehicles

11.5 P3/M1sStreet initiatives are aimed at promoting a high sense of place, where health and social wellbeing are as important factors as active travel.

11.6 Such initiatives have been introduced nationally and internationally, captured as:

- Home Zones
- Low Traffic Neighbourhoods
- Vehicle Restricted Areas
- Pedestrian prioritised streets
- Informal streets
- Enhanced streets
- Stellplatzfrei streets (‘free from parking space streets’)
- ‘Mews Courts’ and ‘Housing Squares’ for higher density developments grouped around a Shared Surface road
- School Streets

11.7 The following Table sets out the design parameters that will influence the design of P3/M1 residential streets.

P3/M1

Inner urban road or square at the core of a settlement (predominantly retail), Shared space and often block paving, with no roadside kerb. High people movement but little to no motorised vehicle movement. Some Town Centres will not be fully identified on the P&M network as they may not include adopted Highway.

Shared Space Residential Street initiatives.

Classifications	L2 Local Access

Characteristics

Typical street scene includes street trees, licensed tables & chairs, advertisements, places for shade, shelter & rest.

Mews cul-de-sacs for motorised traffic serving up to 25 dwellings, a Mews Street of 50 dwellings served by a Local Access road at either end and Informal Streets serving up to 5 dwellings are exempt from the current pause on the use of shared space.

All other P3/M1 streets shall use kerbing a minimum of 50-60mm to define areas used by motor vehicles

P3/M1 Street Initiatives are aimed at promoting a high sense of place, where health and social wellbeing are as important factors as active travel. Such initiatives have been introduced nationally and internationally, captured as:

Home Zones

Low Traffic Neighbourhoods

Vehicle Restricted Areas

Pedestrian prioritised streets

Informal streets

Enhanced streets

Stellplatzfrei streets (‘free from parking space streets’)

‘Mews Courts’ and ‘Housing Squares’ for higher density developments grouped around a Shared Surface road

School Streets

Speed Limit	20mph

Active Travel Provision

Recommended Standard	Footways & on-street cycling for new highways by street design Shared space for exempt Mews & Informal Streets
Acceptable Standard	Footways & traffic calming to achieve 85th percentile speeds of 22mph or lower to enable on-street cycling Footways & contraflow cycle lanes
Notes	Places for shade, shelter & rest Wayfinding signage Cycle Parking Bike Hire Covered and secure depot space for cargo bikes

Provision for Passenger Transport	Not expected to be on bus route Direction signage to bus stops Taxi rank and/or waiting area and drop-off at town squares
Street Lighting	Full Night Lighting
Maximum dwellings:	Mews - 50 Informal Street - 5
Frontage access:	Yes
Access Forms	4m radius bell-mouth Vehicle crossover for up to 2,000 PCU per day on the entry arm.
Junction Forms	Simple Priority

Gateway	Yes
Pavement Materials	Bituminous Bituminous with block paved features Standard block paving Local enhancement to reflect local character and heritage articulated within guidance prepared by the LPA
Planting	Standard specification trees, no need for enhancement Shrubs used in edge planting not to be planted within 0.5m from the edge of the running lane Medium size trees (tree girth less than 450mm) and pollards (such as Platanus, Tilia etc.) no closer than 1m to the carriageway Larger, un-pollarded trees (tree girth greater than 600mm) not within 2m of the carriageway unless otherwise agreed by HCC
Provision for Commercial Vehicles	
Car Parking	
Drainage	

Design Codes
Relevant design advice and ideas can be found in Street Design for All (2014) DfT, Streetscapes: How to design and deliver great streets by Colin J Davis CIHT guidance, Civic Voice Public Realm Information & Advice Network

Geometric Design Parameters

Design speed:	Mews – 20mph Informal Street - 10mph
Design Vehicle	Max 11m refuse vehicle
Min forward visibility:	Mews – 25m Informal Street – 11m
Junction spacing:	N/A
Carriageway width	Mews – 5m Informal Street - Tracked
Minimum unobstructed width	3.7m

Minimum Footway width	**Total**	**Effective**
Recommended	4.0 m	3.5 m
Acceptable	3.5 m	3.0 m

Minimum Footway widths including cycle parking	**Perpendicular**	**Parallel**
Recommended	5.2m	4.0m
Acceptable	4.0m	3.6m

Minimum Cycle Lane width

Recommended	2.0m
Acceptable	1.5m

Minimum horizontal curve (radius):	16m
Reverse curves (min separation):	14m
Super elevation	N/A
Max distance between speed restraints:	Mews – 80m Informal Street- 40m
Min K Value	2

Longfall	See Active Travel Links
Minimum horizontal clearance to street lighting column	0.8m
Minimum horizontal clearance to other obstructions	0.5m
Drainage	SuDS features shall have slopes no steeper than 1 in 3 A berm, or grass filter strip of 1m minimum width required between any hardscape and the slope of a SuDS feature No planting in SUDs features with slopes steeper than 1:5

11.8 In Mews and Informal Streets the trafficked carriageway width shall be provided at intervals along the street to allow users to pass and be long enough to permit the agreed design vehicle to pass another user.

11.9 The minimum unobstructed width is to permit passage of emergency fire vehicles (from Part B: Building Regulations)

11.10 Effective and good quality engagement with local residents, businesses, disabled groups, emergency services and refuse collection services, as a minimum, is essential in preparing any P3/M1 scheme.

11.11 Trials of proposed traffic management measures and layouts are recommended. They help people understand what the proposals are and how they will affect them, enable adjustments prior to making these permanent, and if implemented effectively as part of the engagement programme they can give people a genuine say in the design of measures that will affect their local area.

11.12 Monitoring of pedestrian, cycle and motor traffic flows and behaviour should be carried out on schemes, before and after implementation and during any trials.

12 P3/M2 Inner Urban Street

12.1 Inner urban street with a predominance of retail (3 premises within 15m) and other commercial land uses, e.g. high street, local shopping parades, retail parks.

12.2 The parameters to be considered in designing P3/M2 inner urban streets are discussed within Part 3, Chapter 2: Planning Public Realm.

P3/M2

Classifications	Main Distributor Secondary Distributor L1 Local Distributor L2 Local Access

Characteristics
Serving an economic hub or district shopping area in large towns. A place for people to meet and shop. Typical street scene includes street trees, licensed tables & chairs, advertisements, bus shelters, taxi ranks, places for shade, shelter & rest

Speed Limit	20mph

Active Travel Provision

Recommended Standard	Segregated footways & cycle tracks Segregated Shared Use Footways & Stepped cycle track Footways & on-street cycling designed for 85th percentile speeds of 22mph or lower and traffic flows are below about 2,500 vehicles per day if parking managed
Acceptable Standard	Footways & light segregation or cycle lanes for existing highways with constrained widths Footways & contraflow cycle lanes
Notes	Preferably Zebra or Parallel (raised) crossings Priority at side roads. Bus stop bypasses or bus stop boarders

	Wayfinding signage Cycle Parking Bike Hire

Provision for Passenger Transport	Bus priority at junctions Bus stops, shelters, seating, cycle parking, RTPI Taxi rank and/or waiting area and drop-off
Frontage access	Only for Access Road
Maximum Dwellings:	300 per km for Access Road
Access Forms	Vehicle crossover for up to 2,000 PCU per day on the entry arm. 4m radius bell mouth
Gateway	Desirable
Junction Forms	Priority Junctions Signalled Junctions
Street Lighting	Full Night Lighting
Pavement Materials	Bituminous Bituminous with block paved features Standard block paving
Planting Requirements	Compact crown, in keeping with local character/townscape, tolerant to urban pollution Specimen tree, compact crown, in keeping with local character/townscape, tolerant to urban pollution
Provision for Commercial Vehicles	Loading Areas for premises if not off-street
Car Parking	Regulated parking required (time limited) to enable turnover
Drainage	

Design Codes
Manual for Streets

Geometric Design Standards

Design Speed	20mph
Min forward visibility	33m
Junction spacing	20m opposite 33m adjacent
Carriageway width	6.2m – 6.7m

Traffic Lane width for on-street cycling	Recommended	Acceptable	Notes
Cars Only	3.0m	2.75m	2.5m only at offside queuing lanes where there is an adjacent flared lane
Bus Route or >8% HGVs	3.25m	3.0m	Lane widths of between 3.2m and 3.9m are not acceptable for cycling in mixed traffic.

Minimum Footway width	Total	Effective
Recommended	4.0 m	3.5 m
Acceptable	3.5 m	3.0 m

Minimum Footway widths including cycle parking	Perpendicular	Parallel
Recommended	5.2m	4.0m
Acceptable	4.0m	3.6m

Minimum Footway widths at Bus stops

Recommended	5.0m
Acceptable	3.8m

Minimum Cycleway width	See Active Travel Links

Minimum Cycle lane width

Recommended	2.0m
Acceptable	1.5m

Vehicle Parking	Powered two-wheeler parking bays 2.5m x 1.5m Standard car parking space 6.0m x 2.5m Disabled parking bays 6.5m x 2.9m (plus 1.0m clearance) Recommended minimum separation between parking bay and cycle track is 1.0m (Acceptable Minimum of 0.5m)
Minimum horizontal curve (radius)	25m
Reverse curves (min separation)	14m
Transition Curves	N/A
Maximum distance between speed restraints	80m
Min K value	2
Longfall - Carriageway	1% to 5%

Longfall – Active Travel provision	See Active Travel Links
Minimum horizontal clearance to street lighting column	0.8m
Minimum horizontal clearance to other obstructions	0.5m
Recommended minimum horizontal separation between carriageway and cycle track. (Acceptable)	0.5m (0)
Drainage	SuDS features shall have slopes no steeper than 1 in 3 A berm, or grass filter strip of 1m minimum width required between any hardscape and the slope of a SuDS feature No planting in SUDs features with slopes steeper than 1:5

13 Preparing a Planning Application

13.1 Part 1, Chapter 3: The Scheme Promotion and Development Management Process sets out the range of design elements and proposed strategies to be submitted at the planning application stage.

13.2 The geometrical design proposals should particularly show clearly how the following elements integrate spatially without conflict providing appropriate horizontal and vertical alignments, effective widths, clearances and sightlines for the appropriate P&M category:

- Highway boundary
- Kerb lines
- Footway provision
- Cycling provision
- Equestrian provision
- Utilities
- Restraint systems

- Signpost locations
- Passenger transport facilities
- Lamp column locations
- Landscape planting
- Verge provision
- Structures
- Street furniture
- Drainage features
- Parking for cycles, scooters and motor vehicles