

Highway Development Control

# **DESIGN GUIDE**

January 1995



**Bedfordshire**  
County Council

*This Design Guide has been produced by Babtie Group Ltd (Reading Office). It formed part of a commission to review and redraft Bedfordshire County Council's standard documents in the light of current Government advice and good practice nationally. This task has been carried out in close co-operation with Bedfordshire County Engineers and takes account of consultation responses from surrounding districts and other Bedfordshire County Council departments.*

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## 1 GENERAL GUIDANCE

### 1.1 Purpose of the Design Guide

This Guide is intended for developers and their advisors involved in residential and commercial/industrial development in Bedfordshire. Its principal aims are to achieve high standards of highway design whilst ensuring that both a practical and aesthetically pleasing layout is achieved.

Developers will normally be required to observe the standards outlined in this Guide but there may be occasions when it would be appropriate to modify these under certain conditions e.g. in a Conservation Area. In such instances, sympathetic consideration will be given by the Highway Authority to a departure from the standards provided that such steps are necessary in the interests of the environmental character of the area and are acceptable both in terms of good planning and highway safety.

Stress is laid on the need for developers to be guided by professional advisors in all but the most straightforward of cases. Delay in the planning process and misunderstanding could result from the developer not being properly advised.

The standards set in this Guide have been arrived at through consultation with the District and Borough Councils. In certain instances e.g. town centres, the relevant District or Borough Council may apply variations to these standards. Where possible, these variations have been highlighted, but developers are urged to contact the relevant department early in the planning process to avoid misunderstandings and delays.

Reference to the Highway Authority in this Guide means Bedfordshire County Council or the relevant District or Borough Council as its agent as appropriate.

## 1.2 Role of the Highway Authority

Bedfordshire County Council is the Highway Authority for all highways within the County other than trunk roads and motorways, which are roads of national significance and are the responsibility of the Department of Transport.

The County Council carries out its responsibilities as Highway Authority either directly or through the District Councils as its agents. In relation to the control of development, these responsibilities are for:-

- i) giving advice to the local planning authorities on highway aspects of planning applications;
- ii) administering the process of adopting new estate roads and footpaths;
- iii) maintenance of existing and provision of new highways;
- iv) setting standards for the layout of development in relation to the movement and parking of motor vehicles, provision of public transport and pedestrian and cycling facilities.
- v) issuing Technical Approval for the design of culverts and bridges of 0.90m span or greater and retaining walls with a retained height of 1.50m or greater, where such structures are within the Highway Boundary; submissions for approval must be forwarded to the County Engineer as early as possible and in any case at least 6 weeks prior to the proposed start of the works for the structures.

Under agency agreements with the County Council, the Borough Engineer, Bedford Borough Council and the District Engineer, South Bedfordshire District Council deal with the highway aspects of planning applications within the main urban areas of their districts. The Chief of Engineering Services, Borough of Luton, deals with the highway aspects of all planning applications within the Borough of Luton. Fig1.1 illustrates the extent of the various agency agreements.





Fig 1.1 County, District and Parish Boundaries



## 1.3 Relevant County Council Policies

The highway design guide needs to be set against the wider development plan Strategy for the County. The policies stated below are within the current Structure Plan - Alterations No.3 (1992) which provides the framework for development up to 2001. A new Structure Plan guiding development to the year 2011 is programmed for adoption in 1996 and will lead to further amendments to the Design Guide to meet future changes.

The policies refer specifically to provision of infrastructure associated with developments. However, there are other policies relating to housing (Policy 24-35), and employment provision and shopping (Policy 37-47) which may form important considerations in the location of developments.

POLICY 22 of the Bedfordshire Structure Plan - (2001) states that:-

*"When granting planning permission for new development which requires the provision of associated on-site and off-site infrastructure (including drainage, highways, educational and other community facilities), the local planning authorities will normally expect developers to provide the associated infrastructure or contribute to its cost".*

POLICY 60 of the Bedfordshire Structure Plan - Alterations No. 3 (1992) states that:-

*"The local authorities will normally resist planning applications for development, particularly in and around town centres, where it can be demonstrated that the traffic and transport implications arising from the development would create unacceptable congestion or traffic safety issues, or where a proposal has insufficient regard for the environment and character of the area unless additional suitable transport infrastructure is provided".*

In line with the above policies, it may be necessary for the developer to execute or fund improvements to the surrounding highway network. These improvements may be minor e.g. the provision of a footway or minor carriageway widening, or they could involve the provision of part of the County Council's approved highway strategy for an area.

## 1.4 Preliminary Consultations with the Highway Authority

Consultation with the Highway Authority should take place at an early stage in order to quantify the effect of the development on the highway network, and the extent of any improvements necessary to offset that effect. In order to secure the improvements it is usually necessary to enter into a legal agreement with the Highway Authority.

The developer or his professional advisers will be required to prepare and submit traffic impact appraisals in support of the development proposals. These appraisals must demonstrate the effect that the traffic from the development would have on the surrounding network based on recognised trip generation rates and traffic growth factors. In accordance with Policy 46 of the draft Structure Plan, the County Council will also require Environmental Assessments to be carried out for the proposed development and any associated works and opportunities for environmental gain.

The County Council's current capital works programme can be found within the Transport Policy and Programme or the Council's Capital programme for any particular year. In addition, developers should check the status of the proposed development land in respect of protected highway improvement lines through the local search procedures or by enquiring at the County Engineer's Department (Development Control Group).



## 1.5 Highway Agreements

### Section 38 Agreement

Areas which the Highway Authority will normally adopt include carriageways, footways, main footpaths, cycleways, verges and highway structures which are constructed in accordance with the appropriate standards including the County's Estate Street Specification and are for the use of the general public. The process of adoption is regulated by an agreement under Section 38 of the Highways Act 1980.

It is essential that developers have early consultations with the Highway Authority to agree layout standards for the areas which will be offered for adoption. This may involve prior discussions with the utilities companies to ensure that their requirements can be accommodated within the adopted highway.

### Negotiated Agreements

Developers will be required to enter into a negotiated agreement under Section 278 of the Highways Act 1980 to cover the construction of works affecting the public highway which are a direct result of the development.

It is advisable for developers to consult with the Highway Authority on these matters at an early stage to agree the parameters in respect of legal, financial and construction related issues.



## 1.6 Public Utilities' Mains and Plant

The provision of Public Utilities' mains and plant is an essential part of any development and developers are urged to give consideration to this at the preliminary design stage. It is vital that developers have early discussions with the Utilities to establish their requirements.

The Public Utilities prefer to lay their mains in land adopted by the Highway Authority where they have statutory rights, or land in public ownership.

If the adopted highway or public open space is insufficient for the Utilities requirements, the developer must provide mains routes with satisfactory easements.

It is essential that only grass or ground cover plants with limited root systems are planted on top of mains routes and that trees are located so that their roots will not damage mains nor be damaged themselves during the maintenance of the mains.

The following is a list of utilities companies with contact addresses and telephone numbers.

### ELECTRICITY

Property Services Manager  
CEGB Power Gen. Division  
Haslucks Green Road  
SHIRLEY  
Solihull  
B90 4PD  
Tel: 0121 - 701 2000

The Manager  
Chilterns Area  
Eastern Electricity  
487 Dunstable Road  
LUTON  
Bedfordshire LU4 8DQ  
Tel: 01582 - 498888

The Manager  
Milton Keynes District  
East Midlands Electricity  
Old Wolverton Road  
Wolverton  
MILTON KEYNES  
Buckinghamshire  
Tel: 01908 - 312671

## BRITISH TELECOM

The District General Manager  
British Telecom South Midlands and Chiltern District  
Telecom House  
25-27 St John's Street  
BEDFORD  
MK42 0BA  
Tel: 01234 - 274841

## BRITISH GAS

Area Planning and Administration  
Manager  
British Gas Eastern  
Chilterns Area  
Dallow Road  
LUTON  
Bedfordshire LU1 1SX  
Tel: 01582 - 481810

Area Planning and Administration  
Manager  
Eastern Gas Southern  
PO Box 3  
OXFORD  
OX1 4NR  
Tel: 01865 - 797100

## WATER

Anglian Water Services Ltd  
Site Services Department  
Lindens  
Cliftonville  
NORTHAMPTON  
NN1 5BH  
Tel: 01604 - 230730

Lee Valley Water Company  
G.I.S. Department  
PO Box 48  
Bishops Rise  
HATFIELD  
Hertfordshire AL10 9HL  
Tel: 01707 - 277302

## DRAINAGE

Engineer of the Board  
Bedfordshire and River Ivel  
Internal Drainage Board  
Cambridge House  
Cambridge Road  
BEDFORD  
MK42 0LH  
Tel: 01234 - 354396

Anglian Water Services  
Site Services Department  
Lindens  
Cliftonville  
NORTHAMPTON  
NN1 5BH  
Tel: 01604 - 230730



## MERCURY

Mercury Communications Ltd  
7 Elstee Gate  
Elstree Way  
BOREHAMWOOD  
WD6 1JS  
Tel: 0181 - 895 1050

## CABLE

Cable Vision  
20 Cosgrove Way  
LUTON  
Bedfordshire  
LU1 1XL  
Tel: 01582 - 401044



## 1.7 Landscaping

The design of the spaces around buildings is an important contribution to the successful appearance of any development. The Local Planning Authority will seek to ensure that a satisfactory scheme of landscaping is submitted as part of a planning application.

Although there are several constraints on the landscaping of highways e.g. presence of service runs, or the effect of tree roots on highway structures, a positive approach to such landscaping can lead to the creation of a greatly enhanced environment in residential and commercial areas.

The Highway Authority has to ensure that the interests of road users and highway maintenance are addressed adequately in any landscape scheme.

The developer is encouraged to employ the services of a professional landscape consultant.

Any proposed planting within forward visibility splays, junction visibility splays, embankments supporting the carriageway, associated drains, channels or ditches, cutting slopes and margins, will need to be approved by the Highway Authority in terms of suitability of species for ease of maintenance and (where within a visibility splay) maximum height of growth.

The landscape scheme will also need to be suitable for submission as part of the planning application for approval by the Local Planning Authority.

It is most important to design landscaped areas in such a way as to reduce to a minimum future maintenance costs.

## 1.8 Surface Water Drainage

The County Council will adopt and maintain as highway drains those pipelines laid solely for the disposal of surface water from prospectively maintainable highways, provided that,

- i) the drain is laid in a highway or a prospectively maintainable highway or is protected by an appropriate easement;
- ii) the work is carried out to the satisfaction of the County Engineer;
- iii) the outfall at the point of discharge of the drain is of sufficient capacity and free of any legal encumbrances.

It is the responsibility of the developer to make adequate outfall arrangements for his project and it must not be assumed that permission will automatically be granted by the Highway Authority to make connections to the existing highway drainage system in adjacent maintained roads.

Highway drainage connections into private drains are not permitted. Drainage connections to existing watercourses must be vetted and approved by the National Rivers Authority.

It is essential that the means of disposal of surface water be investigated with the Highway Authority at the preliminary stage of any development scheme.



## 1.9 Street Lighting and Electrical Equipment

### Lighting

This shall be in accordance with the County Engineers requirements. The layout and type of units used shall be in accordance with specified standards which optimise energy, maintenance and replacement costs.

All schemes shall be approved by the County Engineer.

### Illuminated Signs and Bollards

These shall be included as required by the Traffic Signs Regulations and General Directions. The specification of all equipment to be used must be supplied to the County Engineer. All electrical installations must be in accordance with BS7671.



## 1.10 Local Authority Contacts

The following is a list of contact addresses in case of queries on the stated topics.

### Highway Development Control, highway records and searches

County Engineer  
Bedfordshire County Council  
Policy and Programmes Group - Development Control  
County Hall  
Cauldwell Street  
BEDFORD MK42 9AP  
Tel: 01234 - 363222

### County Planning Officer: strategic plan- ning and county matters

County Planning Officer  
Bedfordshire County Council  
Development Control  
County Hall  
Cauldwell Street  
BEDFORD MK42 9AP  
Tel: 01234 - 228075

### Local Planning Authorities - planning queries and information

Borough Planner  
Bedford Borough Council  
Town Hall  
BEDFORD  
MK40 1SJ  
Tel: 01234 - 267422

Head of Planning and Building Control  
South Bedfordshire District Council  
The District Offices  
High Street North  
DUNSTABLE  
Bedfordshire LU6 1LF  
Tel: 01582 - 472222

District Planning Officer  
Mid Bedfordshire District Council  
23 London Road  
BIGGLESWADE  
Bedfordshire  
SG18 8ER  
Tel: 01767 - 313137

Borough Planner  
Borough of Luton  
Town Hall  
Luton  
LU1 2BQ  
Tel: 01582 - 31291

### Borough and District Engineering Departments - general engineering information

Borough Engineer  
Bedford Borough Council  
Town Hall  
BEDFORD  
MK40 1SJ  
Tel: 01234 - 267422

District Engineer  
South Bedfordshire District Council  
The District Offices  
High Street North  
DUNSTABLE  
Bedfordshire LU6 1LF  
Tel: 01582 - 472222

District Engineer  
Mid Bedfordshire District Council  
23 London Road  
BIGGLESWADE  
Bedfordshire  
SG18 8ER  
Tel: 01767 - 313137

Chief of Engineering Services  
Borough of Luton  
Town Hall  
Luton  
LU1 2BQ  
Tel: 01582 - 31291

## 2 DISTRIBUTOR ROADS

### 2.1 Introduction

The Departments of Environment and Transport's document - Design Bulletin 32 (Second Edition) advises that:-

*"Local authorities are encouraged to work towards a hierarchical structure for their roads, the hierarchy being based on the roads' intended functions. This hierarchy defines primary, district and local distributor roads.... New development and redevelopment should be designed to fit into and strengthen this hierarchy."*

This is the same road hierarchy that is proposed in "Roads and Traffic in Urban Areas" (HMSO).

The number, positioning and type of junctions on distributor roads greatly affect the efficiency and safety of those roads. Thus a road of a given width which has many, closely spaced side road junctions and accesses to individual properties will have less capacity and, usually, a worse safety record than a road of similar width with no frontage access and widely spaced side road junctions of appropriate design.

It is important that the Highway Authority exercises a restrictive policy on the number and type of new junctions and accesses applied for on the distributor road network.



## 2.2 Distributor Roads Definitions

### (i) Regional Primary Road Network

Consists of the motorway and trunk road system and is designed to carry high volumes of long distance through traffic. The Department of Transport has overall responsibility for these roads.

### (ii) Primary Distributor Roads

These are the main urban and inter urban routes and cater for all long distance traffic movements that are essentially local to Bedfordshire.

### (iii) District Distributor Roads

These distribute traffic between the residential, industrial and business districts of the major built-up areas and act as the main feeder routes to the primary distributor road network.

### (iv) Local Distributor Roads

These distribute traffic within the districts and act as links to the district distributor roads.

## 2.3 General Junction Considerations

On *primary* and *district* distributor roads, the Highway Authority considers the maintenance of safe and free-flowing traffic conditions and reasonable average speeds to take precedence over the need for access onto these roads. It would prefer junctions with such roads to be with roads of equal importance or roads in the next category down in the hierarchy via an appropriately designed road junction.

Where direct access is unavoidable, the proposed junction will be assessed to ensure that good design standards are adhered to with particular consideration given to layout and visibility, junction spacing and the effect of the junction on the movement of the vehicles in the main road traffic flow. It is likely that the Highway Authority will oppose the proposed access if any of the above criteria are in doubt.

In accordance with advice from the Department of the Environment in Planning Policy Guidance Note 13 (PPG13), where proposals for development give rise to opportunities to reduce the number of direct accesses to primary and district distributor roads, the Highway Authority will expect those opportunities to be taken.

On local distributor roads, their role as traffic corridors is different and junctions with collector roads will be more frequent. Even so, the need for careful attention to junction design should not be diminished.



## 2.4 Junction Design

Following consideration of the amount and type of traffic expected to and from the development and the volume of traffic on the distributor road, in many cases, it will be obvious which junction type will be most suitable to serve the development in question.

In less straightforward cases, it will usually be necessary to agree with the Highway Authority, the volume of traffic that can be expected to enter and leave the development during the peak traffic periods. These traffic assessments should be based on recognised trip generation rates for the relevant land uses from an established database e.g. TRICS (Trip Rate Information Computer System). This information can then be used to test alternative junction designs and comparisons can be made of the level of service and safety offered by each one. Further guidance is given in Chapters 16, 29 and 38 of "Roads and Traffic in Urban Areas" (HMSO) and the DTp Advice Note TA 23/81.

The developer, or his advisers, will be expected to demonstrate the efficiency of the chosen junction by using recognised computer programmes for junction simulation such as the Department of Transport's ARCADY 3, PICADY 3 and OSCADY, TRANSYT and LINSIG programmes.

On local distributor roads that serve primarily residential areas, the Highway Authority will expect side road junctions into new developments to be in the form of roundabouts which will act as speed control features. The spacing between these roundabouts should not exceed 200 metres.

The following table is a summary of the current Department of Transport design memoranda and advice notes. Any junction design must be carried out in accordance with the relevant criteria.



JUNCTION TYPE	DESIGN STANDARDS	REMARKS
Priority junction	DTp: TA 20/84 DTp:/DoE: PPG 13 PICADY 3	Particular care should be taken to ensure that the correct design speed is applied to visibility splays and ghost island taper lengths.
Roundabout	DTp: TD 16/93 DTp: TA 42/84 ARCADY 3	<p>Where a side road joins a distributor road to form a 3-arm roundabout the central island should, as far as possible, be centrally positioned on the main road. Where the island has to be offset it should be clearly visible for a distance at least equal to the minimum stopping site distance back along the major road in each direction.</p> <p>The minimum ICD on local distributor roads should be 26 metres. In some instances the Highway Authority may consider a mountable shoulder on the central island to facilitate the manoeuvres of larger vehicles when negotiating a roundabout with an ICD of less than 26 metres.</p>
Traffic signals	DTp: TA 12/81 DTp: TA 13/81 DTp: TA 14/81 DTp: TA 15/81 DTp: TA 16/81 DTp: TA 18/81 RRTP No: 56 OSCADY LINSIG	In all aspects of traffic signal design, advice from the Highway Authority should be sought at an early stage.

**Table 2.1 Junction Design Standards**

Careful consideration should be given to providing for the needs of pedestrians and cyclists at road junctions. Routes should be provided which cause the minimum possible deviation from the straight-ahead path. Kerbs must always be set flush at points where pedestrians and cyclists have to cross the carriageway and tactile paving should be installed to assist the visually impaired. Traffic islands should be provided wherever possible to assist crossing pedestrians and cyclists. Further guidance is given at paragraph 2.7.



## 2.5 Design Standards for New Distributor Roads

When new distributor roads are to be provided in association with development they should be designed in accordance with the Department of Transport's design standards TD 9/93 - Road Layout & Geometry: Highway Link Design, and TD 20/85 - Traffic Flows and Carriageway Width Assessment.

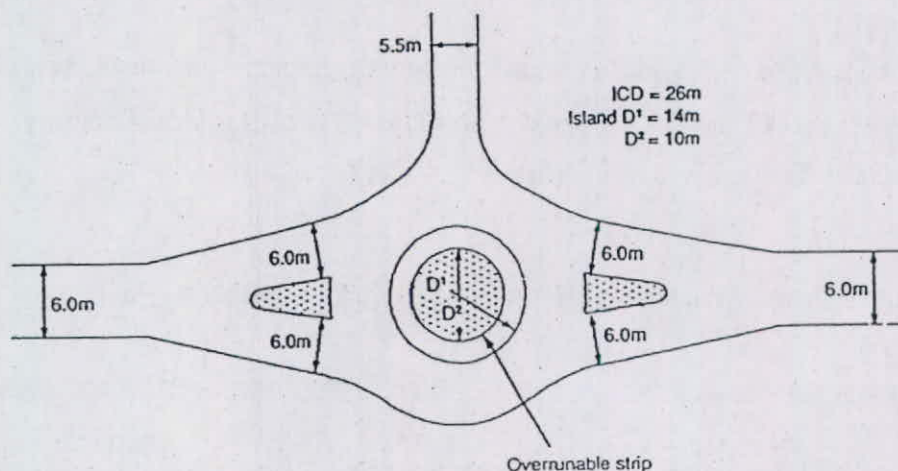
A precis of the Highway Authority's requirements is set out in the following table.

	LOCAL DISTRIBUTOR ROAD (residential area)	LOCAL DISTRIBUTOR ROAD (non residential area)	DISTRICT DISTRIBUTOR ROAD
Design Speed	50kph	50kph	70A kph
Minimum Carriageway Width	6.0m	7.3m	7.3m
Margin Width	3.0m	3.0m	3.0m

**Table 2.2 Highway Link Design Requirements**  
(to be read in conjunction with TD 9/93)

Local distributor roads in residential areas should be designed with speed restraining devices incorporated in order to achieve an 85th percentile vehicle speed of 50 kph. The provision of roundabouts in place of T-junctions is one way of introducing speed control features. An example of a suitable design is shown in Fig 2.1. Other features which may be considered are chicanes, throttles or road-narrowings.

The maximum spacing between speed control features should be 200 metres.



**Fig 2.1 Roundabout on a local distributor road as a speed control device**

Where there is likely to be pedestrian traffic, footways should be provided within the 3.0 metre margin. Careful consideration must be given to providing safe and convenient crossing points. If the road is likely to be a desirable and convenient route for cyclists, the Highway Authority may require the provision of a cycle track or shared cycle/pedestrian path alongside the carriageway (see section 2.7 below).

The minimum horizontal clearance from the edge of the carriageway to the face of any structure, or to any other obstruction, shall be 600 mm.

The minimum headroom clearance above the carriageway shall be 5.3m or 5.7m under footbridges and gantries. Additional clearance may be required on high-load routes.

The minimum headroom clearances over footways shall be as follows:-

Solid Structures	2.7m
Canopies	2.4m
Signs	2.2m



## 2.6 Public Transport Facilities

The County Council is committed to ensuring public transport will play a vital role in meeting present and future transport needs as part of its developing integrated development and transport strategy. The layout of major developments must be arranged to relate to new transport corridors and encourage the use of new forms of transport.

In new housing developments, the needs of bus passengers can best be met efficiently by providing a convenient, easily accessible service on a direct route, rather than operating around the periphery of a large housing development.

The developer should aim to provide an integrated road and footpath system in which every dwelling is within 200 metres of a bus route.

The siting of new bus stops should be discussed at an early stage with the Highway Authority and the bus operator so that dwellings and bus stops can be located in positions which are convenient to the maximum number of potential bus passengers, whilst protecting the privacy of adjacent householders.

Small sites which collectively constitute a major housing development may not individually merit the provision of a bus service. Due regard should be given to providing a comprehensive bus service at the initial or Master plan stage of planning major developments.

Roads that are designated as bus routes should be adequate in width, alignment and strength for bus operations and, as far as possible, should be free from on-street parking.

For safety reasons, paired bus stops should be staggered by about 45 metres so that buses stop tail-to-tail and move off away from each other. Figure 2.2 shows the setting out details for a standard single bus layby.

Detailed advice on design measures to assist buses is given in Chapter 26 of "Roads and Traffic in Urban Areas" (HMSO) and in the DTp Local Transport Note - 1/91 "Keeping Buses Moving".

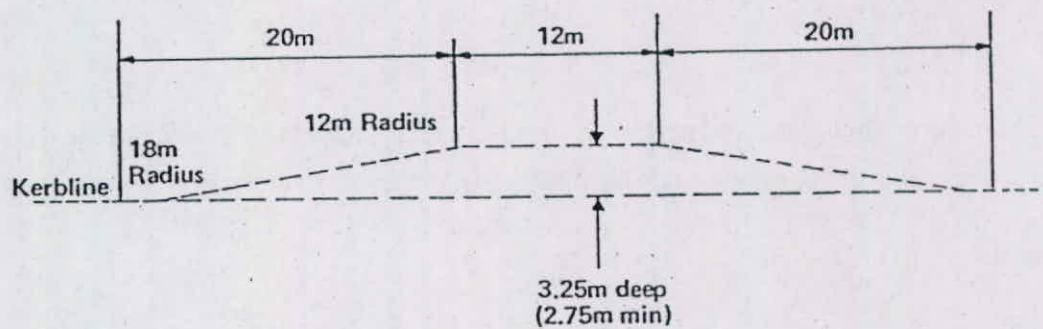


Fig. 2.2 Standard Single Bus Layby



## 2.7 Cycling Facilities

Cycling is also being encouraged and safer facilities to encourage travel by cycle are being developed. Segregating cycle traffic from other vehicular traffic on distributor roads can result in considerable improvements in road safety.

Cycleways are intended for the exclusive use of cyclists. They should form a direct route between residential areas and centres of employment, shopping or education. The minimum width of cycleways is generally 3.0 metres. Cycleways should be adequately lit and situated in open areas. They should not be laid out so that boundary walls or fences closely abut the cycleway on both sides.

Pedestrian and cycle desire lines often coincide in residential areas and it is therefore sensible in such cases to combine the two facilities along the same route. Whenever a footpath link is proposed, therefore, consideration should be given to the provision of combined facilities.

If cycle traffic is expected to be low, a combined footpath/cycleway may be considered. Segregation from the footpath can be made via a different surface treatment e.g. black tarmac for the footpath and red tarmac for the cycle track. In these instances the minimum widths are 1.5 metres footpath and 1.75 metres cycleways.

In all cases adequate directional and regulatory signing and lighting should be provided. Advice on these points should be sought from the County Engineer.

The following table gives a list of references for more detailed advice on providing facilities for cyclists.

REFERENCE	REMARKS
DTp - Local Transport Note 1/86 "Cyclists at Road Crossings & Junctions"	Gives advice on facilities for cyclists at priority and signalled junctions and roundabouts.
DTp - Local Transport Note - 2/86 "Shared Use by Cyclists & Pedestrians"	Contains advice on appraisals and surveys, consultation and publicity, design considerations and general requirements for converting footways and footpaths to shared use facilities for cyclists & pedestrians.
DTp - Local Transport Note - 2/87 "Signs for Cycle Facilities"	Illustrates the prescribed and non-prescribed signs that are available and gives guidance on their use.
DTp - Local Transport Note - 1/88 "Making Way for Cyclists"	Contains guidance for local authorities on planning, design and legal aspects of providing facilities which can help cyclists.
"Providing for the Cyclist". Institution of Highways and Transportation	General guidelines and recommendations on catering for the needs of cycle traffic

**Table 2.3 Advice on Provision for Cyclists**



## **2.8 Speed Restraint on Existing Roads**

The Highway Authority will consider a request for speed restraining devices on existing roads if its implementation would lead to a reduction in personal injury accidents or if it would form part of an area-wide traffic management study. Further advice on such facilities in residential areas is given in Section 3.3.

It may also be possible for speed restraining devices to be installed on existing roads as an environmental enhancement scheme if it satisfies the County Council's evaluation criteria for environmental or traffic management improvements.

## **3 RESIDENTIAL ROADS**

### **3.1 Introduction**

In residential areas the role of the road as primarily a vehicle carrier changes to that of being an integral element in the overall development.

The needs of pedestrians and cyclists should be given the highest priority in road design.

Developments must incorporate the following features:

- i) the provision of safe, secure and convenient routes for pedestrians and cyclists throughout the development;
- ii) speed restraint measures to regulate vehicle speeds appropriate to the type of road (see Table 3.2 and Section 3.3);
- iii) use of road layout geometry, landscaping and contrasting road construction material to ensure that drivers are aware, on entering and travelling through the road system, that the needs of cyclists and pedestrians are paramount;
- iv) a road system where non-access traffic finds distributor roads more convenient than residential access roads;
- v) where possible, an integrated road and footpath system in which every dwelling is within 200 metres walking distance of a bus route.

The road and footpath layout should also ensure that suitable routes are provided for statutory undertakers equipment and sewerage systems underground, and adequate space is made available above ground for equipment such as telephone kiosks. Adequate street lighting must be provided in all parts of the layout to enhance safety and security for drivers, pedestrians and cyclists.



Developers should also be aware of the Department of Environment's Circular 5/94 - "Planning Out Crime". Paragraph 25 of this Circular states:

*"The general design principles of defensible territory, variety and the need to keep areas open to view also apply to the layout of minor roads and footpaths. Care should be taken that well-intentioned segregation schemes for pedestrians and cyclists do not lead to over-isolation, especially at night".*

## 3.2 Road Layout

Table 3.1 below sets out the residential road types used in this Guide which is also shown diagrammatically in Figure 3.1. It is not the intention, however, to stereotype layouts strictly to the criteria set out below and a flexible attitude will be adopted when considering other design solutions prepared in accordance with Design Bulletin 32 - 2nd Edition.

ROAD TYPE	DESIGN CRITERIA
Major access road	Serves up to 300 dwellings 5.5m wide or 6.0m where a bus route; 2x2.0m footways Target max. speed 40 kph (25mph) Preferably no direct access to individual dwellings
Minor access road	Serves up to 100 dwellings 5.5m wide; 2x2.0m footways Design speed 30 kph (20mph) Direct access
Carway	Serves up to 50 dwellings Min. 3.7m wide with passing places; separate footpath system Design speed 40 kph (25mph) No direct access
Access way	Serves up to 25 dwellings, or 50 dwellings if open at both ends 4.1m to 6.0m wide with adequate provision for vehicles to pass; 2 x 2.0m verges Design speed 25 kph (15mph) Direct access; shared surface
Mews court	Serves up to 25 dwellings 5.5m wide; no footways or verges Design speed 25 kph (15mph) Direct access; shared surface
Private drive	Serves up to 5 dwellings 2.75m wide (or 4.1m if access gained from residential distributor, major access road or carway) Not suitable for adoption

Table 3.1 Residential Road Types



### **3.3 Target Maximum Speed and Speed Control Devices**

Vehicle speeds lower than 50kph (30 mph) generally result in less severe accidents than where speed is higher: the chance of a pedestrian sustaining fatal injuries following a collision is significantly reduced when vehicle speeds are below 30kph (20 mph).

In designing housing layouts the objective should be to control the volume of traffic, speed of vehicles and behaviour of drivers to suit the primary function of the street.

The immediate environment should convey to the driver the impression that it would be wholly inappropriate and anti-social to drive at anything other than a low speed.

The following are a variety of speed control measures which can be incorporated into road layouts to ensure that vehicle speeds are generally kept to the target maximum speeds appropriate to the class of road.

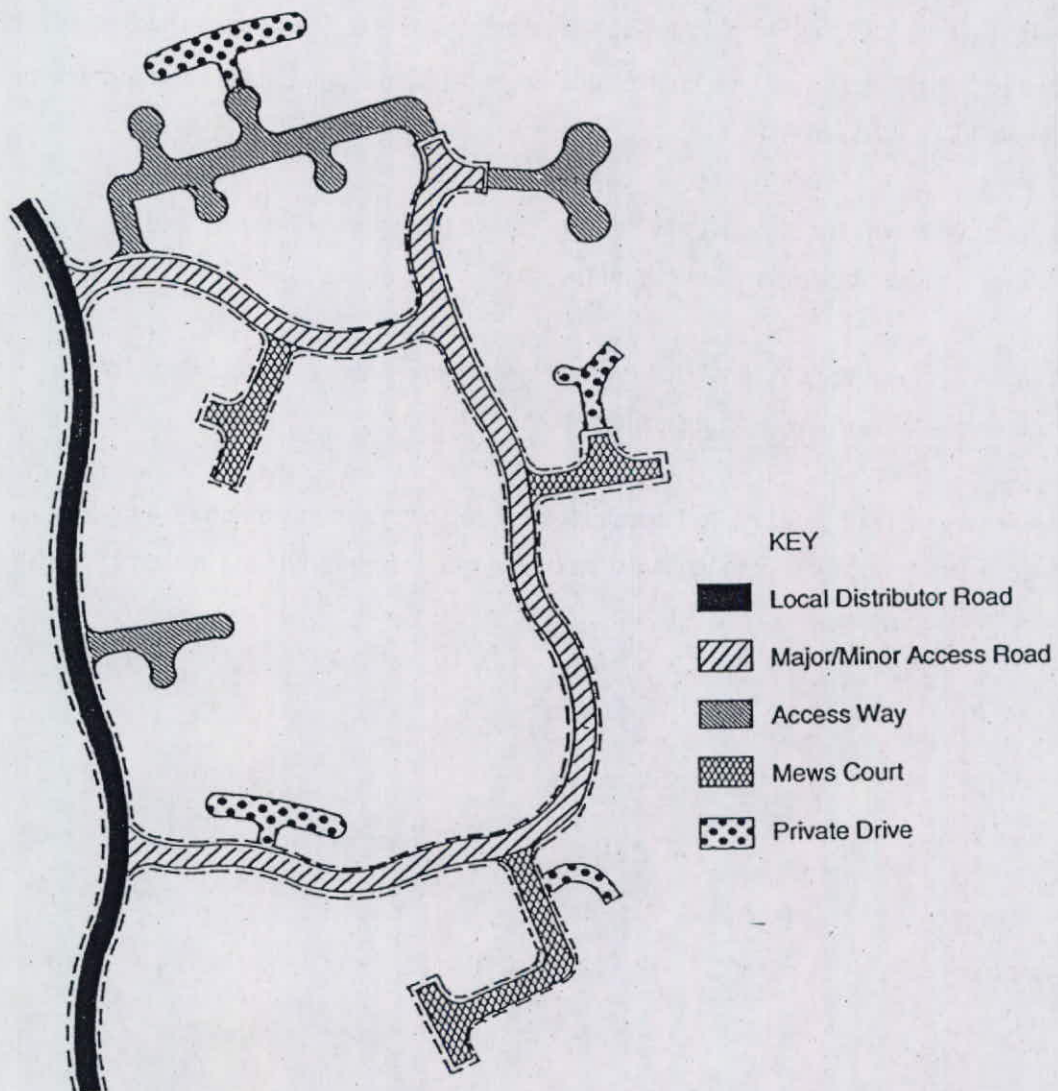
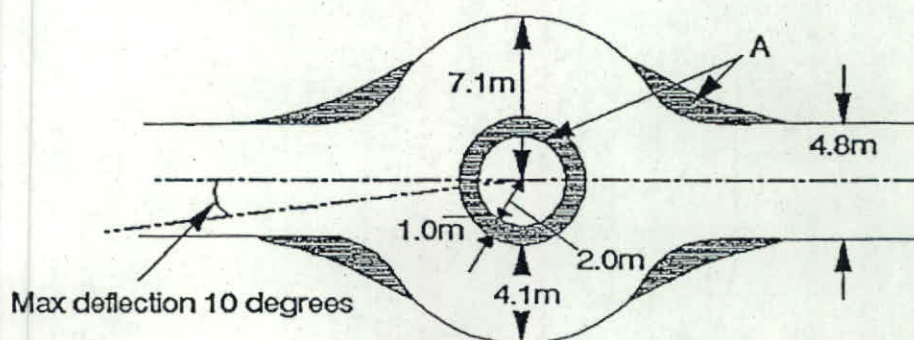


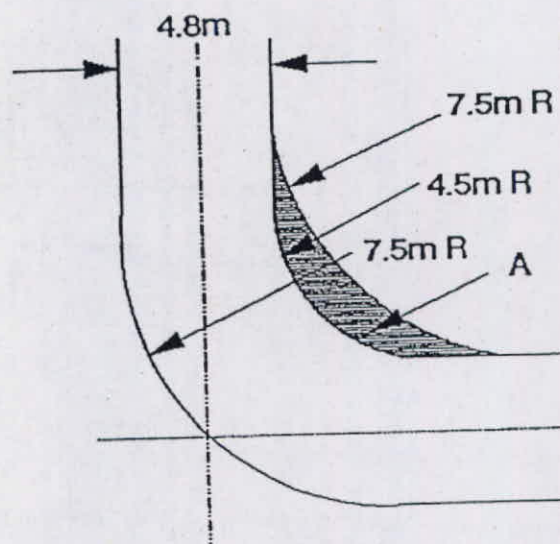
Fig 3.1 Example of a practical layout showing use of various road types





## Speed Control Island

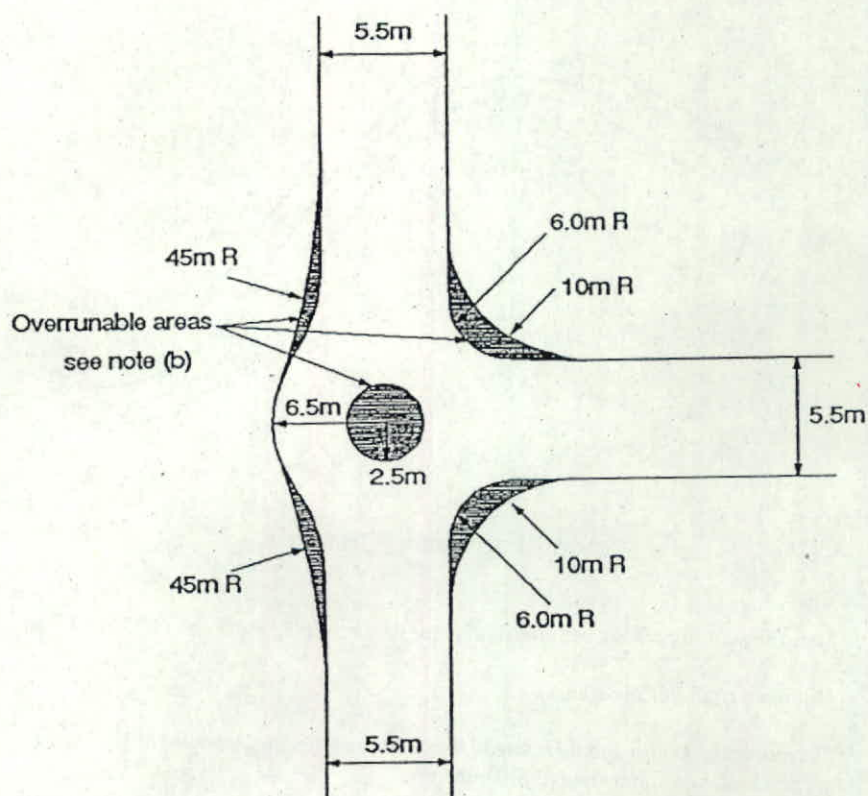
- Notes:
- (a) Speed control islands are not suitable for roads serving more than 100 dwellings.
  - (b) There should be no access within 12m of the centre of the island.
  - (c) Area A should be in a contrasting colour to surrounding area and ridged to deter regular movements across it.
  - (d) The maximum gradient through a speed control island should not exceed 5% (1:20)



## Speed Control Bend

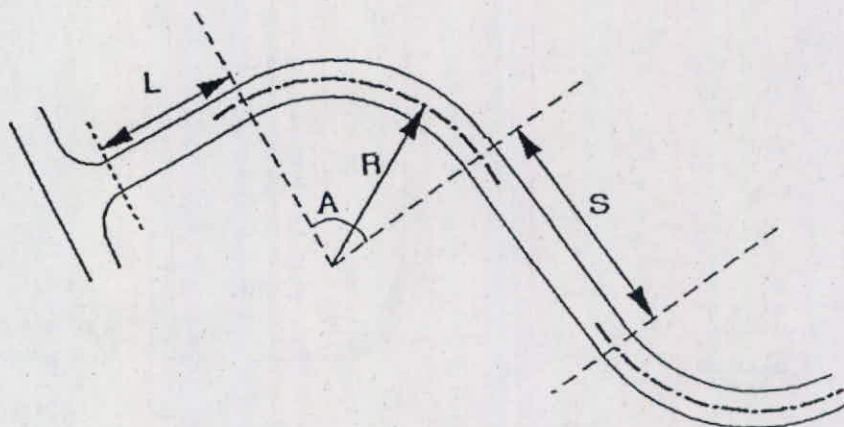
- Notes:
- (a) Speed control bends are not suitable for roads serving more than 100 dwellings.
  - (b) There should be no access on the curves.
  - (c) Area A should be in a contrasting colour to surrounding area and ridged to deter regular movements across it.
  - (d) Forward views should be curtailed by heavy planting or buildings.
  - (e) The visibility distance across the bend is 14 metres.
  - (f) No separating straight is required between bends and bends of opposing hand may be paired.
  - (g) The maximum longitudinal carriageway gradient through a speed control island should not exceed 5% (1:20)





## Speed Control Roundabout

- Notes: (a) This design may be adapted for crossroads and Y junctions.
- (b) These areas should be in a contrasting colour to surrounding area and ridged to deter regular movements across it.



## Speed Regulating Curves

- Notes:**
- (a) Speed regulating curves are not suitable for roads serving more than 300 dwellings.
  - (b) Minimum radius ( $R$ ) is 20m.
  - (c) The maximum radius should relate to the number of dwellings served by the section of road under consideration as follows:
    - less than 50: 25m - mean speed 18kph (12mph)
    - 51 to 100: 30m - mean speed 33kph (22mph)
    - 101 to 300: 40m - mean speed 40kph (27mph)
  - (d) The appropriate radius may be used to form a series of up to three curves but only one radius may be used.
  - (e) The maximum distance ( $L$ ) between the end of a curve and a speed control will vary depending on the curve radius as follows:
 

$R(m)$	20	25	30	35	40
$L(m)$	30	45	60	75	90
  - (f) Curves must be separated by a straight of length ( $s$ ) as follows:-
 

$R(m)$	20	25	30	35	40
$S(m)$	12	14	16	18	20
  - (g) Carriageway widening (should be maximised at the centre of the curve) must be provided in accordance with Table 3.2.
  - (h) Where speed regulating curves of more than 25 metres radius are used footways must be provided.



### **3.4 Road Types**

#### **i) Major Access Road**

These roads should act as a link between the lower category residential roads i.e. minor access roads, access ways and mews courts, and the local distributor road network, where up to 300 dwellings are to be served.

A 5.5 metres wide carriageway is required with a 2.0 metres wide footway on each side of the carriageway. Where it is likely that the road will form part of a bus route, the carriageway width should be 6.0 metres.

The target maximum speed is 40kph (25mph) and should be achieved by the use of the speed regulating devices advised in Section 3.3.

It is permissible to have access to small groups of dwellings served by a shared private drive of adequate width and with suitable vehicle parking and turning facilities. Direct access to individual dwellings should be avoided unless there are exceptional circumstances.

### ii) Minor Access Road

These are cul-de-sacs, loops or link roads designed to deter "rat running" which serve up to 100 dwellings.

A 5.5 metres wide carriageway is required with a 2.0 metres wide footway on each side.

The target maximum speed is 30kph (20mph) and should be achieved by the use of the speed regulating devices advised in Section 3.3.

Turning spaces will normally be required whenever vehicles would otherwise have to reverse over distances in excess of 40 metres or whenever they might otherwise turn in locations which could cause damage to adjacent verges or footways. Standard turning space diagrams are shown by Fig 3.6.



### iii) Car Way

Car ways are single track roads which gather traffic from a small number of lower category estate roads, serving not more than 50 dwellings in total, and are either cul-de-sacs or loop roads.

Direct access to dwellings is not permitted.

The carriageway width is generally 3.7 metres with passing places, widening the carriageway to 5.5 metres at frequent intervals. Advice on the frequency of passing places is given in Figure 3.2.

Landscape verges of variable width should be provided on either side of the car way subject to the provision of adequate forward visibility.

Maximum vehicle speeds should be restricted to 40kph (25mph). This can be achieved by using the speed control devices advised in Section 3.3.

The appropriate forward visibility distance for 40kph is 45 metres.

A separate footpath system is an essential part of the overall layout and must appear more attractive to pedestrians than the car way carriageway. It should therefore provide direct links between the homes, community facilities and bus stops. The car way must be routed so as to discourage use by pedestrians.

Services must not follow the line of the car way but should be located under the footpath system.

It is essential that early discussions are held with the Highway Authority when a housing layout is to include car ways.

## iv) Access Way

These are short roads serving up to 25 dwellings or they can be link roads designed to allow access at both ends, in which case up to 50 dwellings may be served, but discouraging through traffic other than deliveries. The main features are the absence of footways and the design of a paved area as a surface shared by vehicles and pedestrians with primary consideration being given to the safety and convenience of pedestrians.

In order to emphasise to drivers that they are travelling along a road which does not have separate pedestrian facilities, a surface treatment contrasting to that used on normal roads should be used e.g. red tarmacadam or concrete block paving, etc.

Entry to the access way is gained by means of a ramped footway crossing.

The shared surface should be 4.8 metres wide at the entrance, but can vary in width between 4.1 metres and 6.0 metres thereafter. A minimum width of 5.0 metres is required near accesses to dwellings to permit turning manoeuvres. As such, the location of accesses must be carefully integrated with the road design.

A grassed verge 2.0 metres wide is required on either side of the shared surface, to accommodate Statutory Undertakers' equipment and other services.

A turning area of irregular shape shall be provided at the closed end of cul-de-sacs. It must be of sufficient dimensions to encompass one of the standard turning heads given in Fig. 3.6.

The target maximum speed should be 25kph (15mph). This can be achieved by limiting the length of the shared surface to about 50 metres or by introducing a variety of the speed control devices as described in Section 3.3.



- 1 To avoid opposing vehicles confronting each other on a narrowed stretch of carriageway they should be able to see each other before a passing bay is reached by the vehicle nearest to it.
- 2 Thus in Figure 1 for vehicle B to pull into the bay it is necessary for the driver to see vehicle A before B has reached point O. Point O is dependent on the speed of vehicle B and is the point beyond which B cannot slow down or stop in time to enter the passing bay. But, because either vehicle A or B may be closest to the passing bay, both vehicles must be able to see each other before either has passed the point where it cannot slow down or stop in time to use the bay.
- 3 The implications of this are shown in Figure 2, illustrating that with a sequence of passing bays the forward visibility distances overlap, each being determined by the combined stopping distances of opposing vehicles plus the distance required between bays necessary to cope with the traffic volumes envisaged.

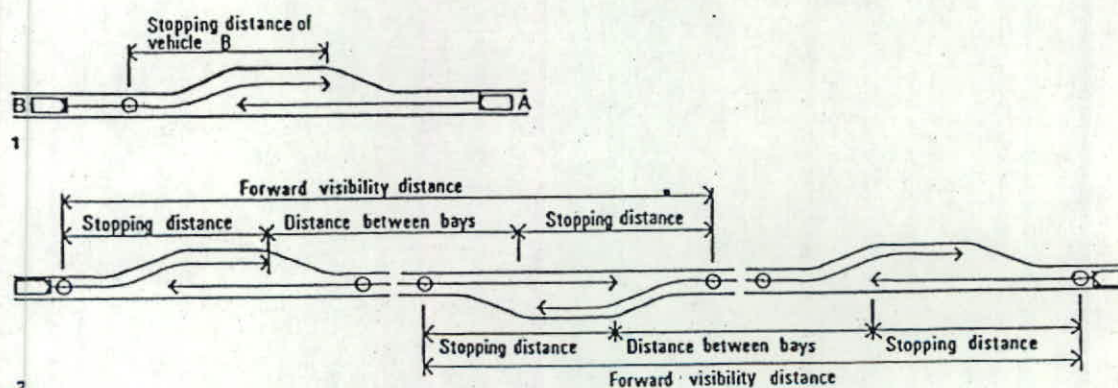


Fig 3.2 Recommended Frequency of Passing Places

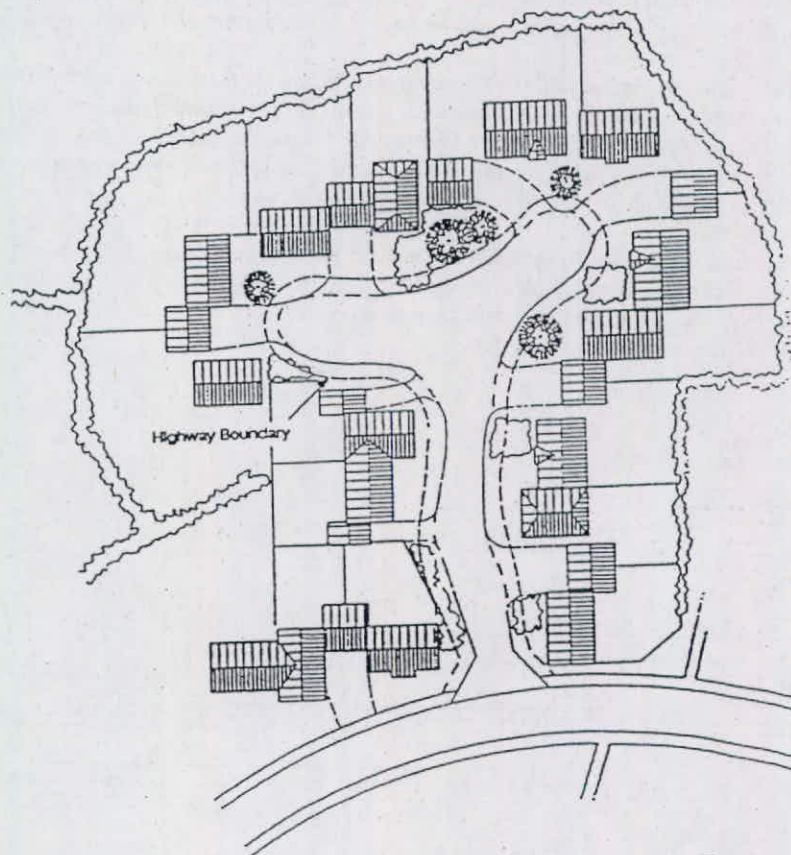


Fig 3.3 Example of an accessway



### v) Mews Court

These are formal, hard landscaped cul-de-sacs serving up to 25 dwellings with a shared surface, where consideration of pedestrians' safety predominates over the free flow of vehicles.

The appearance of the mews court is essentially urban in character, with buildings dominating to give a feeling of enclosure.

The shared surface must be finished in block paving or other approved materials, in keeping with the built environment.

Entry to a mews court is via a ramped footway crossing - a sense of enclosure can be achieved by siting buildings or walls on both sides of the entrance.

The shared surface within the mews court is generally 5.5 metres wide. The highway boundary is normally denoted by the kerbline, but other areas, especially those required for visibility splays and vehicle overhangs at turning heads, should be adopted.

The target maximum speed should be 25kph (15mph). To achieve this the shared surface should be limited to about 50 metres or a variety of the speed control devices described in Section 3.4 should be used.

Provision for statutory undertakers' equipment is made by allocating a single 2.0 metres wide strip adjacent to, or within and preferably at the edge of, the shared surface. Early consultation with the statutory undertakers, drainage and street lighting authorities should be carried out in order to ascertain their requirements.

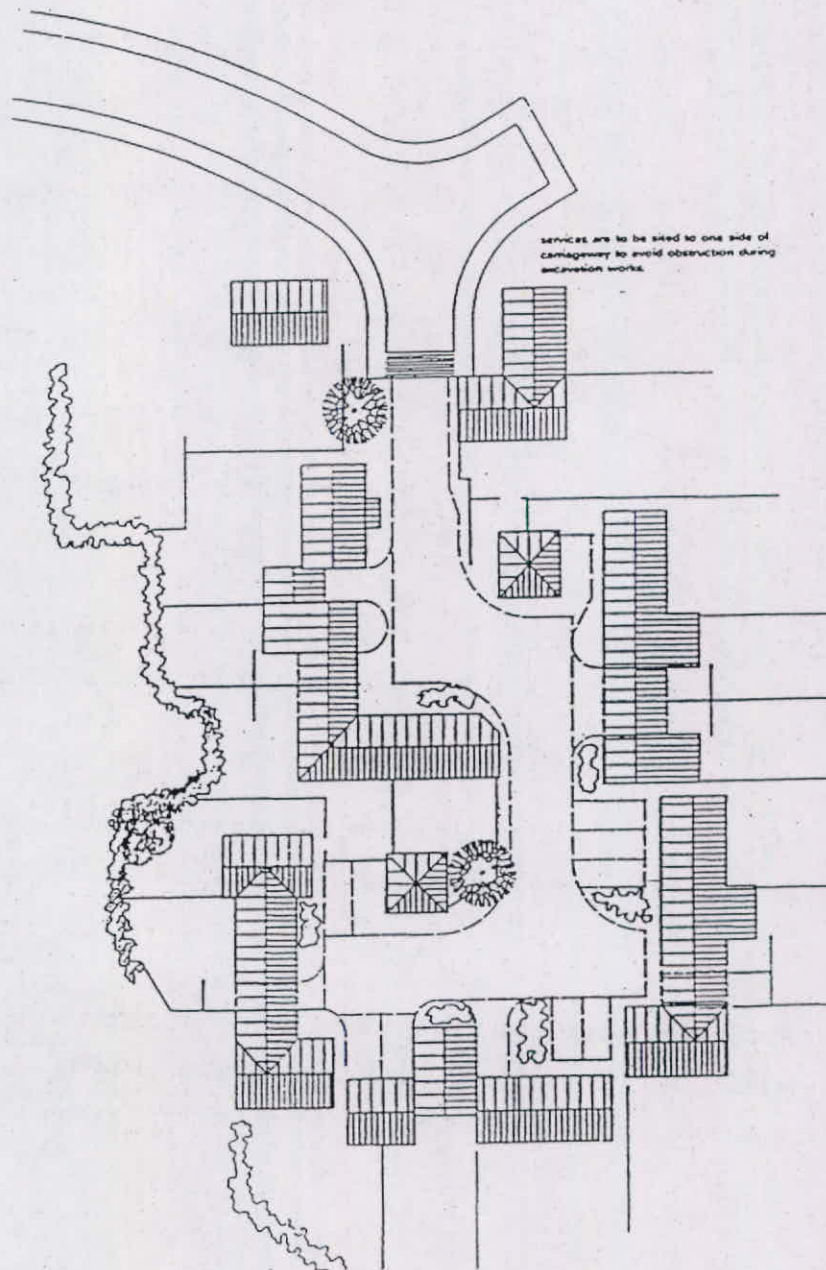


Fig 3.4 Example of a mews court



## vi) Private Drives

These may serve up to 5 dwellings and are, by definition, not suitable for adoption.

Adequate turning facilities for cars must be provided as part of the drive layout where more than one dwelling is being served.

Additional parking spaces for visitors will be required where private drives serve more than one dwelling.

The carry distance from the dwelling to the nearest waiting point for service vehicles should not exceed 25 metres.

Suitably designed turning areas will normally be required when vehicles would otherwise have to reverse over distances in excess of 40 metres.

In the interests of pedestrian safety, where a private drive crosses a footway, visibility splays of 1.8 m x 1.8 m should be provided as shown in Fig. 3.5.

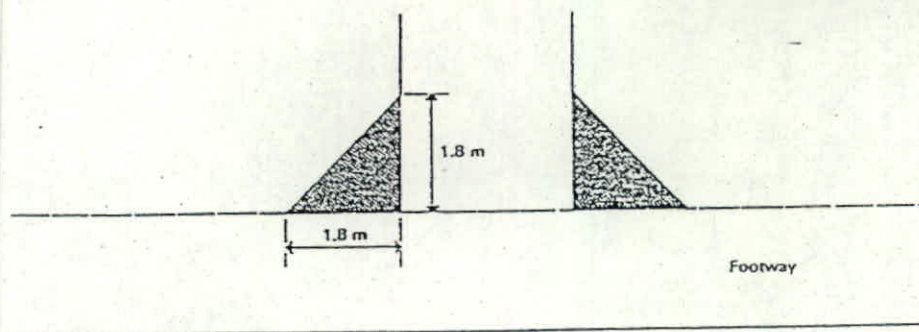


Fig 3.5 Pedestrian Visibility Splays

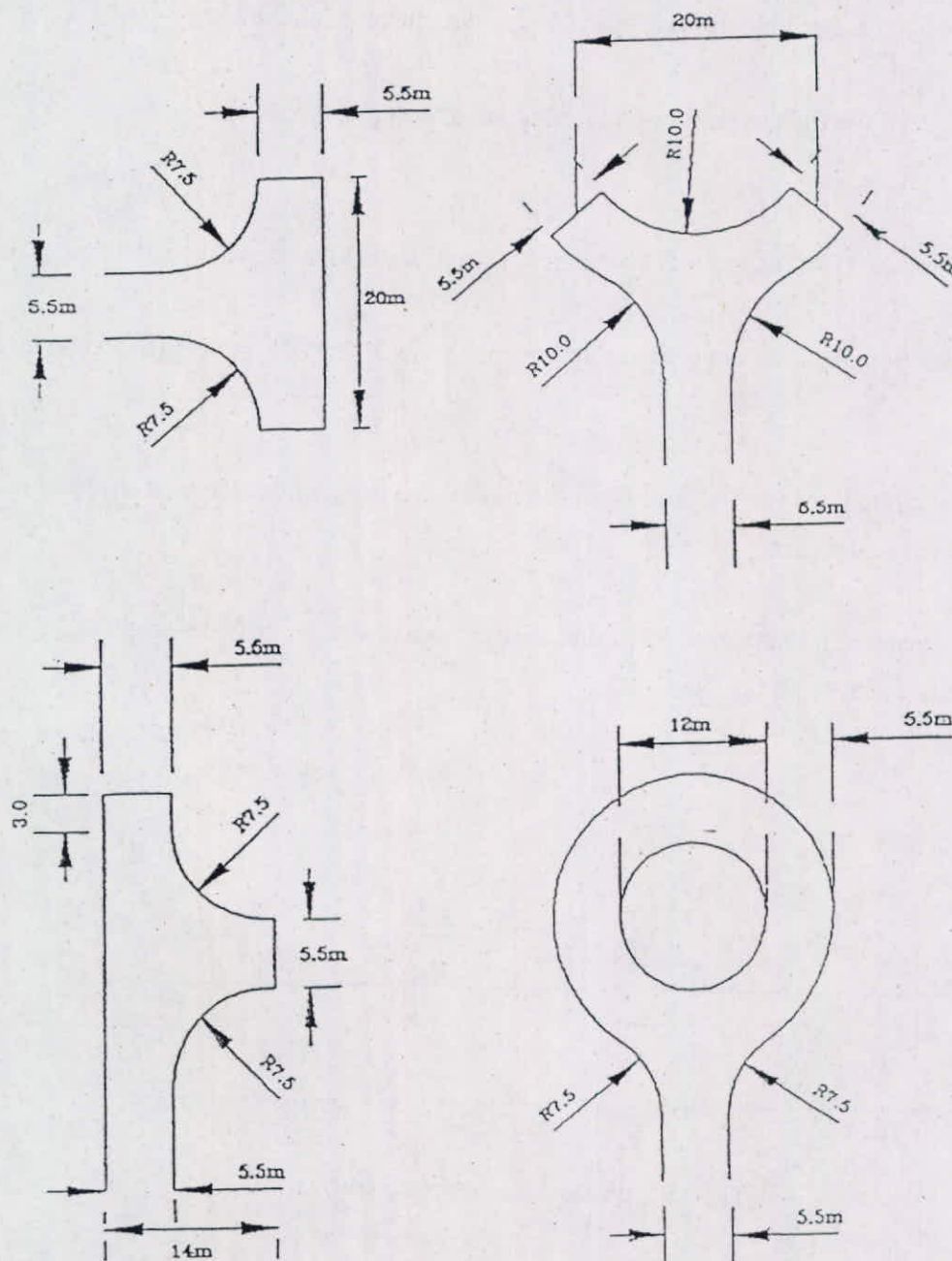


Fig 3.6 Turning spaces in cul-de-sacs based on carriageway width of 5.5m



1	2	3	4	5	6	7	8	9	10	11	12	13	14	
ROAD TYPE	MAXIMUM NUMBER OF UNITS SERVED	TARGET MAXIMUM SPEED		CARRIAGE-WAY WIDTH	FOOTWAY WIDTH	HORIZONTAL ALIGNMENT		VERTICAL ALIGNMENT			JUNCTIONS ALONG ROAD TYPE SPECIFIED IN COLUMN 1			
		kph	mph			Minimum centre line radius R	Minimum sight distance A-B	Minimum curve length	Maximum gradient	Minimum gradient	Minimum spacing adjacent junctions	Kerb radii	X distance	Y distance
Major access road	300	40	25	5.5*	2.0	60	60	30	7	0.67	5.5	10	4.5	45
Minor access road	100	30	20	5.5	2.0	30	45	30	10	0.67	-	10	4.5	33
Carway	50	30	20	3.7	-	30	45	30	10	0.67	-	7.5	4.5	45
Accessway	25	20	12	4.1 - 6.0	-	10	20	30	10	0.67	-	-	2.0	20
Mews/court	25	20	12	5.5	-	10	20	30	10	0.67	-	-	2.0	20
Shared private drive	5	-	-	4.1	-	-	-	-	10	0.67	-	-	-	-
Individual private drive	-	-	-	2.75	-	-	-	-	12	0.67	-	-	-	-

Note: \* 6.0m where it is likely that road will be part of a bus route.

Table 3. Layout standards for residential access



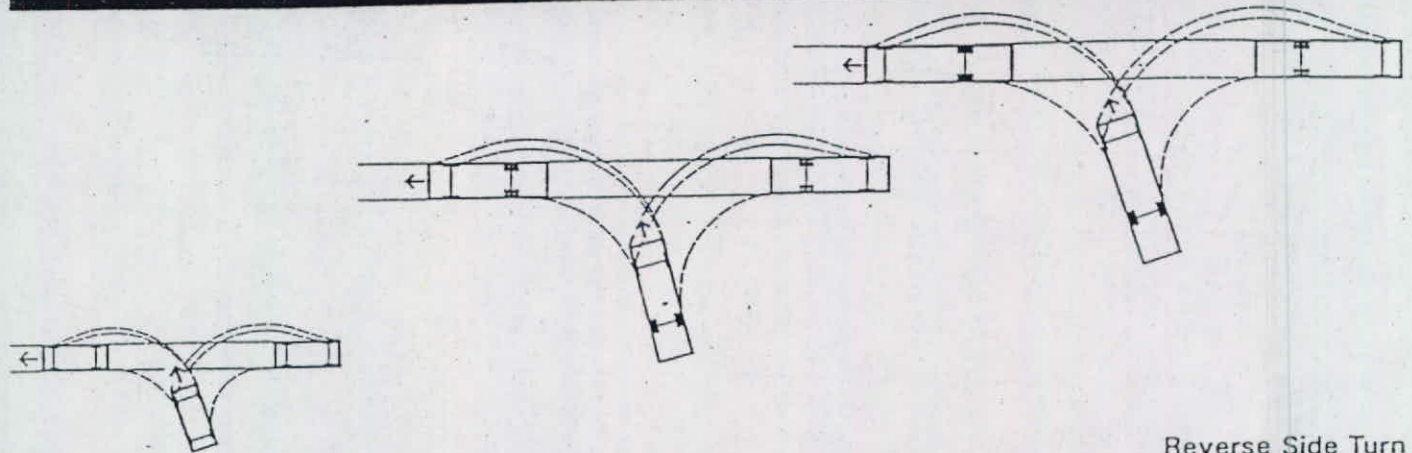
# Geometric Characteristics of Turning Vehicles

Scale 1:500

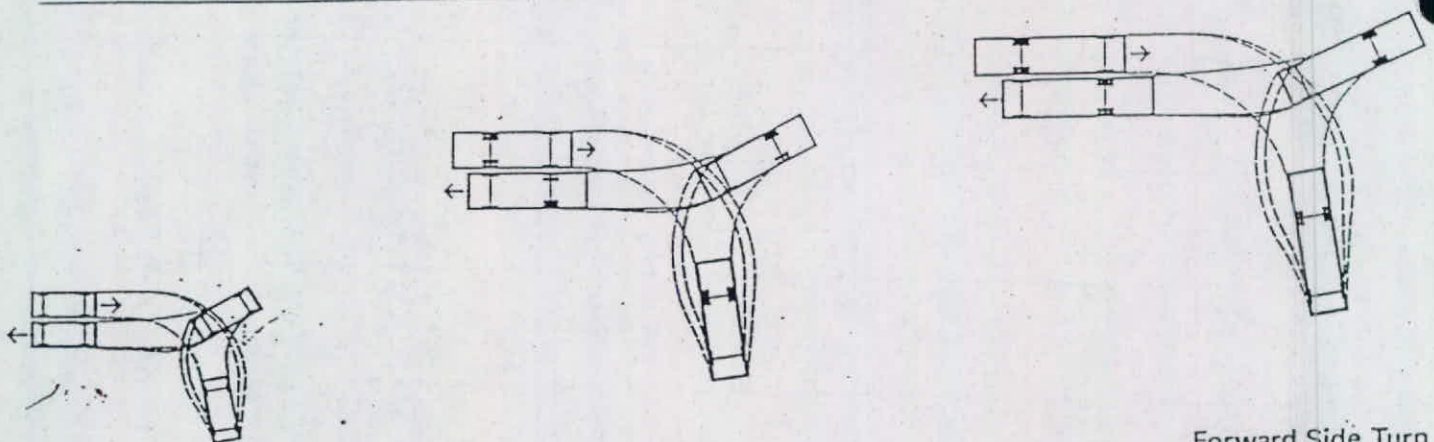
Motor Car

Refuse Vehicle

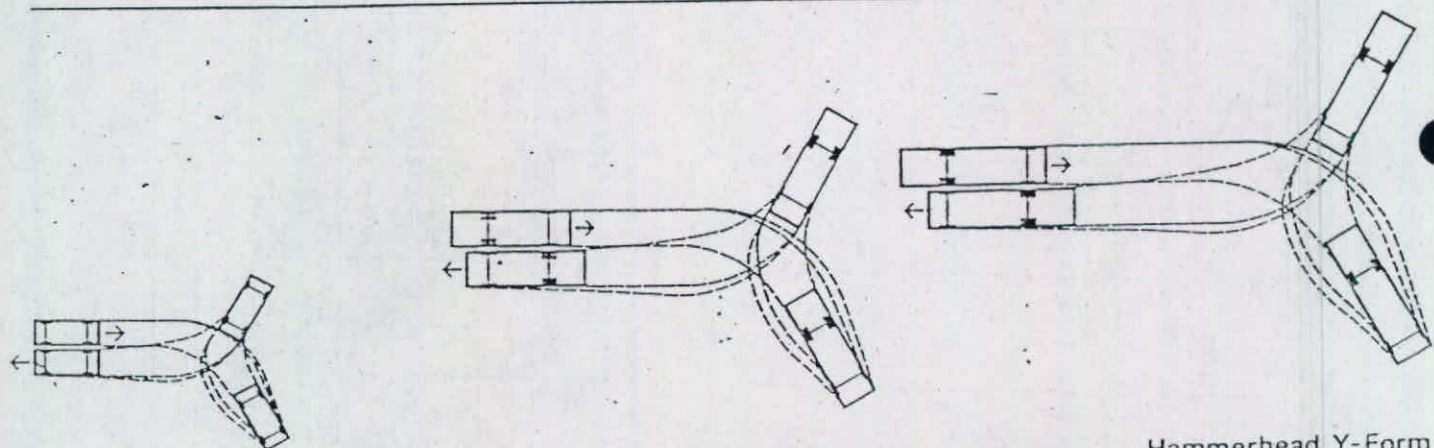
Pantechinon



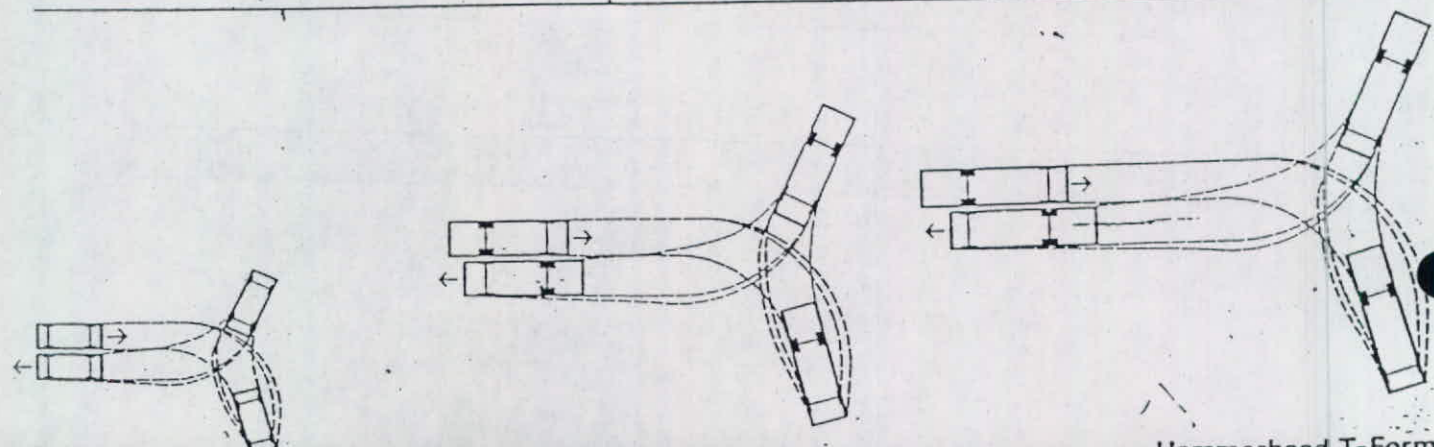
Reverse Side Turn



Forward Side Turn



Hammerhead Y-Form



Hammerhead T-Form



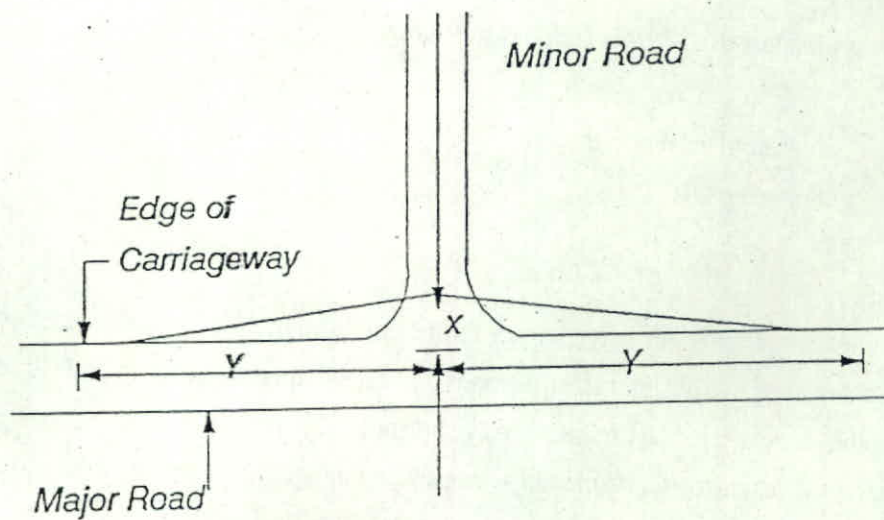


Fig 3.7 Illustration of visibility splays

## 4 INDUSTRIAL/COMMERCIAL ACCESS ROADS

### 4.1 Introduction and Road Hierarchy

The industrial road classification used in this Guide is as follows:-

- (i) Industrial access road
- (ii) Service roads

The road hierarchy and examples of alternative layouts for industrial trading estate roads are shown by Figure 4.1. It is essential for developers to design industrial roads that can adequately accommodate the manoeuvres of the large vehicles that are expected to use them. Any shortfall in design criteria can result in interruption to the flow of traffic on the major road and, possibly, lengthy and dangerous reversing manoeuvres for large vehicles.

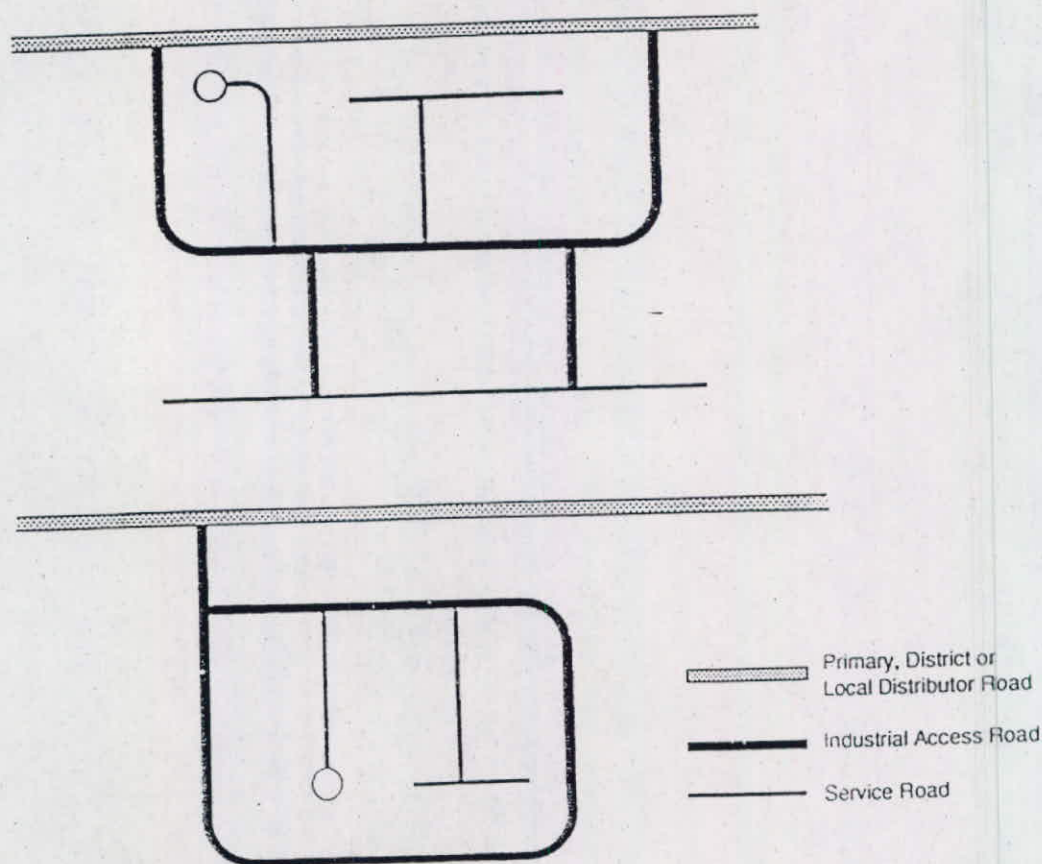


Fig 4.1 Diagrammatic layouts for industrial estate roads



## 4.2 Road Types

### (i) Industrial Access Road

These roads are designed to accommodate traffic flows containing less than 250 commercial vehicle trips per day and provide direct access to industrial units of development.

In cul-de-sac developments turning movements shall be provided for by a road loop, or a turning head as specified in figure 4.5.

Industrial roads carrying traffic flows in excess of 250 commercial vehicle trips per day (ie possibly equivalent to about 125,000m<sup>2</sup> gross floor area) are classed as distributor roads and dealt with in Part 2 of this guide.

### (ii) Service Roads

This class of road is designed to accommodate traffic flows containing less than 50 commercial vehicle trips per day (ie possibly equivalent to about 15,000 m<sup>2</sup> gross floor area). In cul-de-sac developments turning movement shall be provided for by a road loop, or turning head as specified in figure 4.5.

Service roads are not normally considered for adoption.

More detailed advice on the requirements of commercial and industrial premises is given in the Freight Transport Association's document "Designing for Deliveries".

## 4.3 Layout Standards

Road width, alignment, junction spacing and junction layout for industrial access and service roads must comply with the standards set out in Tables 4.1 and 4.2 and Figures 4.2, 4.3, and 4.4 below. Where junctions are to be formed off existing or new distributor roads, reference should be made to Part 2 of the Guide.

Unobstructed forward visibility must be provided across bends in accordance with the detail shown on Figure 4.2 in conjunction with the minimum sight distances given in column 7 of Table 4.1.

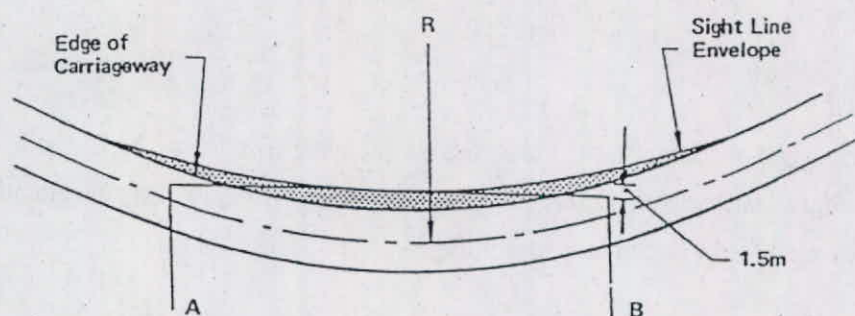


Fig 4.2 Forward visibility curve on bends

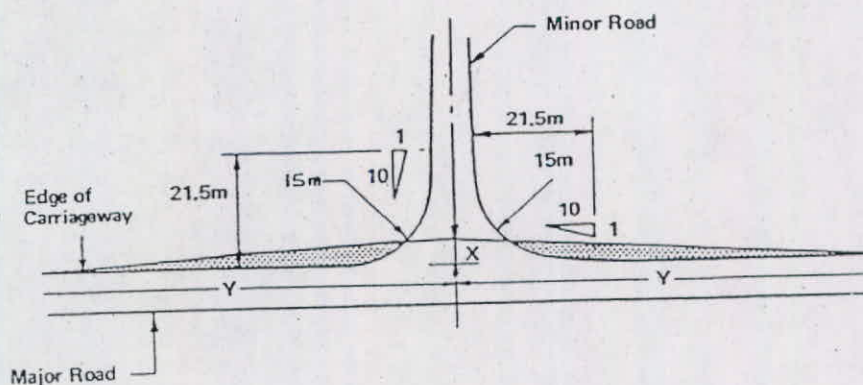


Fig 4.3 Junction layout standards (junction off industrial access road)



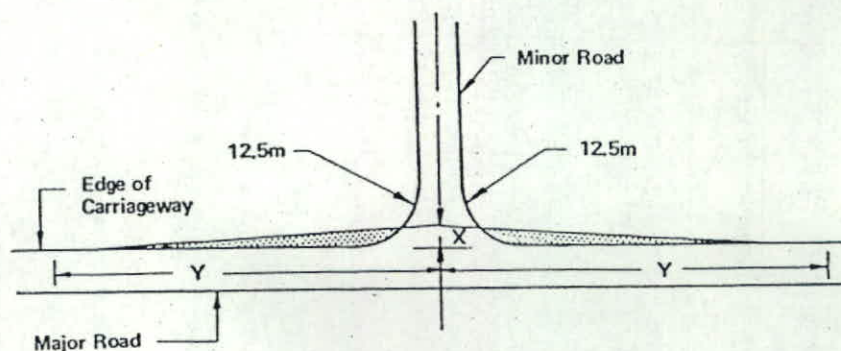


Fig 4.4 Junction layout standards (junction off service road)

*Notes:*

- (1) All land within site lines is to be included in the public highway.
- (2) The visibility must be available on a line between two points 1.05m above the road level.
- (3) Care must be taken in placing of signs and street furniture within the visibility splays to ensure that they do not obstruct visibility.
- (4) Trees and plants will only be permitted with the specific approval of the Highway Authority.

1	2	3		4	5	6		7	8	9	10	11	12	13	14	15
ROAD TYPE	COMMERCIAL VEHICLE TRAFFIC FLOW	NOMINAL DESIGN SPEED		CARRIAGE-WAY WIDTH	FOOTWAY WIDTH	HORIZONTAL ALIGNMENT <sup>1</sup>		Minimum sight distance A-B	Minimum curve length	Maximum gradient	Minimum gradient	Minimum Spacing		Kerb radii	X distance	Y distance
		kph	mph			adjacent m	opposite m									
Industrial access road	250 commercial vehicle trips per day	50	30	7.3	2.0	90	70	10k 30	6	0.67	90	40	15 with tapers	4.5	60	
	50 commercial vehicle trips per day	40	25	6.0	2.0	60	70	6k 60	7	0.67	50	30	12.5	4.5	45	
Service road																

Notes: 1 Horizontal alignment - sight distance is measured from a point 1.5m into the carriageway from the inner channel  
2 Vertical alignment - 'K' is the algebraic difference between gradients expressed as a percentage

Table 4.1 Layout standards for industrial access and service roads



If the carriageway centre line radius is less than 150m carriageway widening is required in accordance with Table 4.2 below.

CENTRE LINE RADIUS (metres)	CARRIAGEWAY WIDTH ON CURVE (metres)	
	Normal Width	Industrial Access Road
60	7.3	8.5
70	7.3	8.3
80	7.3	8.1
90-150	7.3	7.9

**Table 4.2 Carriageway widening on curves**

*Notes:*

- (1) *For curves of intermediate radii widths are to be interpolated.*
- (2) *The extra width shall be applied uniformly along transition curves.*

#### **4.4 Clearance from the Carriageway**

- Horizontal - The minimum clearance between the edge of the carriageway and any structure shall be 600mm.
- Vertical - The minimum headroom, below bridges and buildings on all purpose roads is 5.3m. The minimum headroom under footbridges and gantries is 5.7m.



## 4.5 Turning Heads and Loading Bays

Wherever possible cul-de-sac access should be avoided but where this cannot be done, turning heads must be provided at the end of each cul-de-sac. The size of the turning head will depend on the type of vehicle likely to be using the turning provision on a regular basis.

The minimum dimensions for turning heads are given in Figure 4.5.

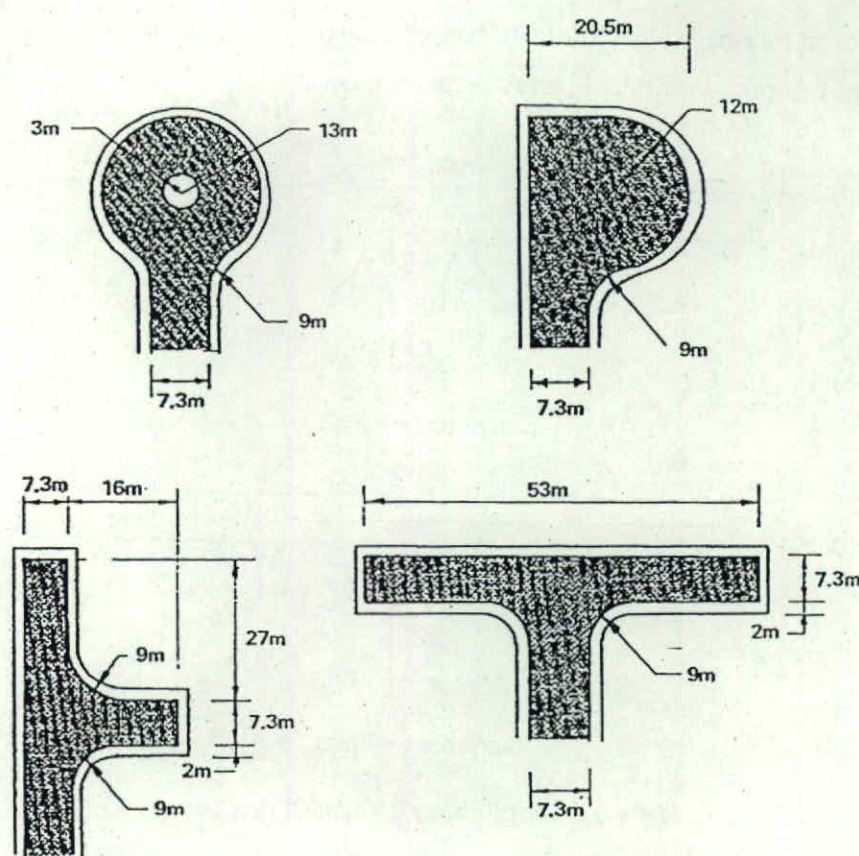


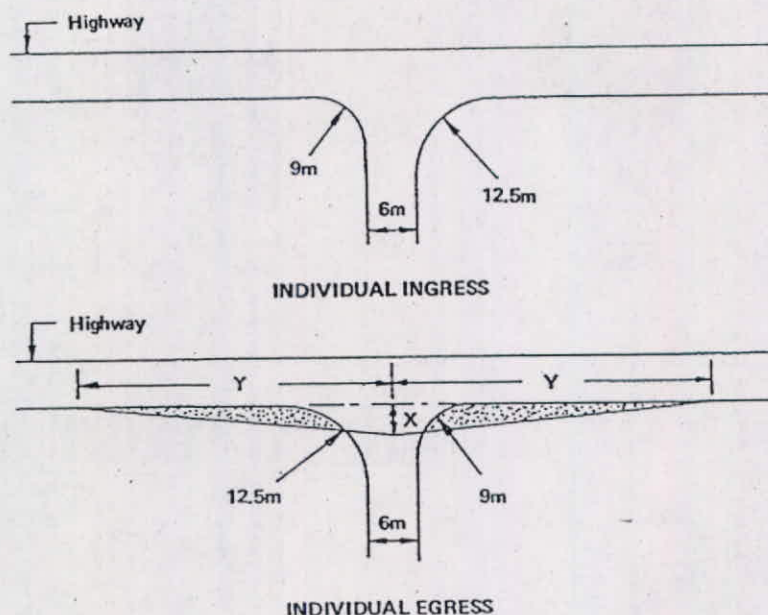
Fig 4.5 Turning spaces in cul-de-sacs based on carriageway width of 7.3m

## 4.6 Accesses to Industrial Premises

Accesses should be designed with on site vehicle parking and manoeuvring areas to ensure that vehicles can be driven into and out of the premises in forward gear without interference to the flow of traffic.

An acceptable form of two way access is illustrated by figure 4.4 above.

Single way accesses may be preferred to facilitate manoeuvring of commercial vehicles within the site. In this situation a modified design as shown by Figure 4.6 can be used.



**Fig 4.6 Single Way Industrial Access**

*For the appropriate visibility splay distances (x and y) refer to Table 4.1.*

In all cases visibility must be available on a line between two points 1.05m above the road levels and care must be taken in placing of signs and street furniture within the visibility splays to ensure that their obstructive effect is minimal.

Where there is a gated access there must be a sufficient draw-in space of at least 18m depth to permit the vehicle to clear the highway before having to stop.



## 5 PARKING STANDARDS

### 5.1 Introduction

The revision of parking standards needs to take account of the changing role of car parking within the County's transport strategy. This role varies depending on the location but within the urban areas and main town centres it will be an increasingly sensitive issue. There are no nationally applied parking standards but reference to the need to plan for vehicle parking in design is made in Design Bulletin 32 as follows:

- 4.9 Parking and other transport management policies in local plans will provide the basis for parking provision in local design guides. An important issue to be covered will be the provision of off-street parking for new development, and the plan policies will normally show the standard that the local authority is looking for.
- 4.20 Standards for the layout and location of parking spaces should be published - to ensure that developers are aware of requirements when preliminary layout plans are being produced and provide a common basis for discussions between developers and authorities' officers.

The Bedfordshire Structure Plan 2011, Deposit Draft, lays great emphasis on the need to plan for sustainable development. An important element of this new approach to strategic planning is the provision of car parking for new development. In particular the Draft Plan states (Policy 22) that:

***Policy 22 Locational Policy***

*To concentrate travel intensive uses in areas which are well served by public transport, local planning authorities will define locations in terms of their existing or potential public transportation accessibility. The definitions will be:-*

- a) *locations well located to or within walking distance of main public transport interchanges;*
- b) *locations within cycling distance of main public transport interchanges or within walking distance of main public transport routes, including those served by park & ride facilities;*
- c) *locations with limited public transport accessibility.*



1	2	3		4	5	6		7	8	9	10	11			12	13	14	15
ROAD TYPE	COMMERCIAL VEHICLE TRAFFIC FLOW	NOMINAL DESIGN SPEED		CARRIAGEWAY WIDTH	FOOTWAY WIDTH	HORIZONTAL ALIGNMENT <sup>1</sup>		VERTICAL ALIGNMENT <sup>2</sup>		T JUNCTIONS ALONG ROAD TYPE SPECIFIED IN COLUMN 1								
		kph	mph	m	m	Minimum centre line radius R	Minimum sight distance A-B	Minimum curve length	Maximum gradient	Minimum gradient	Minimum Spacing		Kerb radii	X distance	Y distance			
						m	m	m	%	%	adjacent m	opposite m	m	m	m			
Industrial access road	250 commercial vehicle trips per day	50	30	7.3	2.0	90	70	10k 30	6	0.67	90	40	15 with tapers	4.5	60			
Service road	50 commercial vehicle trips per day	40	25	6.0	2.0	60	70	6k 60	7	0.67	50	30	12.5	4.5	45			

Notes: 1 Horizontal alignment - sight distance is measured from a point 1.5m into the carriageway from the inner channel  
2 Vertical alignment - 'K' is the algebraic difference between gradients expressed as a percentage

Table 4.1 Layout standards for industrial access and service roads



*For each of these locations local planning authorities will define appropriate uses, minimum densities for development and maximum vehicle parking standards. Proposals for new development will be expected to accord with the density and car parking standards."*

The Draft Plan goes on to state (Policy 39 Integrated Transportation Strategy) that it will develop and implement an integrated transportation strategy for the County which amongst other things:

- "ii) encourages an overall modal shift away from the private car to public transport, walking and cycling by restraining the use of the private car in urban areas;" and*
- vii) makes the best use of existing and planned transport infrastructure by the application of a 'package' of measures such as traffic management, calming, and parking policy;....."*

The Draft Plan also states (Policy 44 Traffic Management) that local planning authorities will adopt and develop an area wide approach to traffic management and calming within urban areas which amongst other things:-

- "iii) makes the best use of existing town centre car parks for leisure and residential parking outside working hours;*
- iv) reduces the demand for town centre long stay parking by public transport improvements and park and ride facilities;*
- v) ensures car parking requirements in general are kept to the operational minimum; including encouraging the redevelopment or reuse of existing private parking to comply with the revised standards and controlling parking at peripheral sites so as not to disadvantage more central areas;*
- vi) seeks commuted payments from developers to provide alternatives to on-site parking, with priority for measures which assist public transport, walking and cycling, including traffic calming and other restraint measures."*

Against this background the advice on parking in the Guide sets out the general approach for assessment of parking levels in order to assist in achieving the County Council's sustainable development objectives. It also forms a base for the preparation of specific policies to be included in local plans and provides comprehensive advice for the maximum levels of parking provision in areas where full provision for the private car is currently unavoidable.

Design for new developments in Bedfordshire should take account of the standards set out in existing local plans. In particular current local strategies within the urban areas of Bedfordshire introduce constraints on parking space in some cases and use standards which restrict car use in favour of other transport modes. An appendix at the end of this Part highlights these standards appropriate to individual planning authorities.



## **5.2 Assessment of Parking Requirements**

In line with Policy 22 of the Structure Plan 2011 Deposit Draft (Locational Policy) the following approach should be taken to assessing parking levels in relation to location.

### **Type 'a' locations**

Such locations will be in the central areas of the main towns.

Provided that:-

- there is a stock of public off-street car parking whose pricing policy can be influenced by the local authorities;
- there is a public car parking plan for the central area providing an assessment of existing usage and future needs, with a programme for funding provision of additional parking if this proves necessary;
- the central area is a main node for public transport services;
- area-wide on-street parking controls are in force within and around the central area.

consideration should be given to reducing parking levels to the minimum necessary for purely operational needs and in the case of residential development possibly to zero.

The Local planning authorities will need to take account of their existing local plan policies in determining the extent to which such reduced levels of provision are consistent with those policies.

The difference between the maximum level of parking provision and the reduced level of parking appropriate in a given case would form the basis for the calculation of a commuted payment towards further public parking provision and/or the County Council's approved integrated transport strategy for the area.

## **Type 'b' locations**

Such locations will probably be on the main radial routes in the larger urban areas, at sub-urban centres in those areas or the centres of smaller towns. They would be well served by public transport. Maximum walk distances to the nearest bus stop would be 400 metres and bus frequencies would be not greater than 20 minutes in at least two directions of travel. Alternatively or in addition they may be close to a rail station.

Ideally there would be good pedestrian and cyclist links to facilities such as shops, schools and entertainment.

In such locations particularly small centres parking would ideally be provided for the whole centre with scope for sharing between shopping/employment and community uses and possibly nearby higher density residential development.

Consideration should be given to reducing standards below maximum levels taking account of all the above factors.

Commuted payments may be sought in relation to any reduced scale of parking to help pay for identified proposals for sustainable transport measures.

## **Type 'c' locations**

These would comprise all locations which do not satisfy Type 'a' or 'b' criteria. Granting of planning permission would be subject to current structure and local plan policies (in relation, for example, to out-of-town shopping centres). They would generally be expected to provide parking not to exceed the maximum levels set out in this Guide.



### **5.3 General Information**

#### **Parking for the Mobility Handicapped**

Specific provision for parking for the mobility handicapped has been incorporated in the standards.

#### **Multiple Uses**

Where a site has more than one existing and/or proposed use, the requirement for each use will be assessed separately. In cases where it can be shown that, either wholly or in part, uses are being carried out concurrently, shared use of parking area will be permitted. Developers will be expected to provide an assessment of the extent to which shared use could take place and agree this with the local planning authority.

#### **Development not Specifically Included in List of Uses**

Where a type of development is proposed which is not included in these standards, the parking requirement will be assessed taking into account the information submitted with the application, site and locality characteristics and experience of similar developments.

#### **Minimum Size of Parking Spaces**

- a) Car space 2.4m x 4.8m.
- b) Car space within garage 2.5m x 5m (internal).
  - 2.4m x 6.0m (end to end parking)
  - 3.6m x 4.8m (where space is provided for cars of mobility handicapped persons)
  - 3.6m x 6.0m (end to end parking for cars of mobility handicapped persons).
- c) Light goods vehicle space 3.0m x 7.0m.
- d) Heavy goods vehicle space 3.5m x 17.0m.
- e) Coach space 3.5m x 14.0m.

## **Layout of Parking Spaces**

The layout of car parking spaces will comply with Housing Development Note VII, Parking in New Housing Schemes (Parts 1 and 2).

Manoeuvring space for lorries will be considered for each site, individually, account being taken of operational requirements and the class of development applied for. Design geometry should have regard to the advice contained in the Freight Transport Association publication - Designing for Deliveries.

## **Review Of Standards**

Requirements for the maximum levels of parking for vehicles at home and places of business and leisure are continually reviewed in the light of the findings of parking studies and to meet changing circumstances.



## **5.4 Maximum Parking Levels**

### **Definitions**

- a) Gross floor area (gfa): The total floor area calculated from the external dimensions of all the buildings on the site.
- b) Public floor area (pfa): The area to which the general public normally has access but excluding toilets and washrooms.

## Class A1 Retail

All premises defined as shops in the Town and Country Planning (Use Classes) Order 1987; including superstores and retail warehouses, post offices, sandwich bars (cold food for consumption off the premises), hairdressers, travel agents, directors of funerals, showrooms (except car showrooms), the hiring out of personal goods or articles, the reception or service of goods to be washed, cleaned or repaired (where the sole display or service is to visiting members of the public).

Use	Car Parking Spaces	Lorry Parking Spaces
a) General retail	less than 500m <sup>2</sup> - 1 per 25m <sup>2</sup> gfa " " 2,000m <sup>2</sup> - 1 per 20m <sup>2</sup> gfa 2,000m <sup>2</sup> and over - 1 per 9m <sup>2</sup> gfa	less than 50m <sup>2</sup> - 1 LGV " " 250m <sup>2</sup> - 1 HGV " " 1,000m <sup>2</sup> - 2 HGV " " 2,000m <sup>2</sup> - 3 HGV
b) Non-food retail warehouses (single unit development)		
(i) DIY	1 space per 15m <sup>2</sup> gfa	1 HGV plus 1 HGV for every 1400m <sup>2</sup> gfa
<i>Note: Standards may be relaxed in special circumstances where a range of goods is clearly defined and specific parking information is available.</i>		
(ii) Furniture retail warehouses	general furniture - 1 space per 85m <sup>2</sup> gfa flat pack furniture - 1 space per 30m <sup>2</sup> gfa combined store - 1 space per 35m <sup>2</sup> gfa	1 HGV for every 1400m <sup>2</sup> gfa
(iii) Garden centres	less than 1000m <sup>2</sup> of relevant area: 1 space per 35m <sup>2</sup> of r.a. (covered) 1 " " 50m <sup>2</sup> of r.a. (uncovered) centres exceeding 999m <sup>2</sup> r.a. 1 space per 15m <sup>2</sup> r.a.	
<i>Note 1: Relevant area (r.a.) is defined as the gross floor area of any building plus open area used for trading or display but excluding areas used for the production of plants and materials, but closed to the public.</i>		
<i>Note 2: Informal car parking facilities may be used for up to 50% of assessed parking.</i>		



Use	Car Parking Spaces	Lorry Parking Spaces
(iv) Car accessories	3 spaces per service bay plus 1 space per 60m <sup>2</sup> gfa	1 HGV
(v) Service garages	3 spaces per bay or 1 space per 12m <sup>2</sup> gfa	
<p><i>Note 1: Premises at which motor vehicles are repaired, overhauled or serviced in return for payment</i></p> <p><i>Note 2: When servicing of lorries is included parking requirements will be assessed individually</i></p>		
(vi) Cash and Carry	1 space per 35m <sup>2</sup> gfa	1 HGV per 500m <sup>2</sup> gfa
c) Non-food retail warehouses (multiple units development)	1 space per 20m <sup>2</sup> gfa	1 HGV per 500m <sup>2</sup> gfa
d) Major retail shopping centres	1 space per 9m <sup>2</sup> gfa	1 HGV per 1000m <sup>2</sup> gfa

## Class A2 Financial and Professional Services

Offices providing services direct to the public who may be expected to visit the site. Such premises include: banks, building societies, estate agents, betting offices.

Use	Car Parking Spaces	Lorry Parking Spaces
Offices (financial and professional)	<p>1 space per 27 m<sup>2</sup> gfa (urban location)</p> <p>1 space per 17 m<sup>2</sup> gfa (rural location)</p>	1 LGV



## Class A3 Food and Drink

Buildings used for the sale of food or drink for consumption on premises or of hot food for consumption off the premises, includes:- restaurants, public houses, wine bars and take-aways.

Use	Car Parking Spaces	Lorry Parking Spaces
c) Restaurants/cafes	1 space per 5m <sup>2</sup> gfa dining area plus 1 space per 84m <sup>2</sup> gfa	1 LGV for dining p.f.a. not exceeding 100m <sup>2</sup> gfa  1 HGV for dining p.f.a. exceeding 100m <sup>2</sup>
Roadside restaurants	as above but 1 space per 4m <sup>2</sup> dining area	as above
b) Transport cafes	1 space per member of staff	1 HGV per 2m <sup>2</sup> of dining area
c) Fast food outlets	will be considered individually with regard to location and available parking facilities	
d) Public houses	1 space per 4m <sup>2</sup> bar public area  1 space per 5m <sup>2</sup> dining area  1 space per residential staff 1 space per 3 non-resident staff	1 LGV for bar p.f.a. not exceeding 100m <sup>2</sup> 1 HGV for bar p.f.a. exceeding 100m <sup>2</sup>

## Class B1 Business

Including offices (other than those falling into Class A2), research and development, and light industry.

Use	Car Parking Spaces	Lorry Parking Spaces
a) General offices	1 space per 20 m <sup>2</sup> gfa	1 LGV where gfa does not exceed 250 m <sup>2</sup> 1 HGV where gfa does not exceed 2,000 m <sup>2</sup>
b) Business parks	1 space per 30 m <sup>2</sup> gfa	
c) High tech.	1 space per 30 m <sup>2</sup> gfa	1 HGV per 2000 m <sup>2</sup>
d) Light industrial (units of g.f.a. not exceeding 200 m <sup>2</sup> )	1 space per 22 m <sup>2</sup> gfa	1 HGV per unit
<i>Note: Applications for light industrial units with communal parking and servicing facilities will be considered on their merits</i>		
e) Non specific use	1 space per 20 m <sup>2</sup> gfa	1 HGV per 200 m <sup>2</sup> gfa
<i>Note: Specific uses within this category should be subject to a suitable legal agreement in order to ensure that appropriate parking facilities are provided if a change of use occurs, which would not require planning permission.</i>		



## Class B2 General Industrial and Class B8 Storage and Distribution

B2 - Use for the carrying out of an industrial process other than one falling within Class B1 or B3 to B7.

B8- All premises providing storage and distribution as a service. Warehouses including wholesale, cash and carry and open storage areas.

Use	Car Parking Spaces	Lorry Parking Spaces
d) General Industrial Unit	1 space per 50m <sup>2</sup> gfa	1 HGV for unit not exceeding 100m <sup>2</sup> gfa 2 HGV for unit not exceeding 250m <sup>2</sup> gfa 3 HGV for unit not exceeding 500m <sup>2</sup> gfa 4 HGV for unit not exceeding 1000m <sup>2</sup> gfa 5 HGV for unit not exceeding 2000m <sup>2</sup> gfa
<i>Note: Industrial premises over 2000 m<sup>2</sup> gfa and groups of units with communal parking and servicing will be considered on their merits.</i>		
b) Commercial warehousing	1 space per 70m <sup>2</sup> gfa	1 HGV per 200m <sup>2</sup> gfa
c) Open storage	Considered on merit	1 HGV per 500m <sup>2</sup> of storage area

## Class C1 Hotels

Includes boarding or guest houses.

Use	Car Parking Spaces	Lorry Parking Spaces
Hotels	1 space per 2 bedrooms (town centre location) 1 space per 1 bedroom (other locations) 1 space per 1 resident staff 1 space per 3 non resident staff 1 space per 5m <sup>2</sup> dining area 1 space per 4m <sup>2</sup> bar area 1 space per 4.5m <sup>2</sup> conference area	1 LGV for unit not exceeding 500m <sup>2</sup> 1 HGV for unit exceeding 500m <sup>2</sup>  1 coach space per 150m <sup>2</sup> conference area



## Class C2 Residential Institutions

Premises used for the provision of residential accommodation and care to people in need, including: hospitals, nursing homes, residential schools and colleges or training centres.

Use	Car Parking Spaces	Lorry Parking Spaces
c) Hospitals - visitor parking	1 space per 2 beds 4 spaces per Doctor (where outpatient facilities)	Considered on merit
- staff parking	1 space per 3 beds (long stay hospital) 2 spaces per 3 beds (general hospital)	
b) Community homes (children, handicapped & & elderly persons)	2 spaces for each unit of staff accommodation 1 space per 5 residents	

## Class C3 Dwelling Houses

Premises occupied by a single person or by people living as a family. This includes houses, bungalows, flats, maisonettes, and caravans/mobile homes for the private sector, housing associations or local authorities and includes non-sheltered accommodation for the elderly.

Type of Dwelling	Maximum Number of Spaces
a) Housing	
1 bedroom units	1.5 car parking spaces per unit
2 & 3 " "	2.25 " " " "
4 & over " "	3.25 " " " "
<p><i>Note 1: Car parking should be provided in an adequate and convenient manner for both residents and visitors. The parking spaces should be within the curtilage of the dwelling or conveniently close to it and should be clear of carriageways, footways and visibility splays.</i></p> <p><i>Note 2: Car parking spaces should be located within view of the dwellings the parking is meant to serve and no more than 20 metres from the front door.</i></p>	
b) Sheltered housing units for the elderly	2.0 car parking spaces for the warden 1.0 car parking spaces for 2 staff 1.0 car parking spaces for 5 residents
<p><i>Note: Units without resident supervisory staff will be considered as general purpose housing</i></p>	



## Class D1 Non-Residential Institutions

Including medical or health services, specialist creche, day nursery or day centre, education, museums, libraries, public hall or exhibition hall, places of worship.

Use	Car Parking Spaces	Lorry Parking Spaces
a) Health centres, clinics and the surgeries of doctors, dentists, vets and other medical specialists	1 space per professional staff 1 space per 3 non-professional staff 4 spaces per doctor	
b) Education - all schools and colleges  plus: Lower schools Middle & upper sch. Sixth forms Colleges of F.E.	1 space per full time teacher 1 space per 4 other staff  1 space per class (max. 10 spaces) 1 space per class (max. 20 spaces) 1 space per 20 pupils 1 space per 10 pupils	1 LGV Coach facilities considered on merit.
c) Day nurseries	1 space per staff 1 space per 3 children	
d) Day care centres for the physically handicapped	1 space per 2 staff 1 space per 4 persons attending space for pickup/set down considered on merit.  <i>Note: The parking spaces for persons attending should have minimum width of 3.2m</i>	
e) Other day care centres	1 space per 2 staff space for pickup/set down considered on merit.	
f) Community centres, assembly halls	1 space per 3 staff 1 space per 5 m <sup>2</sup> public space	1 LGV
g) Libraries	1 space per 30 m <sup>2</sup> gfa	1 HGV
h) Places of worship	1 space per 10 m <sup>2</sup> gfa	
i) Misc. cultural buildings incl. craft centres, art galleries, museums	1 space per 30 m <sup>2</sup> public area (min. 2 spaces)	
<i>Note: Where the premises require a fire certificate, the car parking provision shall be commensurate to the maximum number of persons for which the premises is licensed. In such case a provision of 1 car parking space per 3 persons would be required.</i>		

### Class D2 Assembly and Leisure

Buildings used for the purpose of public entertainment including cinemas, bingo halls or casinos, concert halls, dance halls, swimming pools, skating rinks, gymnasiums or areas for other indoor or outdoor sports or recreation.

Use	Car Parking Spaces	Lorry Parking Spaces
a) Cinemas, concert halls	1 space per 3 staff 1 " " 5 seats (town centre) 1 " " 3 seats (other locations)	1 HGV
b) Dance halls, bingo halls	1 space per 1 staff 1 " " 5 m <sup>2</sup> public area	1 LGV
c) Indoorsports centres, leisure centres, swimming baths	1 space per 2 staff 1 " " 10 m <sup>2</sup> public area	1 LGV coach facility considered on merits
d) Sports grounds	considered on merits	
e) Rackets clubs	4 spaces per court	
f) Golf courses	60 spaces per 9 holes	
g) Golf driving ranges	1.5 spaces per bay	



## Non Classified Uses (Sui Generis)

Premises used for purposes which do not fall within any class as defined in the Town & Country Planning General Development Order.

Use	Car Parking Spaces	Lorry Parking Spaces
a) Theatres	1 space per 3 staff 1 " " 5 seats	1 HGV
b) Vehicle service stations (i) Petrol filling stations (ii) Vehicle service stations (iii) Car sales and showrooms	1 space per 30m <sup>2</sup> gfa 3 spaces per service bay 1 space per 2 staff 1 space per 45m <sup>2</sup> of display or storage area	3 HGV per commercial service bay
c) Catteries, kennels	2 spaces per unit of staff accommodation 1 space per 4 units of animal accommodation (max. 10 spaces)	
d) Equestrian establishment	Considered on merit	Considered on merit
e) Hostels	1 space per 2 occupants	—
<i>Note: A lower standard within the range of 1 space per 2-6 occupants will apply if the applicant can demonstrate that a lower provision is appropriate.</i>		

## 5.5 Parking Provision for Mobility Handicapped Drivers

Any development likely to give rise to a demand for access by mobility handicapped persons will be required to provide adequate special parking facilities to the standard detailed below. Such provision should be located close to an entrance and the parking spaces shall allow for uninterrupted access by wheelchair users. Dimensions and layout requirements for the special parking bays are as shown below.

### 1 Developments with no normal Public Access

1 disabled person space per 25 car spaces up to 100 car spaces  
plus 1 space for every additional 100 car spaces thereafter (or part thereof)

*(N.B. For developments requiring less than 25 car spaces provision shall be considered on the merits of a particular proposal, but consideration should be given to always providing at least one space wide enough for a mobility handicapped user).*

### 2 Development intended for normal Public Access

1 space per 25 car spaces (Min. provision of 1), or  
3 spaces per 50 car spaces, or  
5 spaces per 100 car spaces, and  
1 space for every additional 50 spaces (or part thereof).

*(N.B. Developments specifically catering for the needs of the mobility handicapped - nursing homes, clinics, etc. - should be considered on the merits of each particular case).*



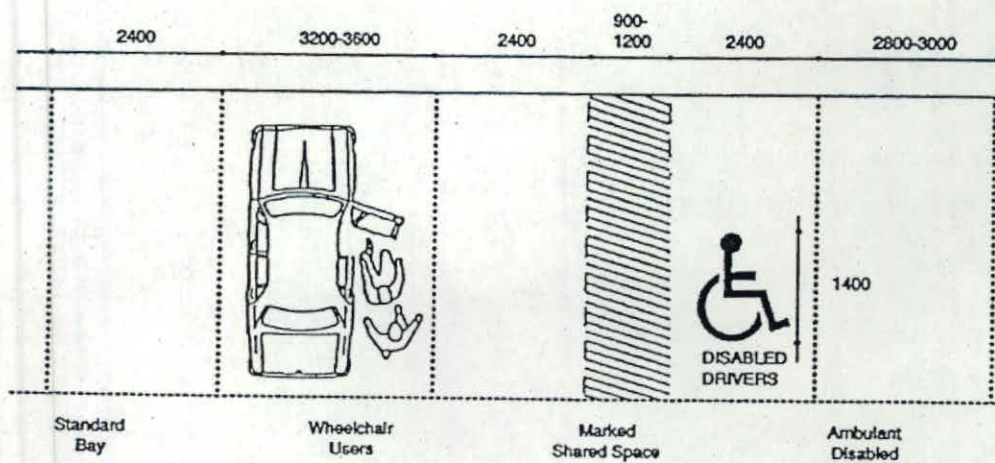


Fig 5.1 Car parking  
(measurements in mm)

Car parking spaces for the mobility handicapped must be marked as shown and, in the case of public car parking facilities, signposted at the entrance.

Spaces should be provided for assisted wheelchair users as well as ambulant disabled.

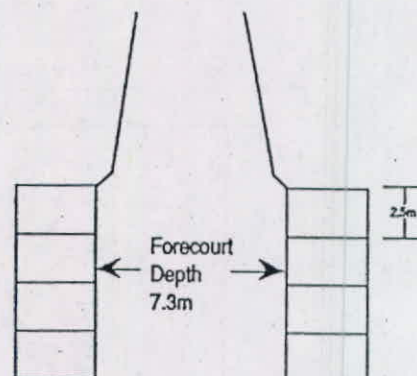
## 5.6 Car Parking Layouts

### Garage Courts

#### (a) Double-sided access

Where space for the forecourt is critical, the depth may be reduced to 6.5m by widening the garage to 3m.

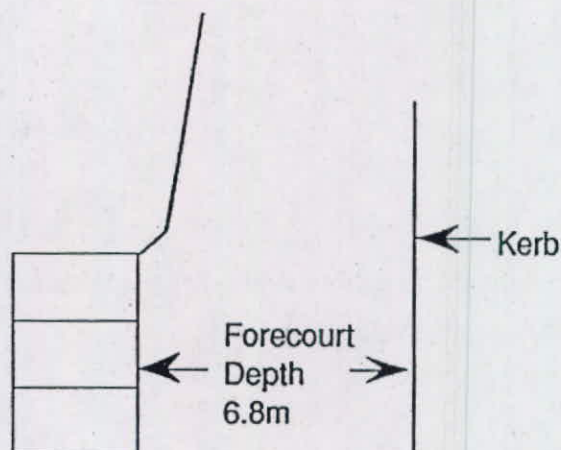
Fig 5.2



#### (b) Single-sided access

Where a low kerb forms one side of the forecourt, the forecourt depth may be reduced by 0.5m by allowing cars to overhang the kerb.

Fig 5.3



*Note: Where for any reason, cars may need to reverse direction within the forecourt without entering a garage, a forecourt depth of 8m should be provided to allow a three point turn. This may be reduced to 7.5m where one side is formed by a kerb rather than a wall or garage.*



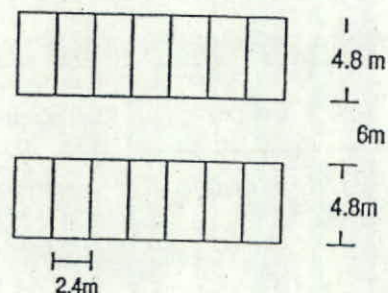
## Car Parks

Where parking angles are less than 90 degrees, reductions can be made to the forecourt depth at the expense of increasing its length but it should be appreciated that unless one-way traffic systems are provided, a turning space will be required at the end of the court.

### (c) 90 degrees parking

With parking at right angles a forecourt depth of 6m is required for 2.4m wide parking spaces.

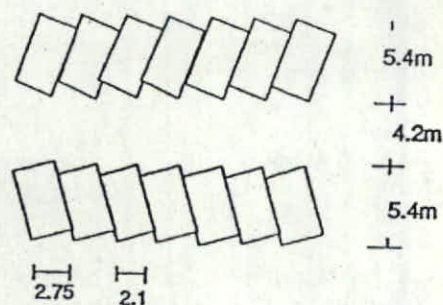
Fig 5.4



### (d) 60 degrees parking

For 60 degrees parking a clear forecourt depth of 4.2m is required. This still allows room for two-way traffic.

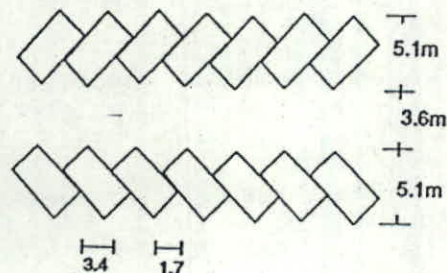
Fig 5.5



### (e) 45 degree parking

For 45 degrees parking the forecourt depth may be reduced to 3.6m but should normally be restricted to one-way traffic only.

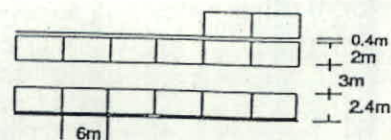
Fig 5.6



### (f) 0 degree parking

For 0 degree parking a forecourt depth of 3m is required for one-way traffic and 5.4 for two-way. A bay width of 2.4m should be provided where walls are adjacent but this width can be reduced to 2m where the vehicle is bounded by a pavement with a low kerb, or where a 0.4m clear strip is provided between parking bays. Where walking space is required between bays, a 800mm strip should be provided.

Fig 5.7



## APPENDIX TO PART 5

### Variations to County Standards

In the following instances the Local Planning Authority has adopted a varied parking standard to the County Highway Authority.

#### South Bedfordshire District Council

Use	Car Parking Spaces	Lorry Parking Spaces
Class A1 - Retail	less than 500m <sup>2</sup> - 1 per 25m <sup>2</sup> gfa 1500m <sup>2</sup> - 1 per 20m <sup>2</sup> gfa 2,000m <sup>2</sup> and over - 1 per 9m <sup>2</sup> gfa	less than 50m <sup>2</sup> - 1 LGV 250m <sup>2</sup> - 1 HGV 1,000m <sup>2</sup> - 2 HGV 2,000m <sup>2</sup> - 3 HGV
Non-food retail warehouses	1 space per 15m <sup>2</sup> gfa	
Class A3 - Food and drink	1 space per 4m <sup>2</sup> gfa plus 1 space per member of staff	
Fast food outlets/ take-aways	Considered on merits of individual proposals	
Class B1 - Business B1(c)	1 space per 20m <sup>2</sup> gfa 1 space per 33m <sup>2</sup> gfa	1 HGV per unit
Class B2 - General Industry	1 space per 30m <sup>2</sup> gfa	
Class C1 - Hotels	1 space per 2 beds (town centre) 1 space per 1 bed (other locations) 1 space per 4m <sup>2</sup> gfa	
Class C2 - Residential Instit'ns Hospitals	1 space per 2 beds 4 spaces per doctor 1 space per 3 beds - staff parking (long stay hospital) 2 spaces per 3 beds - staff parking (general hospital)	
Other Institutions	2 spaces per residential staff unit 1 space per 2 non-residential staff 1 space per 5 residents	



## Mid Bedfordshire District Council

Type of Dwelling	Minimum Number of Spaces
1 bedroom dwellings All spaces unassigned Assigned hardstandings Assigned grouped garages Garage within curtilage Garage and hardstanding within curtilage	1 space per dwelling 1 space per dwelling plus 50% visitor parking 1 space (garage) per dwelling plus 75% visitor parking 1 space (garage) per dwelling plus 75% visitor parking 2 spaces (garage & hardstanding) per dwelling plus 25% visitor parking
2 or more bedroom dwellings All spaces unassigned Assigned hardstandings Assigned grouped garages Garage within curtilage Garage & hardstanding within curtilage Garage & 2 hardstandings within curtilage 2 garages & 2 hardstandings within curtilage	1.5 spaces per dwelling 1 space per dwelling plus 75% visitor parking 1 space (garage) per dwelling plus 125% visitor parking 1 space (garage) per dwelling plus 100% visitor parking 2 spaces (garage & hardstands) per dwelling plus 50% visitor parking 3 spaces (garage & hardstands) per dwelling plus 25% visitor parking 4 spaces (garages & hardstands) per dwelling plus 25% visitor parking