CONTENTS

LIST OF TABLES

LIST OF FIGURES

PART III CONSTRUCTION DETAILS

PART IV ROAD LIGHTING AND ILLUMINATED TRAFFIC SIGNS

PART V - PARKING STANDARDS

PREAMBLE

This document and the Council's Design Standards for New Housing Areas (DSNHA) document should be used by developers and members of the public who require guidance on the planning and necessary authorisation regarding the construction of roads which subsequently may be adopted by the Roads Authority in accordance with current legislation. References to Sections in the Design Standards for New Housing Areas document take the form DSNHA 1.3 etc.

The Scottish Government has recently published PAN 76 - New Residential Streets and the guidance has been reflected in this document and East Lothian Council's Design Standards for New Housing Areas document.

Any comments concerning this document should be submitted in writing to the Council for possible inclusion in future versions of the document.

This document supersedes all previous Standards for Development Roads documents.

It is envisaged that the new "Standards for Development Roads" document will apply to all Roads Construction Consents and planning applications approved after June 1st 2008 and allocations in the East Lothian Local Plan 2008.

PART 1

POLICY AND PROCEDURES

Preamble:
Part 1 of the guidelines is intended to assist private and public developers in obtaining the necessary authority which is required before a new road is constructed and subsequently in having the new road adopted by the Council.

1. THE NEED FOR CONSULTATION

1.1 Initial Consultation

In conjunction with consulting the Local Planning Authority it is important that developers consult the Council's Roads Authority for the following reasons.

(a) the location chosen for development may not be suitable for the type of development envisaged in terms of access and/or may be affected by future road schemes;

(b) the proposed layout may not be acceptable in relation to development control standards;

(c) minor adjustments to the layout may be necessary to meet Construction Consent requirements;

(d) some discretionary powers are available in respect of variation to the Specification to suit certain specific local conditions.

If not noted at an early stage, any of the above possibilities could result in considerable abortive work and expense. Developers are therefore advised to consult the Council's Roads Authority prior to submission of a planning application.

In addition, PAN 76 encourages a more integrated approach to approval, requiring collaboration between planning officers and Roads Construction Consent engineers. In this way, roads colleagues can be satisfied with the fundamentals of a development proposal, and can approve the principles of the design concurrent with the granting of planning permission.

1.2 Outline Planning Consent

Before recommending to the Local Planning Authority that Planning Consent for a development be granted, an examination will be made, where relevant, of:

(a) the adjacent road hierarchy based on the volume, type and destinations of vehicular traffic using it (the TRICS consortium can supply such information, see www.trics.org for further information).

(b) how traffic patterns are likely to change in the foreseeable future;

(c) the volume and type of vehicular traffic likely to be generated by the proposed development;

(d) the distribution of this generated traffic;

(e) the adequacy of the adjacent road network and the need for any traffic calming or traffic management measures which should be the subject of a Section 75 or other legal agreement (**Section 20**);

(f) any restrictions on road access to the site including location, sight distances;

(g) the overall road hierarchy, geometry, layout, junction spacing, footpath and cycle track provision within the site;

(h) whether the site is of a size and form capable of accommodating satisfactory access arrangements and providing appropriate parking/servicing space;

(i) any requirement for structures;

(j) in conjunction with the Council's Public Transport Section revenue support for services under section 75 of the Town and Country Planning (Scotland) Act 1997 to possible extensions or alterations to services (**Section 17**), provision of turning circles and laybys;

(k) in conjunction with the Council's Cycling Officer, the provision of appropriate facilities for cyclists to minimise conflict with vehicular traffic including connections to the existing cycle track network where appropriate. (**Section 17**).

(l) the possible implications under the Noise Insulation (Scotland) Regulation 1975 (**Section 20**).

(m) businesses, schools, hospitals and other significant travel generating developments which will be required to submit Travel Plans for delivering sustainable transport.

(n) the possible impact on air quality in line with current air quality regulations.

1.3 Detailed Planning Consent

Before undertaking layout design an early meeting should be arranged to discuss:-

(a) the types of road which it might be necessary to provide incorporating the requirements of the Design Standards for New Housing Areas, including those areas to be developed as Home Zones within which design speeds shall be 16kph;

(b) the traffic calming measures which might be required, in the interest of safety and the environment, to keep traffic speed below 20 mph on other roads in residential areas;

(c) desire lines for pedestrian and cycle movements;

(d) the adequacy of provision for sustainable modes of transport;

(e) the location of existing or proposed community facilities, such as shops, schools and other services, relative to the development;

(f) the location and treatment of particular problem areas external to the site;

(g) the location of pedestrian routes and crossing facilities with particular reference to the requirements of the Council's Safer Routes to School Strategy, the elderly and the disabled;

(h) the location and amount of parking provision;

(i) appropriate housing numbers in relation to the capacity of different types of road and the road network;

(j) the form of any structures required;

(k) the provision of road drainage, including location and types of Sustainable Urban Drainage (SUDS)

(l) the provision of road lighting;

(m) the location of underground services;

(n) the provision of a Transport Assessment and/or Travel Plan for significant travel generating developments within the policy framework of SPP17 and guidance.

(o) the requirement to carry out a Road Safety Audit.

1.4 Consultation with Other Bodies

The information contained in these guidelines refers principally to Roads Authority requirements. The requirements of the Planning Authority, Education Authority, Public Utilities, Scottish Environmental

Protection Agency (SEPA), Fire Department, Scottish Water, Telecommunications and Cable Companies will be extra to these requirements and should be obtained at an early stage.

1.5 Alteration to the Surrounding Network

As part of preliminary consultations, the Roads Authority may identify alterations to the existing road network to accommodate traffic generated by the development. These alterations will normally be financed by the developer by means of an agreement under Section 75 of the Town and Country Planning (Scotland) Act 1997 or by a separate legal agreement with the Council as Roads Authority.

1.6 Consultation with Lothian and Borders Police

Lothian and Borders Police offer a service through a Police Architect liaison officer aimed at reducing the opportunity for crime through changes in accessibility and increasing the natural surveillance qualities of design and layout. Prospective developers may wish to take advantage of this advice within the scope for alternative layouts illustrated in these guidelines.

The contact for this very worthwhile document is:-

Community Safety Branch
Forth Architectural Liaison Officer
Lothian & Borders Police HQ
Fettes Avenue,
Edinburgh EH4 1RB
Telephone (0131) 311 3628

2. AUTHORITY REQUIRED TO CONSTRUCT NEW ROADS

2.1 Necessary Consents

Before undertaking any new road construction the developer must obtain both Detailed Planning Consent and Road Construction Consent. It should be noted that the granting of one does not necessarily imply the granting of the other. Construction Consent is required where 3 or more dwellings are proposed. Where less than 3 dwellings are proposed an access may be permitted.

2.2 Accesses

An access is defined as any way over which the public does not have right of passage. In residential developments an access may serve up to 2 dwellings.

2.3 Planning Consent

Detailed Planning Consent is normally granted by the Council's Planning Authority from whom further advice should be sought (**Section 4**).

2.4 Construction Consent

In terms of Section 21 of the Roads (Scotland) Act 1984, any person other than a Roads Authority who wishes to construct a new road or an extension of an existing road must obtain Construction Consent, irrespective of whether or not such roads are to be submitted for adoption as a public road. Construction Consent is granted by the Council's Roads Authority **and road construction works may only be undertaken while the Construction Consent remains valid.**

2.5 Design Requirements

Construction Consent will be granted only where proposals for the layout and construction of roads, structures, road drainage and lighting meet the Council's standards. Guidance as to how these standards should be achieved is contained in this document and in the Design Standards for New Housing Areas document. For example, Geometric and Layout details are covered in Part II and Construction Details in Part III below. Since economy of maintenance will be a major consideration in the assessment of applications for Construction Consent, the use of structures to support roads (ie retaining walls and bridges) should be avoided wherever possible.

2.6 Other Consents

The granting of Construction Consent signifies the Council's approval of the proposed roads, structures, road drainage and lighting. Construction Consent does not exempt the applicant from obtaining any other permission, which may be required such as Planning Consent, Building Warrant, or approval for connection to a sewer. It should be noted that, where a development is proposed, which does not require the construction of new roads, but which affects the stability of adjacent public roads or footways e.g. by deep basement excavations, insertion of ground anchoring systems, wall footings etc., the consent of the Roads Authority is required.

3. POLICY REGARDING ADOPTION AND MAINTENANCE

3.1 Adoption of Roads

In terms of Section 16 of the Roads (Scotland) Act 1984, the Council as Roads Authority will adopt - i.e. add to its list of public roads if requested to, any new road (including any associated footway or verge) constructed in accordance with Construction Consent. The Council assumes that all new work will be submitted for adoption. The Roads Authority will expect to adopt for maintenance a "road" which serves three (up to four in exceptional circumstances) or more dwellings. Below this number the road might be considered to be an "access" and which may remain private.

Homes Zone areas will include built-in elements and features such as planters, landscape areas and street furniture etc. The Roads Authority will adopt the roads and the Council, through other service departments, may assume responsibility for maintaining other elements of the Home Zone, such as planters and street furniture. Agreement between the developer and the Council must be secured for the adoption and maintenance of all elements and features of Home Zone areas. This will require that developers put in place factoring, or other such arrangements, for the maintenance in perpetuity of those elements of Home Zone areas the Council will not be responsible for, including private courtyard parking areas etc. Developers must consult with the Council at an early stage of the design process to ensure the above objective is secured.

3.2 Phased Adoption

Developers are recommended to apply for the adoption of roads one year after all roads covered by a Construction Consent are completed. In the case of a large development adoption may be on a phased basis subject to:

(a) all roads to be adopted forming a continuous system with the existing public road.

(b) only lengths of road between junctions and completed culs-de-sac being adopted.

(c) carriageways, footways, and verges **not** being adopted separately.

3.3 Footpaths

In terms of Section 18 of the Roads (Scotland) Act 1984, the Council as Local Roads Authority will, upon request, adopt any footpath which is the subject of an Agreement. Furthermore, should a Developer fail to complete a footpath to the Authority's satisfaction within the period specified in such an Agreement, the Council may itself carry out the work and recover reasonably incurred expenses from the developer. The suitability of footpaths for adoption (**Section 17**) under Agreement will be judged against the following criteria.

(a) They should be constructed in accordance with Construction Consent.

(b) They should form part of a general pedestrian network interconnecting houses, shops, schools, public transport facilities, etc and be available to pedestrians on an unrestricted basis.

(c) They should serve more than one dwelling if not forming a part of a link.

(d) In the case of multi-storey buildings, the footpath may be adopted up to the point where it is deemed to enter the curtilage (ie garden, landscaped or forecourt areas surrounding building).

(e) Surfaced areas surrounding buildings and intended essentially for maintenance purposes will not be considered.

(f) Where footpaths lead to both front and rear, only one will be considered.

(g) At least one end of a footpath should abut a public road to facilitate access for maintenance purposes.

(h) Arrangements of steps which prevent access to isolated lengths of footpath by maintenance vehicles should be avoided.

3.4 Parking Areas (DSNHA 2.18 & 3.14)

In both new development and redevelopment, the developer will normally be required to provide parking spaces off the carriageway in accordance with the parking standards detailed in Part V of this document. The suitability of such areas for adoption or maintenance by the Council will be judged against the following criteria.

(a) Parking areas contiguous with the carriageway will normally be adopted provided that their use by the general public is not restricted in any manner. Such parking should normally only be provided for visitors and not for the regular parking of residents' cars. Residents' parking bays contiguous with the road, but adjacent to the carriageway, may form part of Home Zone designs. These bays must be in close proximity to the house they serve and be clearly distinguished from visitor bays. Such residents' bays will be adopted by the Roads Authority.

(b) Off-road parking areas, which have been identified as meeting a general public parking need and have been constructed as detailed in **Part V**, may be taken over for maintenance purposes.

(c) Parking areas provided in lieu of garages, private drives and shared parking areas for the regular parking of residents' cars will not normally be taken over for maintenance purposes by the Council as Roads Authority and must, therefore, be subject to private maintenance agreements.

3.5 Service Areas

Service areas in industrial or commercial developments, which provide loading facilities for the premises, will not normally be considered for adoption even though these may take the form of paved areas contiguous with the carriageway. The exception to this is where such areas are provided in the form of a lay-by to the adjacent carriageway.

3.6 Road Lighting (DSNHA 4.2 & Part IV)

The roads authority has a duty under the Road (Scotland) Act 1984 to maintain lighting on a public road and has the power to maintain lighting on a private road, but has neither duty nor power to maintain lighting in private areas or accesses.

So far as new development is concerned, this means that the roads authority will require, as a condition of Construction Consent, that the developer provides lighting on all parts of the development to be taken over as additions to the public road system.

Lighting installed on adoptable roads, footways/cycle tracks and parking areas will be taken over by the Council for operation and maintenance from the date of their commissioning, subject to:

(a) the Council accepting lighting units from the date of commissioning for the supply of energy and routine maintenance only.

(b) any work carried out or material supplied by the developer being maintained by them for a period of 12 months from the date of commissioning as certified in writing to the Engineer. The twelve-month maintenance period will include for the replacement of any faulty equipment supplied by the developer and the restoration of any faulty workmanship found during this period or at the final inspection prior to issuing the final acceptance certificate.

(c) any expense incurred by the Council during the maintenance period as a result of the developer's failure to carry out the requirements of (b) above being fully charged to them.

The Council also provides a design service to which developers may avail themselves of. The developer should be aware that the roads authority will not require the provision of lighting in other areas, private accesses, areas in front of lock-up garages, landscaped areas, etc. The Road Authority will not adopt lighting provided by the developer in these areas for maintenance.

3.7 Structures (Part VII)

Where a Construction Consent provides for a road to be supported by a bridge the Council will normally enter into an agreement with the developer, in terms of Section 79 of the Roads (Scotland) Act 1984, whereby the bridge will vest in the Local Roads Authority. If, however, the solum has not been so acquired, the Local Roads Authority will be responsible only for maintaining the road surface.

3.8 Road Bonds

In terms of Section 17 of the Roads (Scotland) Act 1984, the Security for Private Road Works (Scotland) Regulation 1985 (S.I. 2080) and The Security for Private Road Works (Scotland) Amendment regulations 1998, developers are required to make financial provision with the Local Roads Authority in order to safeguard the completion of housing development roads which are the subject of a Construction Consent.

Such provision, which may take the form of a "Road Bond" or deposit, protects prospective house purchasers from having to bring incomplete roads up to adoptable standards. It should be noted that no building works could commence until such securities have been lodged. The amount of bond required will be indicated prior to granting Construction Consent and will be calculated on the type and length of roads to be constructed applying current rates for road construction.

During the construction period the Developer may apply for a phased reduction in the security as work is completed. The Roads Authority, pending satisfactory conclusion of the maintenance period or adoption of the road for maintenance by the Roads Authority will hold a minimum of 10% of the original value of the Road Bond.

3.9 Traffic Calming

Home Zones are designed to limit traffic speed to no more than 10mph. Other roads within a development should be designed with a self-enforcing limit of 20mph, reducing the likelihood of accidents and providing a safer environment for pedestrians and cyclists. Traffic calming is not generally appropriate where the regulatory speed limit is greater than 30 mph.

It is not intended that these guidelines be prescriptive. Indeed the developer is encouraged to be innovative in providing a safe yet attractive streetscape within the proposed development. Measures traditionally used to calm traffic have been either singular or a combination of chicanes, road narrowing, mini-roundabouts, 20-mph zones, traffic islands, road humps/platforms, or ramps. Additionally, the layout of buildings in relation to one another can play a significant role in ensuring that traffic calming is designed into a development from the outset. This principle is implicit to good street and Home Zone design. Such measures limit the requirement for additional built in elements, such as speed cushions and ramps etc. Limiting the use of such features contributes to creating more attractive streetscapes as well as reduces the overall maintenance responsibility for the Roads Authority.

The appropriate use, construction dimensions and location of road humps is dictated by the Road Humps (Scotland) Regulations 1998 and the Road Humps and Traffic Calming (Scotland) Amendment Regulations 1999, issued by the Scottish Executive.

The appropriate use of traffic calming is dictated by the Roads (Traffic Calming) (Scotland) regulations 1994 and the Road Humps and Traffic calming (Scotland) Amendment Regulations 1999. It will be necessary for the developer to ensure that consultation is carried out with the emergency services (fire, police, and ambulance) and bus service operators where appropriate; to ensure their approval is given to the measures adopted.

In addition, due recognition should be given to the type and location of traffic calming features to ensure that they would not unnecessarily inconvenience residents eg noise from road humps and that

they are safe for cyclists, wheelchair and pram users to negotiate. Consideration should also be given to the provision of appropriate signing and lighting at traffic calming features.

3.10 Cycle Tracks

In some cases cycle tracks (**See Section 17**) may be constructed as part of a development to satisfy the requirements of the Council's policy on sustainable transport. These will normally be adopted subject to the following criteria:

a) They should be constructed in accordance with a Construction Consent.

(b) They should form part of a general cycle network connecting centres of activity or other sections of public road and be available to users on an unrestricted basis.

(c) At least one end of a cycle track should connect to a public road to facilitate access for maintenance purposes.

3.11 Sustainable Urban Drainage

Developers will be required to consult SEPA (www.sepa.org.uk) and work to the design manual for Sustainable Urban Drainage Systems (SUDS) in Scotland and Northern Ireland specifically to SEPA recommendations. Appendix A of the SUDS manual details the framework for the implementation of such schemes and this falls into three sections namely: -

(i) relates to the situation where SUDS are not required.

(ii) relates to the situation where SUDS are required.

(iii) relates to the future management of SUDS.

Furthermore, the developer must satisfy himself that the recommended SUDS system is acceptable to the local authority area, it is important therefore he consults with the Council before proceeding with any design.

3.12 Road Safety Audit

At the discretion of the Roads Authority, a developer may be asked to carry out a road safety audit on his proposed development to ensure that …"the Roads Authority takes measures to reduce the possibility of accidents on newly constructed or modified roads" (Road Traffic Act 1988, sect.39).

There are four stages to the auditing process and developers will be required to follow these if an audit is requested:

- Outline – proposals are checked for basic correctness and appropriateness
- Detail – all relevant matters of the detailed design is checked
- Completion – where audit approval is sought prior to opening for use
- Post Completion – monitoring of the scheme one year after opening.

4. APPLICATION FOR PLANNING CONSENT

4.1 Place of Application

Application for Planning Consent must be made to the Council's Planning Authority.

4.2 Outline Consent

The developer may wish to ascertain whether his proposals are likely to be acceptable, in principle, to the Council's Planning Authority and for this purpose may apply for Outline Planning Consent. Before submitting such an application to the Council's Planning Authority, the developer should seek the advice of the Roads Authority (section 1) to ensure that the requirements of these guidelines can be met and to ascertain, at this early stage, any other requirements (e.g. mineral reports in certain areas).

4.3 Site Plan

An application for Outline Planning Consent should include a 1:2,500 scale or greater site plan. This plan should indicate the location of the proposed point(s) of access to the development and the road hierarchy, layout, geometry, junction spacing, footpath and cycle track provision within the site.

4.4 Detailed Consent

Before submitting an application for Detailed Planning Consent to the Council's Planning Authority the developer should consult the Roads Authority for consideration of those matters detailed in **Section 1**. The developer should ensure that the road proposals detailed in the finalised planning application meet the Roads Authority's requirements for Construction Consent.

4.5 Layout Plans

Subsequently, the Roads Authority will make observations to the Council's Planning Authority on the application submitted for Detailed Planning Consent. This application should therefore include a layout plan (minimum scale 1:500) in sufficient detail to enable the provision and geometric standards of roads and associated areas to be fully appraised.

4.6 Construction Consent

It should be noted that the granting of Detailed Planning Consent does not relieve the developer of the requirement, in terms of Section 21 of the Roads (Scotland) Act 1984, to obtain Construction Consent from the Local Roads Authority for permission to construct new roads.

5. APPLICATION FOR CONSTRUCTION CONSENT

5.1 Place and Date of Application

An application for Construction Consent should be made on the relevant form from the Council. Completed application forms should be submitted at least three months prior to the proposed commencement of construction.

5.2 Submission of Plans

Two paper copies of each of the following should accompany applications for Construction Consent.

(a) **A location plan**, preferably on the Ordnance Survey base, to a scale of 1:1250 or 1:2500, showing the proposed road network and its relationship to the existing road network.

(b) **Layout plans** of the carriageways, footways, verges, footpaths, cycle tracks, retaining walls, bridges and earthworks to a scale of 1:500 (1:200 where pedestrian/vehicle shared surfaces are proposed) showing:

(i) the proposed new road centre, building and kerb lines (and also the heel of the footway where this differs from the building line) together with existing roads adjacent to the site from which access is to be taken;

(ii) curve radii of the road alignment and junctions;

(iii) dimensions of visibility splays at road junctions;

(iv) vehicular access points to properties;

(v) pedestrian crossing points at junctions and other locations where dropped kerbs will be provided;

(vi) the location of all road gullies;

(vii) the location of the road drainage system and its discharge points;

(viii) the location and type of lighting columns and lanterns, wall-mounted lighting units, control pillars, underground cables and road crossing ducts;

(ix) the location of all underground services and ancillary apparatus;

(x) the full extent of all cut and fill slopes;

(xi) the boundaries of any areas which it is intended will subsequently be offered for adoption or maintenance;

(xii) details of road markings;

(xiii) details of any traffic signs, poles, pedestrian guardrails etc that may be required;

(xiv) the location of all parking areas indicating those required for residents, visitors (for residential development) and mobility impaired drivers;

(c) **A longitudinal section** along the road(s) giving vertical and horizontal alignment details, surface water drain gradients with manhole positions marked thereon, together with the nature of the substrata to a depth of 1 metre below road formation level or to rockhead where bedrock is at a depth less than 1 metre.

(d) **Typical cross sections** through the carriageways, footways, footpaths and cycle tracks detailing widths, crossfalls, construction depths and materials used, kerb and edge details, and typical details of gullies and gully connections.

The details submitted for construction and the specification for materials therein must comply with these guidelines. Quoting the relevant clause number of the specification may indicate this, but it will not be sufficient merely to state that construction is to the agreed specification.

5.3 Docketing of Plans

It is essential that the plans, detailed drawings and specification submitted with the application are docketed, "This is the plan/drawing/specification referred to in the application", signed and Dated by the applicant.

5.4 Structures

Where the submission includes structural design (e.g. retaining walls or bridges) the application must include detail drawings, calculations and design check certificate. This certificate, signed on behalf of an organisation independent of the applicant, should certify that the design complies with the relevant national standards. If the need for an additional or amended structure arises after the granting of Construction Consent, the developer should seek the approval of the Roads Authority before starting construction of it.

5.5 Responsibility for Design

The granting of Construction Consent does not imply that the Council accepts any responsibility for the accuracy and suitability of the design of any structure with the submission.

5.6 Mineral Report

In areas, which are known to have been in-filled or have a history of mineral workings, the Roads Authority may require the developer seeking Construction Consent to supply a mineral report together with supporting information on ground stability.

5.7 Notification to Owners

Where any person other than the developer owns land which fronts, abuts or is comprehended in the new road(s) or the extension of the existing road(s) or which lies within 50 metres of the road for which Construction Consent is being sought, the developer will be required to declare on the relevant form that all such persons have been notified of the application for Construction Consent.

5.8 Owner's Objections

Any person to whom the application has been intimated under the provisions of the preceding paragraph may within twenty-eight days of the date of intimation, make written representation to the Council. Any such representations will be considered before Construction Consent is granted. Plans will normally be made available for inspection at the offices of the Roads Authority.

5.9 Examination of the Application

On receipt of the application the Roads Authority will examine the application and compile a list of comments detailing additional information and/or amendments (if any) which are required. These comments will be forwarded to the applicant. Until and unless this additional information is supplied the application cannot be processed further.

5.10 Draft Construction Consent

On receipt of the additional information detailed above a draft Construction Consent will be prepared and forwarded to the applicant for his approval along with details of the amount of security required as per (**Section 3**).

5.11 Acceptance of Draft

If the draft Construction Consent meets with the approval of the applicant he shall so intimate to the Roads Authority and shall forward a further three paper copies of all drawings and a fourth electronic copy in .DWG and .pdf formats.

5.12 Amendment of Draft

If the applicant objects to the draft, minor amendments may be mutually agreed with the Roads Authority. If agreement cannot be reached it may be necessary to have the matter resolved by the appropriate Committee.

5.13 Issue of Final Consent

Once the developer has accepted the draft Construction Consent, the Construction Consent will be issued. A full set of paper drawings duly endorsed shall be forwarded to the applicant with the Construction Consent. On receipt of Construction Consent roadworks can commence. On the deposit of the agreed amount of security house building works can commence.

5.14 Hearing of Applicant

Should it be considered that the application for Construction Consent should be refused or granted subject to special conditions, the application will be considered by the appropriate Council Committee prior to such a decision being made.

5.15 Construction Period

It will be a standard condition of any Construction Consent that the construction be completed within the period specified by the Council in the Consent. This period will be not less than 3 years. If, as a result of a change in circumstances during construction, it is demonstrated that the specified period is no longer realistic, the Council may on application grant an extension. In the absence of such an extension a new application for Construction Consent must be made. **No roadworks** can continue if the Construction Consent has expired and has not been extended.

5.16 Right of Appeal

If an application for Construction Consent is (i) refused or (ii) granted subject to special conditions, the applicant may within 28 days of the date of intimation of such a decision appeal to the Scottish Government.

5.17 Amendments to Consent

Should the developer, for any reason, wish to depart from the construction or layout details for which Construction Consent has been granted, he must first seek the approval of the Roads Authority. Where the proposed changes are a major departure from the original or would have an effect on conterminous owners or affect the value of any Security then a new Construction Consent will be required. Where the proposed changes are of a minor nature and would have no effect of the value of any Security a nominated officer of the Roads Authority may approve the changes.

5.18 Road Lighting

The developer will be responsible for the provision of any lighting deemed necessary in any Construction Consent.

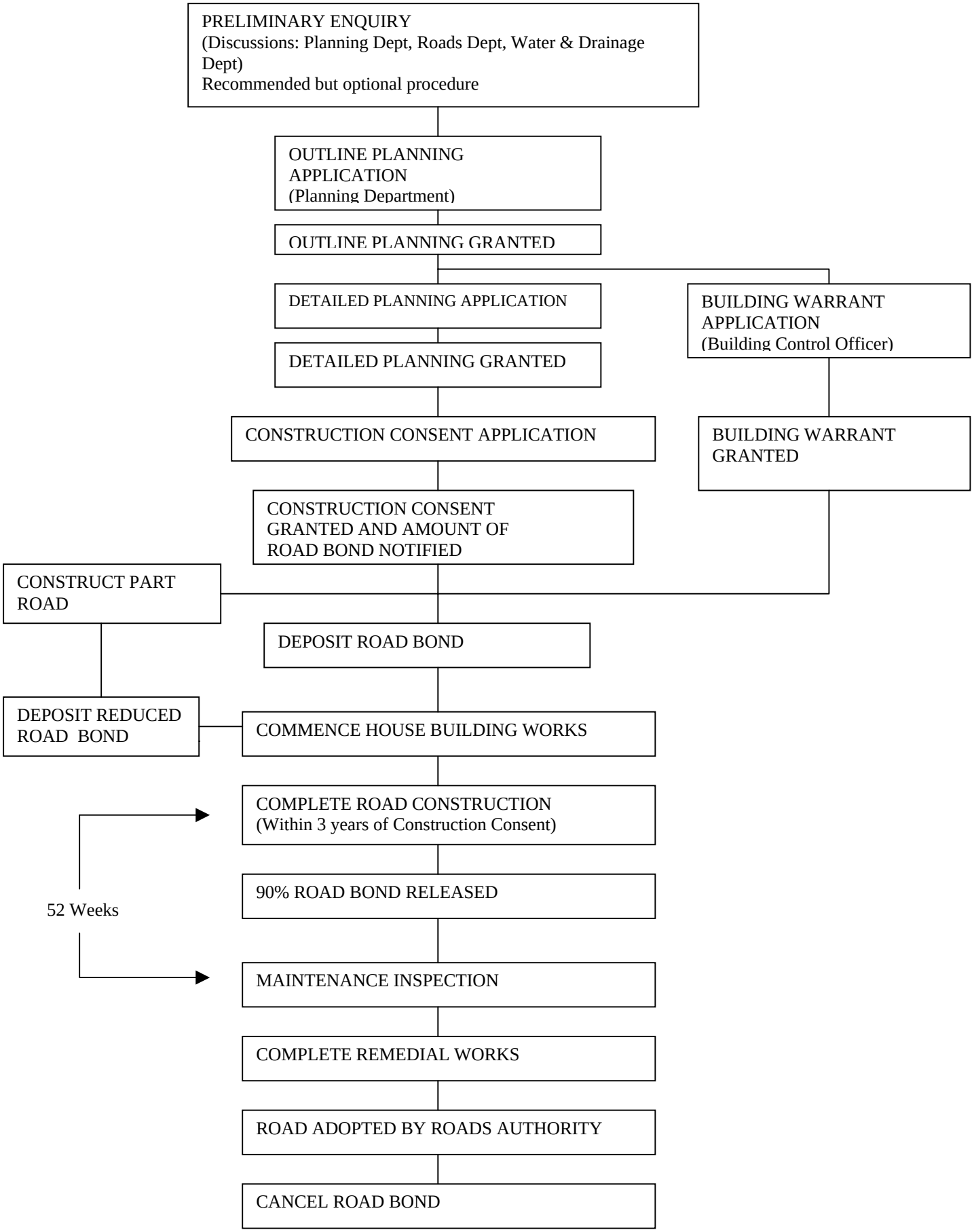


Figure 1 – Roads Construction Consent Flowchart

6. INSPECTION PROCEDURES DURING CONSTRUCTION

6.1 Notice of Commencement

Two weeks notice must be given to the Roads Authority of the start of roadworks together with names and telephone numbers of responsible persons who may be contacted in connection with the construction of the works.

6.2 Inspection and Testing

During the construction period, Roads Authority staff must be afforded access to the site to ensure that the works are being undertaken in conformity with the Construction Consent. The developer and/or his contractor shall provide every facility to enable Roads Authority staff to examine the works being executed and the materials being used. They shall supply, free of cost, samples of the various materials proposed to be used together with particulars as to the source of supply or manufacture of such materials. At the discretion of the Roads Authority test certificates may be submitted indicating the suitability of the materials proposed for use.

6.3 Certificates of Inspection

Notwithstanding any use, which the developer may make of the professional services of third parties, the developer is advised that any certificate of inspection submitted by a third party will not be accepted. The Roads Authority staff shall undertake all inspections.

6.4 Recovery of Expenses

Attention is drawn to Section 140 (6) of the Roads (Scotland) Act 1984 which entitles a Roads Authority to recover expenses reasonably incurred by them in inspecting the work for compliance with the Construction Consent. The Council gives notice of its intention to recover its expenses from the developer in accordance with the Act.

6.5 Notice of Operations

The developer or his contractor must give the Roads Authority a minimum 48 hours notice (excluding weekends) of the following operations:-

(a) Commencement of each pavement layer to the carriageways, footways, footpaths and cycle tracks.

(b) Each concrete pour (including blinding) and commencement of steel fixing where reinforced concrete is used.

(c) Setting out of road lighting plant positions, backfilling of cable trenches and painting of lighting columns.

(d) Air tests on drains or sewers.

It should be noted that these are minimum requirements and that, in certain cases, the developer may be required to notify the Roads Authority representative of additional construction stages.

6.6 Final Inspection

Towards completion of any development incorporating new roads the developer may give notice on the relevant form, of his intention to apply to have the roads added to the List of Public Roads. The Roads Authority representative will inspect the road and prepare a list of remedial works, which are necessary to bring the road(s) up to the Local Roads Authority standard.

If these remedial works are completed within six weeks the roads will be deemed to be complete, application may be made as detailed in (**Section 7**) for the road to be added to the List of Public Roads. If the works are not completed within the specified time further works may be required.

7. APPLICATION FOR ADOPTION OF NEW ROADS, FOOTPATHS AND CYCLE TRACKS

7.1 Application for Adoption

Following completion of a private road constructed in accordance with a Construction Consent, an application (on the relevant form) for its inclusion in the Council's List of Public Roads may be submitted to the Roads Authority by the person to whom such consent was granted.

7.2 Footpaths and Cycle Tracks

Only those footpaths and cycle tracks constructed in accordance with a Construction Consent will be eligible for adoption.

7.3 Documents to Accompany Application

The submission should include two copies of the drawings described in (**Section 5**) and contain all relevant details together with a 1:2500 or 1:1250 location plan on the Ordnance Survey base. The carriageways, footways, footpaths, cycle tracks, service strips, parking areas etc offered for adoption should be shown in separate colours and the plans should clearly indicate ownership of all areas so coloured.

7.4 Road Lighting

(a) During progress of the works the developer shall prepare record drawings showing the electrical work as installed indicating actual cable routes and all ducted road crossings as well as lighting columns and supply pillar positions.

(b) The drawings shall be prepared to a scale of 1:1250 and the developer shall supply the Engineer with one negative on plastic film and two paper copies of the plans on completion of the works.

(c) The receipt of the above drawing is pre-requisite to the date of final acceptance as certified in writing by the Lighting Manager.

(d) The developer shall submit an electrical inspection and test certificate on completion of work and prior to operation. The Roads Authority shall supply the certificate form.

7.5 Adoption Inspection

Within a period of 12 months from the time of application for adoption of a new road an inspection will be made by the Roads Authority or his nominated representative to ensure that the road has not deteriorated to a standard below that required for adoption by the Local Roads Authority.

If any significant deterioration has occurred, a list of remedial works will be forwarded to the applicant. These works must be undertaken as soon as possible or the date for adoption may be deferred.

7.6 Addition to List of Public Roads

Following a satisfactory adoption inspection, the road(s) shall be added to the list of public roads, in terms of Sections 16 and 18 of the Roads (Scotland) Act 1984.

PART II

GEOMETRY AND LAYOUT

Preamble:
This part of the document is intended to assist developers in the geometric design of road layouts and associated facilities. The following sections describe first how the guidelines should be used to conceive layouts in terms of the road hierarchy and then give detailed design guidance for each type of road and for associated facilities.

8. USE OF GUIDELINES FOR LAYOUT DESIGN

8.1 Consultation

Whenever it is intended to construct new roads or extend and /or upgrade existing roads, footpaths and cycle tracks, the desirability of consultation from the earliest stages cannot be over-emphasised (**Section 1**).

8.2 Guideline Principles

An understanding of the principles behind these guidelines and the Design Standards for New Housing Areas (**DSNHA**) issued by the Planning Authority is essential in their application to the geometric design of road, footpath and cycle track layouts and the following paragraphs are included to brief developers in this respect.

8.3 Road, Footpath and Cycle Track Layout

It is not the intention to dictate road, footpath and cycle track layout to the developer but rather to indicate how an overall design concept can be realised by different combinations of types of road, always taking account of such factors as road safety and ease of maintenance. The objective is to achieve a highly permeable layout for all users with convenient connections to the existing network wherever practical. In planning major new developments, consideration will have to be given as to how they are to be served by public transport. There may be a need to provide new or augment existing local bus services and this will have an effect on road types, layouts, widths, corner radii, provision of layover facilities and pedestrian access arrangements (**See Section 17**).

8.4 Road Types

The type of road required for a particular situation is governed by its function and by the type and volume of traffic which will use it. Since, for access roads, traffic volume is directly related to the number and type of premises served, each element of a road system is defined in terms of the development which takes access from it.

8.5 Access to Premises

The guidelines are based on the philosophy that public access to all premises should be equally available to all sections of the community. Provision for motor vehicles should not therefore inhibit access by pedestrians, cyclists and the mobility impaired. Wherever practical, access to premises should be available from two directions with minimal use made of culs-de-sac.

8.6 Parking and Service Areas (DSNHA 2.18 & 3.14)

Vehicles parked on the carriageway reduce both the safety and traffic capacity of a road and development design should aim to minimise this practice. Guidance on achieving this objective is contained in **Sections 13 & 18** but detailed advice regarding appropriate parking and servicing provision for a particular development should be sought from the Roads Authority.

8.7 Additional Design Consideration

A road layout should not be conceived in isolation but as an element in the overall design of a development. Developers should ascertain at an early stage the requirements of the Public Utilities, Bus Operators and others concerned with servicing the development and make reference to the design notes contained in **Sections 17, 19 & 20**. Where existing footpaths and cycle tracks pass close to or through the proposed development site, links should be provided from the development to these paths and tracks to enable and encourage people to walk and cycle into the wider settlement area.

8.8 Future Development

The developer must anticipate future extensions to the development since the level of access provided may limit the extent to which further development will be permitted. Road types should therefore be

related to the final volumes of traffic (including temporary construction traffic) envisaged which will not necessarily be solely those generated by the initial development. Footpaths and cycle tracks should be designed to be easily extended throughout the development and link in to external networks wherever practical (**Section 17)**.

8.9 In-fill Development

On green-field development sites, application of these guidelines is relatively straightforward. However, where the redevelopment of existing built-up areas and in-fill development is proposed, the constraints of adjacent developments and the prevailing conditions in the locality may give rise to complications in achieving the desired standards. It is therefore important that the Roads Authority is consulted at the earliest opportunity where redevelopment or in-fill development is contemplated so that any difficulties in complying with these guidelines can be identified and alternative proposals evaluated. Cognisance should also be taken of the likelihood of further redevelopment or subsequent road improvements.

8.9 Rural Steading Access Proposals

These types of accesses should be discussed in the first instance with the Roads Authority. Reference should be made to the Council's Farm Steadings Design policy document.

8.10 Rural Areas

These guidelines refer essentially to urban areas. Higher vehicle speeds in rural areas will necessitate more stringent design criteria for accesses to new developments therefore reference should be made to the current Design Manual for Roads and Bridges governing road and junction design, see **Table 9**.

Also, in these circumstances it may not be possible to adhere to the hierarchy of major and minor roads as shown in **Figure 2**. Where this is the case the function and speed of the major road should determine the minimum Y-distance.

8.11 Lighting Design Requirements

(i) The attention of developers is drawn to the Council's requirement for the provision of a good standard of lighting, refer to (**Part IV**).

(ii) A lighting design service is available to developers. Details of the service and the applicable fees can be obtained from the Street Lighting Manager at the Council.

8.12 Transport Assessment

Transport Assessments will be required for all significant travel generating developments within the policy framework of SPP17 and its associated guidance PAN 75. Assessments will be based on scoping studies as initially agreed with the Roads Authority. (Refer to Transport Assessment and Implementation: A Guide, August 2005 published by the Scottish Executive).

9. THE ROAD NETWORK

9.1 Function

The Road network must facilitate the movement of all types of traffic from one location to another and also provide access to individual premises. Desirably, for reasons of safety and efficiency, no single length of road should fulfil both functions. However, within housing areas, streets will primarily provide access to individual properties but will also allow movement through the development.

9.2 Types of Road

In considering road infrastructure for new developments, it is first necessary to define each element of the road network (both existing and proposed) according to its principal function. It is proposed to rename those Roads that give direct access to houses and other premises as "Streets" as defined in the dictionary ("metalled road with houses on one or both sides"). Roads remain as "open ways providing passage from one place to another". Four categories of Road can be identified:-

(a) PRIMARY DISTRIBUTOR ROADS - provide for traffic movements into and out of a town and link major residential and commercial districts.

(b) DISTRICT DISTRIBUTOR ROADS - provide for major traffic movements within a town or district.

(c) LOCAL DISTRIBUTOR ROADS – primarily distribute traffic within a district and link DISTRICT DISTRIBUTOR ROADS to ACCESS STREETS.

(d) ACCESS STREETS - link premises and their associated parking areas to LOCAL DISTRIBUTOR ROADS.

Most developments will usually consist of a network of ACCESS STREETS and LOCAL DISTRIBUTOR ROAD connecting to a DISTRICT DISTRIBUTOR ROAD within the existing settlement. Only in the exceptional case of a new settlement or similarly large development will there be a requirement for new DISTRICT or PRIMARY DISTRIBUTOR ROADS and the appropriate standards for these should be discussed with the Roads Authority.

9.3 Access Streets

In this document, which is intended to cover all new development, ACCESS STREETS have been further categorised as follows:-

(a) GENERAL ACCESS STREETS – these link residential premises and associated parking areas to LOCAL DISTRIBUTOR ROADS.

(b) HOME ZONES – tertiary residential streets/areas connected to GENERAL ACCESS STREETS and LOCAL DISTRIBUTOR ROADS.

(c) NON-RESIDENTIAL ACCESS STREETS - link industrial, commercial, retail, educational, medical, leisure and other premises and their associated parking and service areas to LOCAL DISTRIBUTOR ROADS.

9.5 Road Hierarchy

A safe and efficient road network combines the various types of road in a hierarchical form, thus facilitating the stepped adjustment of driving technique from principal routes to the domestic environment. **Figure 2** details the road hierarchy, which should be established by a system of development roads and **Figure 3** illustrates its use in creating a variety of residential layouts.

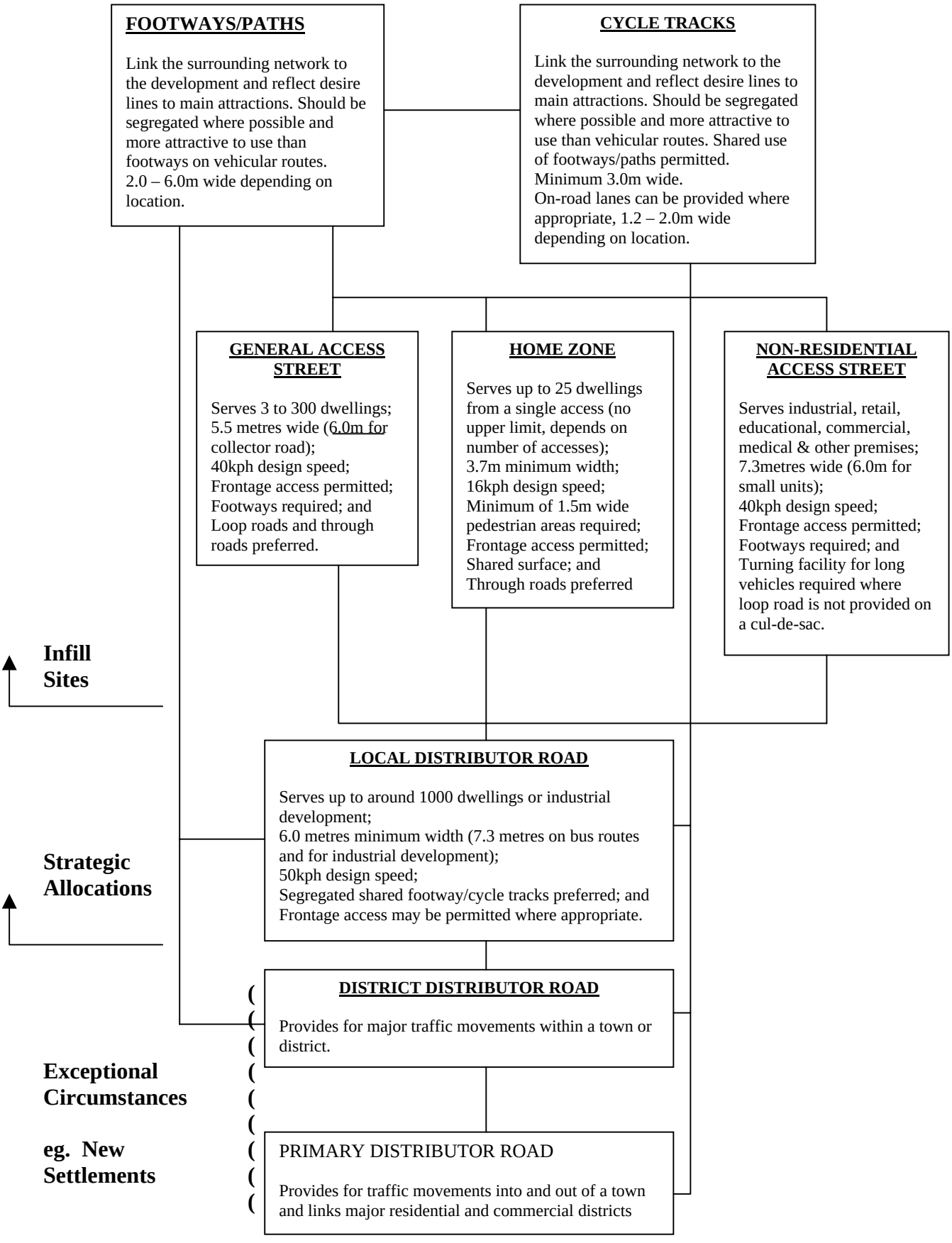


Figure 2 – Road Hierarchy

Figure 3 – Residential Layouts Exhibiting Prescribed Road Hierarchy

9.6 Residential Road Layouts (DSNHA Appendix 1D)

For residential development the road system must be such that each road serves at least three dwellings and no length of road constitutes the sole means of vehicular access for more than three hundred dwellings. Wherever practical, premises should be accessible from two directions and the use of culs-de-sac is only acceptable in exceptional circumstances.

9.7 Infill Developments

In established built-up areas, where redevelopment of a gap site is proposed, it may not always be possible to provide the hierarchy defined in **Figure 2**, especially where roads, which on account of their traffic volumes should be classed as distributors, already feature frontage access to dwellings. To avoid discontinuity of the footway, it may be appropriate in such circumstances for a development of up to four dwellings to take direct access from the existing road via a footway crossing type access. Approval for such a scheme would depend on the traffic characteristics of the existing road and be at the discretion of the Roads Authority in each case. The internal layout may require an application for Road Construction Consent or may be appropriate for construction as a private access depending on individual site circumstances. Larger developments of up to 25 houses can be accessed from a single access and should normally be designed as HOME ZONES. The access should be designed taking into account the characteristics of the major road. (DSNHA 3.1 et seq)

10. LOCAL DISTRIBUTOR ROADS

10.1 Function

LOCAL DISTRIBUTOR ROADS distribute traffic within development areas and form the link between DISTRICT DISTRIBUTOR ROADS and ACCESS STREETS. They are also potential bus routes. LOCAL DISTRIBUTOR ROADS are traffic routes and may be suitable for frontage development with direct access in certain circumstances at the discretion of the Roads Authority. Vehicles must be able to enter and leave premises in a forward gear and the location of accesses will be subject to the junction spacing requirements in **Table 8.** Any road serving more than three hundred dwellings or giving access to non-residential development should be designed to at least LOCAL DISTRIBUTOR standards.

10.2 Layout

The layout of LOCAL DISTRIBUTOR ROADS should generally be designed to discourage major through movement of generated traffic. There may, however, be advantages in a design, which allows buses or cyclists to make inter-district movements at this level in the road hierarchy.

10.3 Geometry

The minimum width of carriageway should be 6 metres. **Section 17** deals with the requirements where a LOCAL DISTRIBUTOR ROAD is to be used as a bus route. Roads giving access to non-residential development should be at least 7.3 metres wide. A design speed of 50 kph should be adopted for determining road alignment.

10.4 Verges

A verge at least 2 metre wide must be provided on each side of the carriageway unless otherwise directed by the Roads Authority.

10.5 Footways/Cycle Tracks

The aim both in new development and in re-development should be to achieve a system whereby pedestrians and cyclists are segregated from vehicle movements. Where shared footway/cycle tracks do run alongside LOCAL DISTRIBUTOR ROADS they should be at least 3.0 metres wide (**Section 17**)and be separated from the carriageway by a verge at least 2 metre wide. Dropped kerbs should be provided where access roads are crossed (**Figure 21**).

Feature	Standard	Comment
Design Speed	50 kph	Frontage access may be permitted at the discretion of the Roads Authority. Vehicles must be able to turn within the plot.
Carriageway Width	6m	7.3m minimum for industrial development; see Section 14 for widening on curves and Section 17 for bus service requirements.
Maximum Gradient	5%	May be increased at discretion of Roads Authority.
Minimum Gradient	0.8%	Minimum practical for drainage channels.
Minimum Vertical Curve Length	K x algebraic difference in %age gradient	Where K = 10 (crests) 13 (sags); absolute minimum length = 30m
Minimum Horizontal Curve Radius	180m	Desirable minimum; may be reduced on difficult sites (see TD9/93).
Minimum Sight Distance	90m	Desirable minimum; absolute minimum = 70.
Verges	2m grass or deterrent paving	Essential in all cases.

TABLE 1
Design Criteria for Local Distributor Roads

11. GENERAL ACCESS STREETS

11.1 Function

A GENERAL ACCESS STREET may function as a collector and through road linking HOME ZONES to LOCAL and DISTRICT DISTRIBUTOR ROADS or it may act as a housing access road in its own right with frontage access to dwellings. A GENERAL ACCESS STREET may serve no more than three hundred dwellings from a single access point.

11.2 Layout

GENERAL ACCESS STREETS should form part of the permeable network and be used to collect and distribute traffic between other roads of the hierarchy. At the same time, layouts should minimise dead mileage for delivery and service vehicles and ensure that all vehicles entering a GENERAL ACCESS STREET can rejoin the main highway network without reversing en route. As general guidance, it is recommended that wherever practical, premises should be accessible from two directions and the use of culs-de-sac is only acceptable in exceptional circumstances.

11.3 Geometry

GENERAL ACCESS STREETS are transitional in nature between full standard distributor roads and the local domestic environment and may therefore be constructed to reduced standards of alignment compared with distributor roads. This will largely depend upon the length of the roads and it is still desirable to use a formal design speed for assessing curve radii and visibility. 40 kph is suggested as an appropriate figure. A minimum carriageway width of 5.5 metres will normally be required but this is increased to 6 metres where the GENERAL ACCESS STREET functions as a collector. **Section 17** deals with the requirements where a GENERAL ACCESS STREET is to be used as a bus route.

Feature	Standard	Comment
Design Speed	40 kph	32 kph for up to 100 dwellings
Carriageway Width	5.5m	6m width for collector roads; see **Section 14** for widening on curves.
Maximum Gradient	8% - up to 100 dwellings 5% - over 100 dwellings	May be increased at discretion of the Roads Authority.
Minimum Gradient	0.8%	Minimum practical for drainage channels.
Minimum Vertical Curve Length	K x algebraic difference in %age gradient	Where K = 6; absolute minimum length = 20m
Minimum Horizontal Curve Radius	60m – up to 100 dwellings 120m – over 100 dwellings	Desirable minimum, absolute minimum = 40m. Desirable minimum, absolute minimum = 60m.
Minimum Sight Distance	33m – up to 100 dwellings 45m – over 100 dwellings	
Verges	2m grass	Essential where there are no footways.

TABLE 2
Design Criteria for General Access Streets

11.4 Footways

A footway at least 2 metres wide (**Section 1**7) should be provided on each side of the carriageway. If development is to one side of the road only, the requirement for a footway on the opposite side of the road may be relaxed. Only where there is a segregated footpath system and it can be demonstrated that pedestrians are unlikely to walk along the access road, may the requirement for any footway be waived.

11.5 Verges

A 2 metre wide verge will be required wherever a footway is not provided.

11.6 Driveways

Private driveways should normally meet the road at right angles and extend at least 6 metres clear of the heel of the footway or service strip into the property. Where a footway crossing is required, this should be constructed in accordance with **Figure 20** (**Part III).** A length of 2 metres nearest the road should be paved to prevent loose material (e.g. chippings) being carried on to the road. Severe gradients which render driveways unsuitable for car parking should be avoided wherever possible.

11.7 Driveway Gates

On roads which are not subject to a 30mph speed limit, particularly in more rural areas and where the public highway is restricted in width, gates to private drives should be set back by at least 6 metres from the heel of the footway / verge so that cars entering or leaving are not required to stand on the carriageway while the gates are opened and closed.

11.8 Garages

Individual garages or car ports provided adjacent to buildings must be set back by a least 6 metres from the heel of the footway / verge. This provides space for car washing purposes and allows garage doors to be opened when the car is in the driveway and also facilitates adequate sightlines. The setback can also allow for a second car or for long-stay visitors' parking.

12. HOME ZONES (Refer also to the Design Standards for New Housing Areas document)

12.1 Function

HOME ZONES are shared public spaces between buildings that are designed to allow all users to share them on equal terms. A HOME ZONE can be a residential street, square, circus, courtyard, mews, lane or a network of these that is designed to ensure that the quality of life in the residential area takes precedence over ease of vehicle movement. They are not constructed with a conventional footway/carriageway arrangement and the layout of buildings within a HOME ZONE provides the framework for creating people oriented public spaces and controlling traffic speeds.

12.2 Layout

The road layout in a HOME ZONE should be permeable enabling vehicles to spread through the network, all premises should ideally be accessible from two directions. The use of culs-de-sac should be avoided, minimising dead mileage for delivery and service vehicles, facilitating emergency access and obviating the need for reversing movements with their attendant dangers. Where a cul-de-sac is deemed to be necessary, it should be designed to HOME ZONE standards. The maximum driving distance within a HOME ZONE should not exceed 400m. Special attention should be paid to the provision of adequate visibility to enable drivers to give way to pedestrians and cyclists under all circumstances. In particular, dwellings, garages and parking bays should be set back sufficiently from the shared surface to ensure that emerging drivers or pedestrians/cyclists can see and be seen by approaching traffic.

12.3 Geometry

Because of the small number of houses involved, vehicle volumes even at peak times will be low enough to permit the use of 3.7 metres wide single-track roads with inter-visible passing places to allow two-way working. In the interest of the local residential environment, the inhibiting effect of the narrow single-track carriageway and the adoption of tight bends (down to 15 metres centreline radius) should restrict vehicle speeds to 16kph. A flowing alignment of gentle curves should be used rather than long straight sections, particularly on falling gradients. The layout of any HOME ZONE shall be proven by the Developer and demonstrated by the use of vehicle tracking software. This will assess the ability of service and emergency vehicles to negotiate the HOME ZONE at the design speed, while ensuring car tracking paths remain tight.

12.4 Sight Distance

The minimum sight distance for drivers within a HOME ZONE should be no more than 30 metres; under no circumstances should reduced visibility be used as a means of reducing vehicle speed. In particular, when designing single-track roads, it should be remembered that two vehicles each travelling at 15 kph have a closing speed of 30 kph.

12.5 Paving

It is of paramount importance for road safety that all road users are continually aware of the shared nature of HOME ZONES and to this end, shared surfaces should be paved differently from adjacent roads which are provided with separate footways. Concrete rectangular block paving is the preferred material for shared surfaces but alternative similar materials (eg setts or synthetic asphaltic surfacing) may be acceptable at the discretion of the Roads Authority.

12.6 Transitions to Shared Surfaces (DSNHA 3.1)

Transitions from conventional roads to HOME ZONES roads should normally occur only at road junctions, or at locations where there is a marked discontinuity in road alignment, to draw to the attention of drivers the change in the nature of the road and the need for a difference in driving technique. See **Figure 4**:

Item	Criterion	Comment
Maximum no. of dwellings.	25 dwellings (Although no set upper limit).	For a single access Home Zone (Depends on traffic flow and access criterion see **Table** 4 below).
Design speed.	16 kph	
Maximum distance between traffic calming events.	30 metres	From best practice to date.
Forward visibility.	No greater than 30 metres	Forward visibility should not significantly exceed this value.
Minimum width of Home Zone Gateway.	3.5 metres (minimum permitting emergency vehicle access through a gateway)	Drivers entering must be able to see through the gateway and beyond any narrow section of road when waiting in set back area.
Minimum width of vehicle track.	3.7 metres (minimum road width permitting emergency vehicle access and operation).	Drivers must be able to see the end of narrow section. Passing places of at least 10m length and no less than 4.8 metres wide every 30 metres.
Minimum corner radius at junctions.	No minimum within Home Zone.	
Junction visibility splays within a Home Zone.	20 x 2 metres.	
Minimum centre line radius.	No minimum.	Limited by swept path analysis.
Maximum driving distance within a Home Zone.	400 metres.	Driving distance from the furthest point in a Home Zone to an entry point.

TABLE 3
Summary of Geometric Standards for Home Zones.

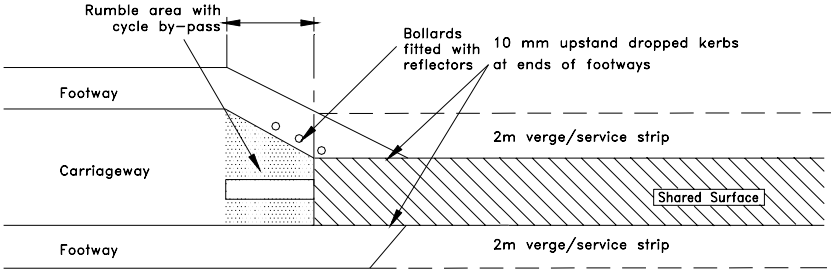
One Access	Two Accesses	Three Accesses	Four Accesses
25	100	200	300

Source: Adapted from Home Zone Design Guidelines, Institute of Highway Engineers, June 2002

TABLE 4
Maximum Number of Dwellings in a Home Zone

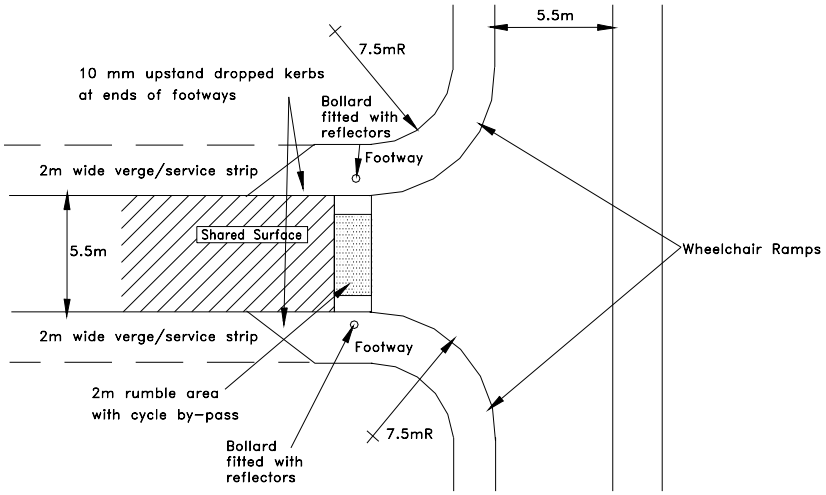
Note: This is for guidance only. It assumes traffic will be dispersed evenly through each access. It makes no allowances for the existence of other land uses in the area and their likely impact on trip generation, or the proximity and availability of public transport. Creating suitable Home Zone locations must also be based on the ability to treat the area and satisfactorily mitigate any anticipated harmful traffic displacement effects.

(A)



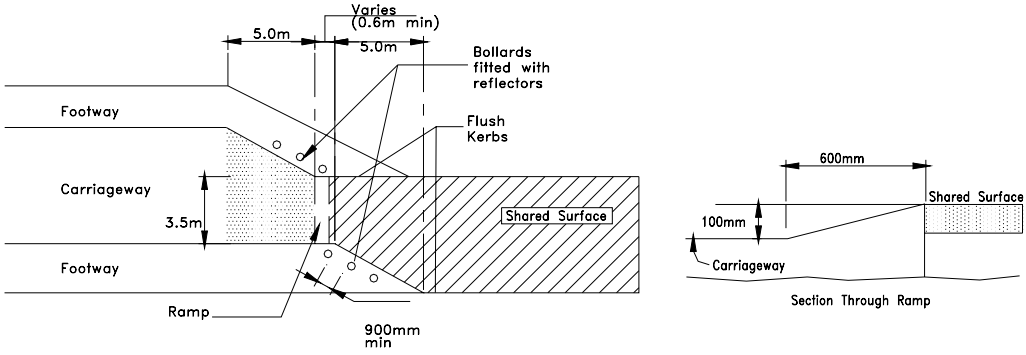
Transition from 5.5m carriageway to 3.7m wide shared surface road

(B)

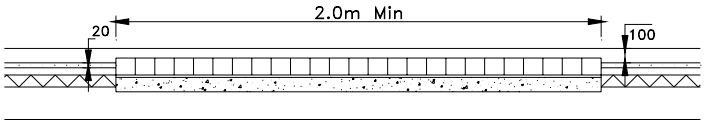


Transition from 5.5m wide carriageway to 5.5m wide shared surface

(C)



Transition with narrowing from 5.5m wide carriageway to 5.5m wide shared surface



Typical section through Rumble area

Construction:
Whin setts laid stretcher bond on 25 mm class1 mortar bed on 100 mm ST4 concrete on 250mm Type 1 sub-base. 1.6 dry mix cement/sand brushed into joints. Surplus brushed off and lightly watered

Figure 4 – Transitions to Shared Surface Roads

12.7 Road Junctions (DSNHA 3.19)

The principles of road junction design outlined in **Section 15** remain appropriate for shared surfaces and reference should be made to **Table 8** for dimensional criteria.

12.8 Parking

The presence of parked vehicles can be especially dangerous for those children using the shared surface as they may be concealed from the view of approaching drivers. Layout design should therefore include provision of clearly demarcated parking spaces in convenient and safe locations and every effort should be made to discourage casual parking elsewhere on the shared surface. Parallel lay-by parking may not be appropriate for shared surface roads (**Section 18**).

12.9 Play Areas

Where family homes are proposed, gardens and/or nearby play areas should be provided to obviate the need for the shared surface to be used as a main location for play, see **Section 20**.

12.10 Footpaths/Cycle Tracks

The development of HOME ZONES should not preclude the provision of a separate footpath/cycle track system. The desirability of such a system will depend upon the size of the development and the disposition of existing footpaths, cycle tracks and roads. At all junctions between shared surfaces and footpaths/cycle tracks, there should be inter-visibility between pedestrians/cyclists and approaching vehicles. Bollards or similar obstacles (a minimum of 0.9 metre apart to permit the passage of prams and wheelchairs) should be erected to prevent unauthorized vehicular access onto the footpaths/cycle tracks.

12.11 Sheltered Accommodation

Shared surfaces are not recommended for access to sheltered accommodation where the elderly, blind or infirm would be regular users.

12.12 Landscaping

Landscape treatment and shrub planting should not restrict inter-visibility between pedestrians/cyclists and vehicles. It should be noted that the Roads Authority does not normally take over landscaped areas for maintenance, except in such areas on roundabouts, traffic islands and in some cases blisters etc. Where general landscaped areas are not to be taken over by the Council, the developer should ensure that these areas are vested into the deeds of the local residents or that some other provision for maintenance and upkeep is provided. The Council's Landscape and Countryside Manager should be consulted regarding the adoption of landscape areas.

12.13 Passing Places

Passing places should be at least 10 metres long x 4.8 metres wide and must be intervisible. They are recommended wherever frontage access is proposed to enable cars to manoeuvre into 90º driveways or parking bays and to allow for delivery vehicles off-loading. This adjacent location of driveways and/or parking bays should ensure that the passing places are not themselves occupied for extended periods by parked cars.

12.14 Footways

Kerbed footways are not appropriate for HOME ZONES. However, where defined pedestrian areas are required at the edge of the vehicle running track, these will be no less than 1.5m wide widening to no less than 1.8m to allow two wheelchairs/buggies to pass in certain areas.

12.20 Shared Surface Roads

A shared surface road with a single access point is appropriate for serving a maximum of 25 dwellings, although additional accesses can increase this number. The carriageway width will be 3.7 metres (with inter-visible passing places) or 5.5 metres.

13. NON-RESIDENTIAL ACCESS STREETS

13.1 Function

A NON-RESIDENTIAL ACCESS STREET provides frontage or service access to industrial, commercial, retail, educational, medical, leisure and other premises.

13.2 Layout

NON-RESIDENTIAL ACCESS STREETS should normally take the form of loop roads to reduce the number of reversing movements. Where this cannot be achieved, a cul-de-sac can be provided in which case a turning facility should be incorporated (**Section 16**).

13.3 Geometry

NON-RESIDENTIAL ACCESS STREETS are transitional in nature between full standard distributor roads and the local industrial/commercial environment and may therefore be constructed to reduced standards of alignment compared with distributor roads. This will largely depend upon the length of the roads but it is still desirable to use a formal design speed for assessing curve radii and visibility. 40 kph is suggested as an appropriate figure with a minimum centreline radius of 60 metres. At junctions with roads constructed to higher standards the visibility from the NON-RESIDENTIAL ACCESS STREET should be appropriate for the design speed of the major road. A minimum carriageway width of 7.3 metres will normally be required but this may be reduced to 6 metres in exceptional circumstances where commercial vehicle activity is likely to be limited or where one-way working is to be enforced. In all cases carriageways will require widening on small radius curves (**Section 14**).

Feature	Standard	Comment
Design Speed	40 kph	
Carriageway Width	7.3m	6m for small units or one-way working; see **Section 14** for widening on curves.
Maximum Gradient	5%	May be increased at discretion of Roads Authority
Minimum Gradient	0.8%	Minimum practical for drainage channels.
Minimum Vertical Curve Length	K x algebraic difference in % age gradient	Where K = 6; absolute minimum length = 20m
Minimum Horizontal Curve Radius	120m	Desirable minimum, absolute minimum = 60m
Minimum Sight Distance	45m	
Verges	2m grass or 0.6m hard landscaping	Essential at vertical faces where there are no footways.

TABLE 5
Design Criteria for Industrial Access Streets

13.4 Shared Use Footway/Cycle Tracks

A footway at least 2 metres wide (**Section 17**) should be provided on each side of the carriageway. If development is to one side of the road only, the requirement for a footway on the opposite side of the road may be relaxed. Only in exceptional cases, where it can be demonstrated that pedestrian activity is unlikely, may the requirement for any footway be waived. Footways should be designed for shared use with cyclists to reduce conflicts with large vehicles.

13.5 Verges

Where a footway is not provided, a 2 metre wide grass verge / service strip or, sightlines and utility services permitting, a 0.6 metre wide hard-landscaped berm will be required between the edge of the carriageway and any vertical face.

13.6 Service Areas

Where a NON-RESIDENTIAL ACCESS STREET provides frontage access to small industrial units then there is a requirement for operational space between the rear of the footway and the front face of the buildings. This space is to ensure that loading/unloading operations, skip storage etc can take place without obstructing the carriageway. An element of this operational space may count towards the parking requirements of the development. A typical provision of such space is illustrated in **Figure 5**. In in-fill development it may not always be possible to achieve these standards for service areas. In these cases, reference should be made to the Roads Authority to see if any relaxation of standards is appropriate. For developments involving larger industrial premises the above layouts are inappropriate and a physical barrier should be provided between road or footway and operational space.

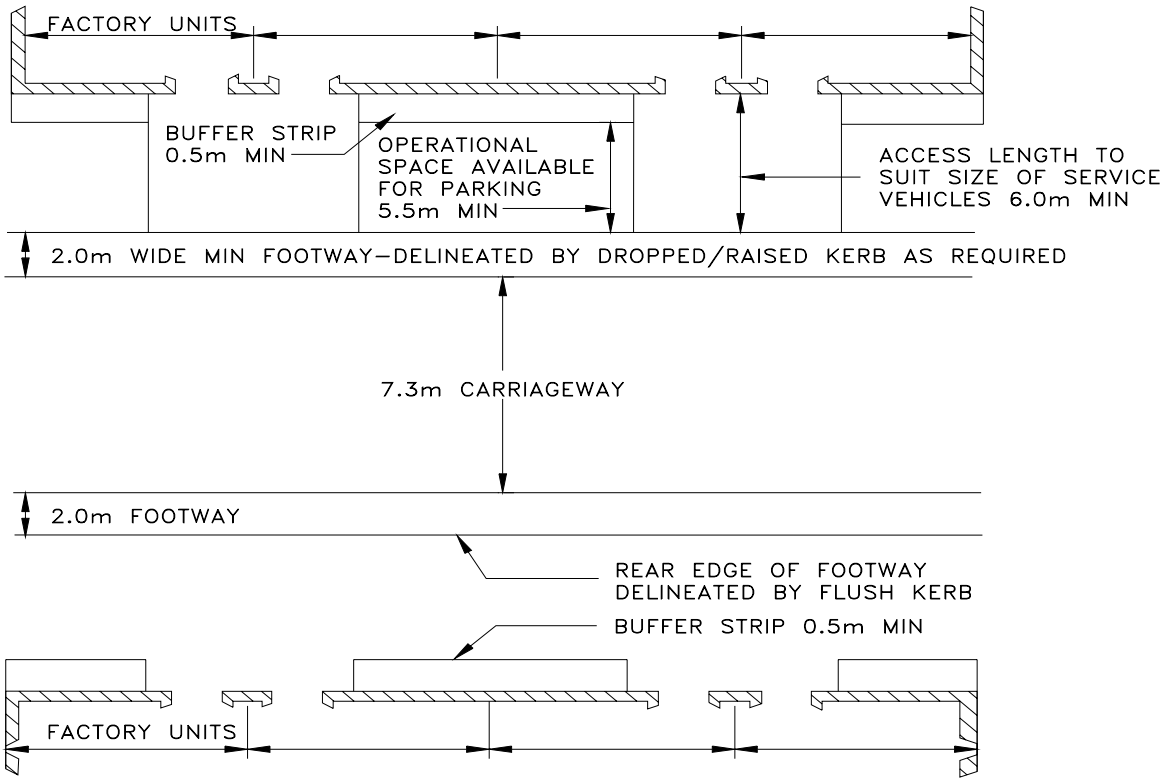


Figure 5 - Industrial Sites - Standard Layout

13.7 Access to premises

Vehicular access to commercial premises will normally be taken from the public road via a footway crossing designed to cater for the traffic volume and maximum weight of vehicle anticipated (**Part III, Section 21**). For major industrial developments, access should be by means of service roads connecting to the main road network at a T-junction designed as detailed in **Section 15.** For new commercial developments in urban centres and areas of high pedestrian flow there will be a general presumption against road junctions and reinforced footway crossings should be provided. In the case of large retail developments, service access should be segregated from access to customer parking areas in the interests of safety and operational convenience.

13.8 Service Roads

Service roads should be designed to be at least NON-RESIDENTIAL ACCESS STREET standard with particular attention to widening on small radius bends (**Section 14**) and turning areas (**Section 16**).

13.9 Adoption of Service Roads

Service roads may require Construction Consent if they are to serve premises in more than one ownership and access by the public is not restricted. In the centre of towns with high parking demand it may be appropriate for service areas to be adopted by the Council to allow control of indiscriminate parking. The Roads Authority will give guidance on this aspect.

13.10 Servicing Provision

All new development and redevelopment should, where possible, be designed such that premises can be serviced from vehicles parked off the public road. For small commercial properties, servicing can generally be satisfactorily undertaken via access driveways but for major commercial and industrial premises, a separate service area should be provided.

13.11 Rear Servicing

Where buildings directly abut the public road at their frontage, as do many shops, servicing facilities should be provided at the rear of the premises or by means of grade separation wherever possible.

13.12 Service Areas

Service areas range from single parking bays for delivery vehicles to sophisticated structures incorporating loading bays and mechanical goods handling equipment. The size and layout of all service areas should be such that whenever possible, all vehicles can enter and leave in a forward gear and do not need to reverse on to the public road.

13.13 Gradients

Gradients on ramps within service areas should not exceed 12 per cent on straight sections and should be less where there is significant horizontal curvature. At breaks of slope, a transitional grade not exceeding 5 per cent should be employed and care should be taken with headroom to allow for the bridging effect of long, high vehicles. A maximum gradient of 2.5 per cent is appropriate for areas where vehicles will be parked for loading/unloading, while the minimum gradient will be governed by drainage considerations (**Part III, Section 22**).

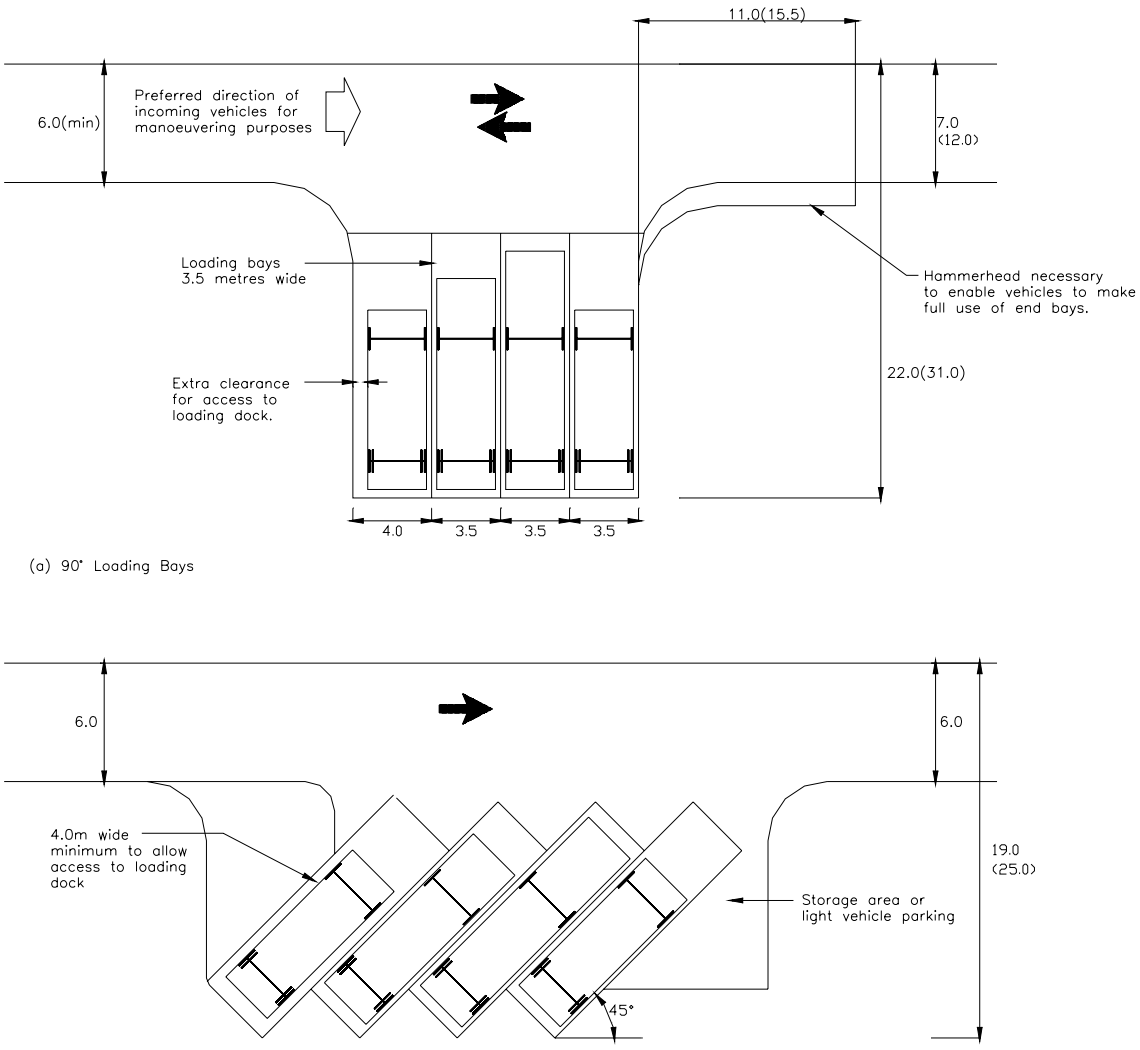


Figure 6 - End-Loading Service Bays

13.14 H.G.V Sizes

The maximum dimensions of goods vehicles in this country are currently 11 metres x 2.5 metres for rigid wheelbase vehicles and 15.5 metres x 2.5 metres for articulated vehicles. Drawbar trailer combinations comprising a rigid load-carrying towing vehicle plus a load-carrying trailer are 18 metres long and the maximum dimensions of passenger coaches are 12 metres x 2.5 metres. All widths are exclusive of door mirrors and it should be noted that loads on platforms may overhang by 0.3 metres on each side. Apart from a limit of 4.2 metres for 38 tonne lorries loaded in excess of 32.5 tonnes, there is no regulation governing maximum height but most vehicles are less than 4.5 metres high.

The maximum gross vehicle and axle weights for heavy lorries used in international transport allowable under Directive 85/3/EEC and last amended by 91/60/EEC are tabulated below.

Articulated Vehicles and Road Trains with 5 or 6 axles

No of axles		
Tractor	Trailer	Gross Vehicle Weight (tonnes)
2	3	40
3	2or3	40 (44, 6 axle bimodal articulated lorries and drawbar trailer combinations)

13.15 Loading Bays

Most goods vehicles are loaded and unloaded from the rear end and typical dimensions for end-on loading bays are shown in **Figure 8**. Allowing room to manoeuvre and shunt, these bays suit rigid vehicles up to 11 metres long or articulated vehicles up to 15.5 metres long. The total depth of the bays can be reduced where vehicles are parked at an angle with a saw-tooth loading deck but this arrangement is appropriate only when used with a one-way circulation system. Bay widths should be increased where side loading of vehicles by forklift trucks is contemplated to give a clear width of 3 metres between adjacent vehicles.

13.16 Kerbside Loading

Where vehicles are to be loaded or unloaded while parked parallel to the kerb in service roads, parking bays 3 metres wide and at least 3 metres longer than the vehicles using them should be clearly marked out and the width of the service road should be increased as detailed in **Table 6.**

Description of Service Road	Two Way Working	One Way Working
Loading Bays on one side only	9.0m	6.5m
Loading Bays on both sides	12.0m	9.5m

TABLE 6
Service Road Widths for Kerbside Loading

13.17 Parking

Provision must be made in commercial and industrial development for the overnight parking of all associated vehicles off the public road,. Where large numbers of servicing movements are expected, consideration should be given to the provision of parking bays for vehicles awaiting access to loading bays. The dimensions of the parking bays should be similar to those of the loading bays but references should be made to 'Designing for Deliveries' published by the Freight Transport Association for layout details. Provision must also be made for car parking as detailed in **Section 18**.

14. CARRIAGEWAY WIDENING ON CURVES

14.1 Need for Widening

The need for widening on curves depends upon the radius and the length of curve and the types of vehicles using the road. **Table 7** shows the increased widths required on 90º bends to allow two vehicles to pass, while maintaining appropriate clearances.

14.2 Single Track Roads

Single track lengths of road having a basic width of 3.7 metres, should be widened to 4 metres on curves of radii less than 25 metres to minimise the risk of overriding kerbs or verges. For a radius of 15 metres, a 4-metre width should still suffice provided the deflection is no more than about 45º.

14.3 Method of Widening

Widening is most simply achieved by maintaining the outer kerb line as a circular arc (Ro = centreline radius + 0.5 x nominal road width), and increasing the road width on the inside of the bend. Further details of inside kerb lines for industrial roads are to be found in "Designing for Deliveries" published by the Freight Transport Association.

	Carriageway Width Required at Apex of 90º Bend (Metres)					
	General Access Road (over 100 Dwellings)		Industrial Access Road		Local Distributor Road	
Centreline Curve Radius	(5.5m basic)	6.0m basic)	(6.0m basic)	(7.3m basic)	(6.0m basic)	(7.3m basic)
25	7.3	7.8	9.9	11.2	-	-
50	6.8	7.3	8.1	9.4	-	-
75	6.3	6.8	7.4	8.7	-	-
150	5.9	6.4	6.7	7.9	6.4	7.9
300	5.5	6.0	6.0	7.3	6.0	7.3

TABLE 7
Carriageway Widening on Curves

15. ROAD JUNCTIONS

15.1 Form of Junction (DSNHA 3.1)

Where two roads intersect, a right angled T-junction should normally be formed with the major road, defined as that carrying the greater volume of traffic, continuous through the junction (**Figure 7)**.

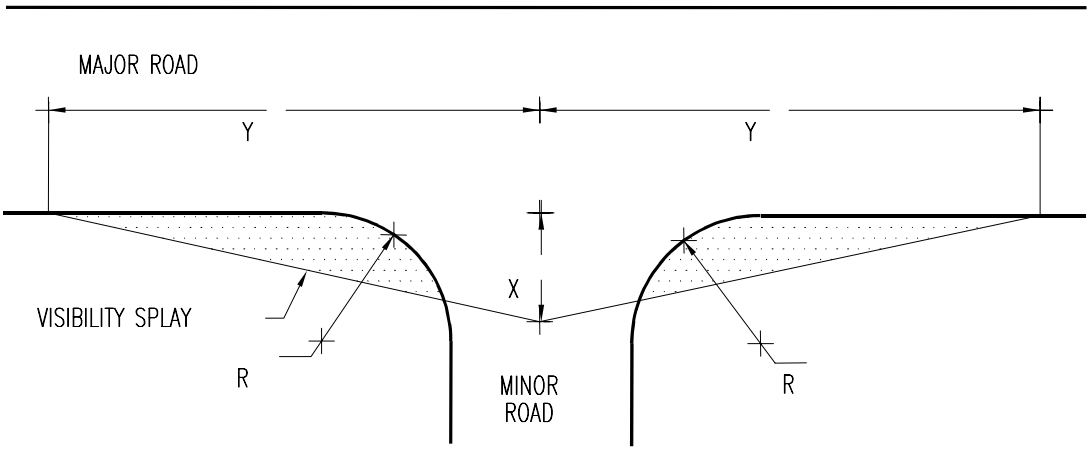


Figure 7 - Generalised Layout of a Priority Junction

15.2 Priority

In general the geometric layout should clearly establish the priority of the major road to approaching drivers. The Roads Authority may additionally require that the appropriate road signs and/or markings are provided to emphasise this priority.

15.3 Siting

It is preferable to site junctions on level ground or in sags rather than at or near the crests of hills. Where possible, T-junctions on curves should be sited so that the minor road is on the outside of the curve. Junctions on the inside of sharp curves are most undesirable.

15.4 Staggered Junctions

Where two minor roads approach a major road from opposite sides, a staggered junction comprising two T's should normally be used instead of a crossroads. Right/left staggers (where minor road traffic crossing the major road first turns right out of the minor road, proceeds along the major road and then turns left) are preferred to left/right staggers.

15.5 Geometry

Road junctions should be designed to meet the criteria listed in **Table 8** and laid out as illustrated in **Figure 8**.

15.6 Spacing

Junction spacing (**Table 8**) is related to the likely volumes and speeds of traffic and the distance required by moving vehicles to take up position between junctions for particular turning movements. The need to maintain road safety and minimise the likelihood of congestion dictates the spacing and location of major access points.

15.7 Visibility Splays

At priority junctions there should be full visibility to the left and to the right between points 1.05 metres above carriageway level over the visibility splay area defined in **Figure 7**. The X and Y distances are determined solely by the major road type and will be applied on this basis to junctions comprising combinations of road types not specifically listed in the table. Where, of necessity, a minor road forms an up-hill approach to the major road, care should be taken to ensure that objects within the visibility triangle, although less than 1.05 metres above carriageway level, do not interfere with visibility. For junctions on curves, reference should be made to TD 42/95 of the Design Manual for Roads and Bridges for the determination of parameters X and Y.

Major Road Type	**Minor Road Type**	**Minimum Spacing on Major Road**	**Visibility Splay**		**Corner Radii**
		(Metres)	**X (metres)**	**Y (metres)**	**R (metres)**
District Distributor	Local Distributor	210 (150+)	9	120	10.5*
Local Distributor	Local Distributor	100	9	90	10.5*
Local Distributor	Non-Residential Access Street	100 (40+)	9	90	Discuss with Roads Authority
Local Distributor	General Access Street	100 (40+)	4.5	90	10.5
Non-Residential Access Street	Non-Residential Access Street	40	4.5	70	9.0
General Access Street	General Access Street	40	4.5	70	7.5
General Access Street	Home Zone	40	4.5	70	6.0
Home Zone	Home Zone	40	2	20	No minimum (3.5 on narrow sections)

+ Absolute Minimum
** Seek advice of Roads Authority where long vehicles are anticipated*

TABLE 8
Dimensions for Priority Junctions

15.8 Corner Radii

The radii for corners (**Table 8**) are determined by the need for vehicles using the junction to manoeuvre safely. Vehicles using the junction regularly should be able to turn without obstructing oncoming traffic although some larger vehicles may need to use the full width of road.

15.9 Special Cases

In special cases (e.g. one-way roads) some reduction in the values of X, Y and R may be permitted by express permission of the Roads Authority.

15.10 Gradients

The maximum gradient of the final approach of the minor road at junctions should be limited over the X distance to 2.5 per cent where the major road is a DISTRICT or LOCAL DISTRIBUTOR and to 5 per cent in other situations.

15.11 Frontage Access/Parking

No frontage access or lay-by parking will normally be permitted in the immediate vicinity of a road junction or where parked vehicles would interfere with junction sightlines.

15.12 Dropped Kerbs

Provision should be made at all road junctions for pedestrians to continue along the major road with a minimum of inconvenience. Kerbs should therefore be dropped as indicated in **Figure 8** at all junctions other than those at which a footbridge or underpass suitable for use by pedestrians with prams and wheelchairs is provided.

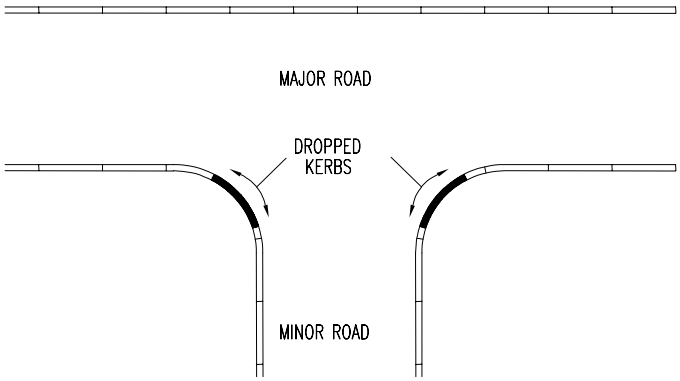


Figure 8 - Dropped Kerbs at Road Junctions

15.13 Rural Areas

The dimensions given in **Table 8** apply only where there is a speed limit of 50 kph or less. Where speeds are higher, and particularly in rural areas, the Roads Authority will advise on appropriate standards given in **Table 10.**

Design Speed of Major Road (kph)	'x' Distance (m)	'y' Distance (m)
50	9 (4.5)*	70
60	9 (4.5)*	90
70	9 (4.5)*	120
85	9 (4.5)*	160
100	9 (4.5)*	215
120	9 (4.5)*	295

** Possible Relaxations*
See Design Manual for Roads and Bridges, Volume 6, TD 42/95.

TABLE 9
Visibility Distances from the Minor Road

16. TURNING AREAS

16.1 Turning Provision

It is desirable for all new road layouts to be designed so that service vehicles do not need to reverse on the public road. Wherever possible this should be achieved by the provision of a permeable road layout with premises accessible from two directions and access roads in the form of loops off LOCAL DISTRIBUTOR ROADS; thus avoiding the need for turning areas and minimising dead mileage for delivery and service vehicles.

16.2 Turning Areas

Where a cul-de-sac is deemed to be necessary, the layout of built development should allow for all vehicles to negotiate it in a forward gear. Where the lack of space in a cul-de-sac precludes this, or as a temporary solution as part of phased development, turning areas may be substituted but the attendant dangers of reversing service vehicles should not be overlooked. Turning areas should be proved by means of swept-path analysis (**DSNHA 3.11** et seq.).

16.3 Geometry

The dimensions of turning areas should suit the characteristics of the largest vehicles to use the facility regularly. In residential roads these will normally be refuse collection vehicles, while in non-residential developments it may be necessary to cater for 15.5 metres long articulated vehicles or 18 metres long draw-bar trailers. The turning areas detailed in **Figure 9** are based on the turning circles of these vehicles between kerbs.

16.4 Body Overhang

Where there is no adjacent footway, turning areas should be provided with a 2 metres wide verge or margin to allow for any overhang of vehicle bodies when manoeuvring.

16.5 Parking

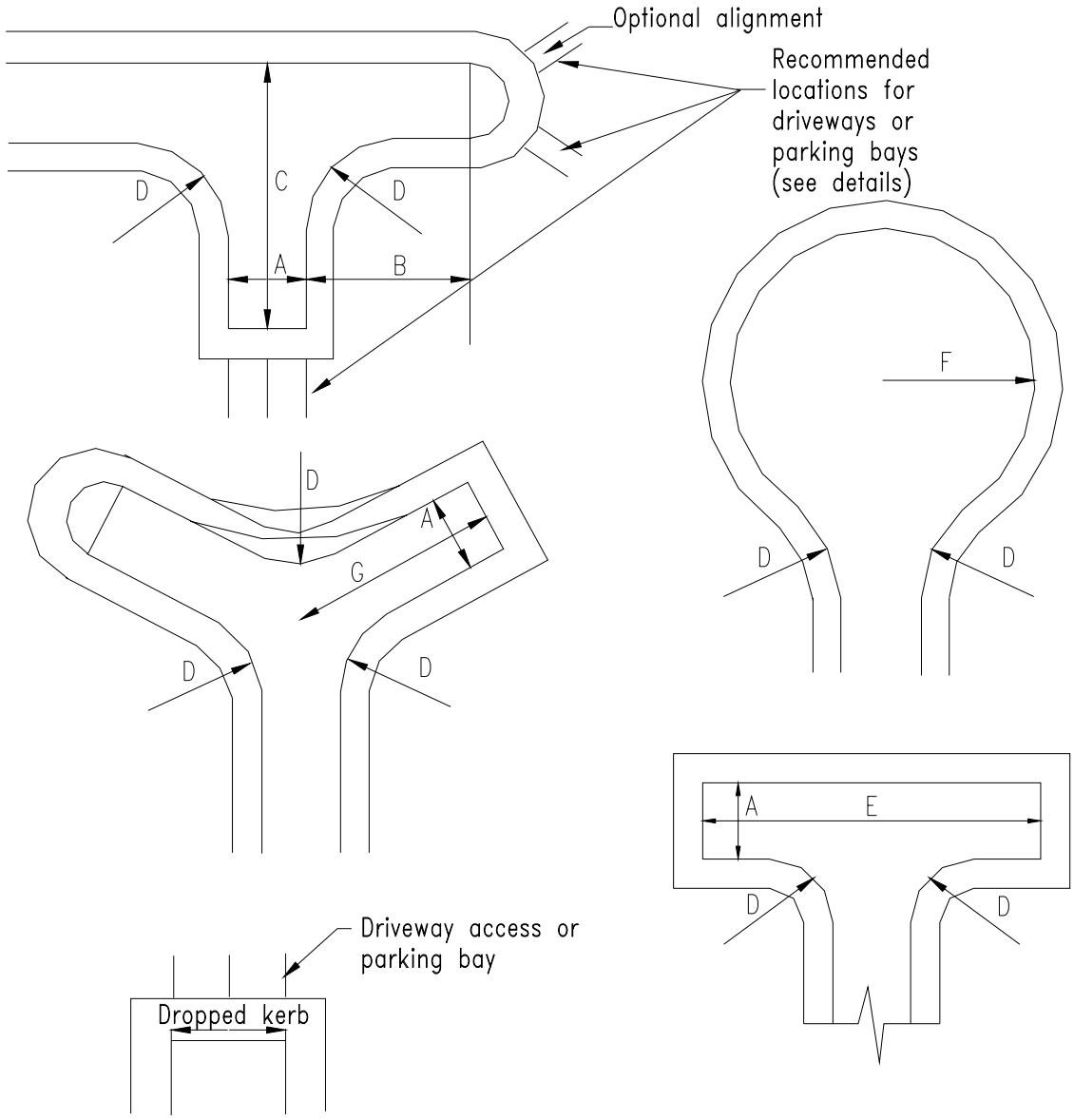
The layout of a development should be designed to discourage casual parking in turning areas. This may be achieved by either locating turning circles well clear of frontage development or arranging that premises and designated parking bays take access via the turning area (**Figure 9**).

16.6 Informal Courtyard

In residential areas the use of less formal shapes for turning heads may be acceptable and this has been demonstrated in **Figure 9**. Note that the shape should still incorporate the basic turning head dimensions.

16.7 Service Areas

A separate turning area may not always be necessary in small units where a NON-RESIDENTIAL ACCESS STREET is flanked by service areas which will themselves accommodate the turning manoeuvres of the largest vehicles anticipated.



(All dimensions are in metres)	A	B	C	D	E	F	G
RESIDENTIAL DEVELOPMENT	5.5	11.0	17.0	7.5	23.5	9.0	13.0
INDUSTRIAL/COMMERCIAL DEVELOPMENT	6.0	25.0	22.0	9.0	32.0	10.5	20.1

Figure 9 – Turning Areas

17. PROVISION FOR SUSTAINABLE MODES OF TRANSPORT

17.1 Introduction

When planning major new developments, accessibility by sustainable modes of transport must be taken into account and incorporated into the overall design of the development. The Scottish Government's Scottish Planning Policy 17 (SPP17) sets out Government policy on nationally important land-use and other planning matters and should be consulted in the preparation of development proposals.

The three major modes to be considered are walking, cycling and public transport and the requirements for each mode are listed below. Where there are existing footpath and cycle track networks close to new developments, there is a requirement to provide links to these networks, integrating the development into the surrounding infrastructure. Similarly, access to existing public transport services or the introduction of new services must be provided.

Where the scale and / or type of development will generate a significant increase in traffic, a travel plan should be prepared which will include measures to promote the use of sustainable modes and minimise the use of cars.

WALKING (DSNHA 2.3)

17.2 Desire Lines

Pedestrian movements should be made as convenient, safe and pleasant as possible by careful attention to the design and layout of pedestrian routes. The pedestrian network should reflect natural desire lines to surrounding destinations and be more attractive for pedestrians to use than the vehicular route.

17.3 Hierarchy

The number and type of trips involved – eg. to and from neighbours, local shops, schools, parks/play areas, bus stops, train station, as well as those leisure trips which are made for their own sake - leads to the definition of a hierarchy of pedestrian routes to complement the vehicular network. In a similar manner the usage dictates the width and the desirable degree of segregation.

17.4 Main Routes

Those features which will generate or attract a substantial amount of pedestrian traffic such as shopping areas, schools, bus routes, train stations, clinics and parks/play areas should be identified at an early stage in the planning process. These will dictate the main spinal pedestrian routes, which should be segregated as far as possible from major traffic routes and involve a minimum number of carriageway crossings. These may need to be designed for shared use with cyclists (**Table 11**). In general, routes should be direct and have regard to personal safety. Visibility should be good with "blind" areas avoided. Care should be taken that routes are suitable for natural surveillance from surrounding buildings. Particular care should be paid designing routes leading to schools.

17.5 Location of Crossings

Particular attention should be paid to the locations at which pedestrian routes cross the carriageway (eg at road junctions) so that footway and footpath users are not exposed to unappreciated dangers. Judicious use of hard and soft landscaping can guide pedestrians to suitable crossing points and help prevent children running directly out onto the road. Special consideration should be given to the possible need for crossing facilities adjacent to shops, clinics, community facilities and other major generators of pedestrian traffic.

17.6 At-Grade Crossings

At pedestrian crossing points, other than those at which a suitable grade separated facility is provided, kerbs should be dropped to permit easy access to and from the carriageway for pedestrians with prams and wheelchairs.

17.7 Grade-Separated Crossings

In particular circumstances, footbridges and underpasses may be appropriate for carriageway crossings. These should be designed to be obviously more convenient, pleasant and safe to use than any alternative route. This will often involve elevating or depressing the carriageway to ensure that footways and footpaths have minimal changes in level. Underpasses have particular problems for individual safety and should be avoided where possible.

17.8 Routes for Prams and Wheelchairs

The developer should delineate suitable routes for pedestrians with prams and wheelchairs from residential areas to shops and community facilities. These routes should have a firm, non-slip surface and avoid steps even if this means slightly longer routes. Steep crossfalls, gratings likely to trap wheels and obstruction by lighting columns, signposts etc. should also be avoided.

17.9 Routes on Distributor Roads

Where pedestrian routes of necessity run beside distributor roads, they should be separated from the carriageway by a verge at least 2 metres wide in the interests of road safety and improving the environment of the road.

17.10 Footway Widths

Table 10 specifies the required widths of footways - ie pedestrian routes associated with carriageways. These widths may have to be increased in locations where there are high pedestrian volumes. Conversely, at the discretion of the Roads Authority, footways may be reduced in width over short lengths not exceeding 3 metres to negotiate mature trees and other obstructions but they should at no point be less than 1.4 metres wide. Where Public Utility services underlie the footway, special arrangements may be necessary at sections of reduced width (**Section 19**).

Carriageway Type	Width
Distributor	2.5-3.0+
Non-Residential	2.0-5.0
Residential	2.0-3.0++
Local Shops	4.0
Major Shops	5.0

+ Minimum 3.0 metres for District Distributor road

++ Minimum 3.0 metres for shared footway/cycle tracks

TABLE 10
Footway Widths

17.11 Footpath Widths

Table 11 details appropriate widths for footpaths and pedestrian areas remote from the road network intended for adoption (see **Part I, Section 3** regarding eligibility). These widths may require to be increased to facilitate maintenance of the footpath and/or underlying services (**Section 19**).

Route/Area Type	Width
Minor pedestrian routes	1.8*+
Major pedestrian routes	3.0
Shopping Precinct	6.0
Footbridge	2.5*
Underpass (2.3m headroom)	2.5++

* May be inadequate for maintenance purposes
+ Where use is to be shared with cyclists a minimum of 3.0m is required.
++ Where use is to be shared with cyclists a minimum of 3.5m is required.

TABLE 11
Footpath Widths

17.12 Footway Crossing

Where vehicular access to premises is taken across a footway, the ramped portion should be confined to that immediately adjacent to the carriageway, thus emphasising the pedestrians' priority. The short ramp adjacent to the dropped kerb also encourages a reduction in the speed of vehicles crossing the footway **(Figure 20)** . There is a general presumption against the use of kerbed service roads in areas of high pedestrian flow and urban centres (**Section 13**).

17.13 Gradients

Gradients on footways and footpaths should not exceed 5 per cent with a normal maximum of 8 per cent. Steeper gradients may occasionally be permitted, except on routes delineated for pedestrians with prams and wheelchairs, subject to the provision of a handrail on at least one side and rest platforms at 10 metre intervals.

17.14 Pedestrian Ramps

Pedestrian ramps should have a maximum gradient of 12 per cent and should be no more than 10 metres in length. Landings should be provided at the top and bottom of every ramp and at every turn within a ramp. Stepped ramps should be avoided wherever possible and must not provide the sole means of pedestrian access or be used on wheelchair routes, or cycle routes.

17.15 Steps

Steps pose problems not only for prams and wheelchairs but also for subsequent mechanised maintenance and should never form the sole pedestrian route. However, since some people find walking on any sloping surface difficult or impossible, steps should be provided in addition to ramps wherever possible. Each flight should have a rise of 1.2 metres and comprise between three and twelve uniform steps. Landings should split longer flights into sections. The rise of each step should not be less than 75 mm and should not exceed 170 mm. Steps should have 0.28 metre (minimum) permanently non-slip treads and a minimum clear width of 1.4 metres. Handrails should be provided at both sides of the steps (or centrally on steps a minimum of 3 metres wide) so either hand can use them. Design of steps should be to the approval of the appropriate Roads Authority.

17.16 Landings/Rest Platforms

Landings on ramps and stairways and rest platforms provided adjacent to footpaths and footways should preferably be 2 metres wide by 2 metres in length and of minimum dimensions 1.4 metres wide x 1.2 metres.

17.17 Handrails

Handrails should comprise 50mm diameter galvanised, mild steel tube and must be securely fixed. They should be set 1 metre above a ramp and 0.85 metres above the tread of a step. They should extend at least 0.3 metres horizontally beyond the top and bottom of a ramp or flight of steps and should be returned at each end. Free standing handrails should be complemented with a lower rail set not more

than 0.3 metres above the walking surface. The balustrade shall be infilled if the fall from the walking surface exceeds 600 mm. Design of handrails should be to the approval of the Roads Authority.

17.18 Grit Bins

In developments featuring pedestrian routes with gradients steeper than 8 per cent and/or an extensive network of footpaths, the Roads Authority may require small areas adjacent to these to be provided for the siting of grit bins.

CYCLING (DSNHA 2.3)

17.19 Provision of Facilities

Cycling facilities should be established within or adjacent to new developments wherever possible. The main objectives being the following:

- To encourage increased cycling in accordance with the National Cycling Strategy.
- As with pedestrians, cyclists are recognised as vulnerable road users and there is a similar need to provide dedicated facilities to minimise conflict with motorised road users.
- Where an existing or proposed cycle track passes or terminates at or adjacent to a new development, there will be a requirement to provide appropriate links into the facility or extend it.

Appropriate facilities should be incorporated into the design of new developments and requirements are detailed below. Further and more comprehensive details of provision for cyclists can be obtained from the Institution of Highways and Transportation and Department of Transport's "Cycle-friendly Infrastructure" (www.iht.org.uk) and the Scottish Executive's "Cycling by Design" technical consultation document (www.scotland.gov.uk/Publications/Recent). Sustrans' National Cycle Network "Guidelines and Practical Details" Issue 2 (www.sustrans.org) is also useful for reference.

17.20 Cycle Lanes

A cycle lane is provision made for cyclists on the carriageway. There are two types of cycle lane.

1. Mandatory Cycle Lane

This requires a Traffic Regulation Order to prohibit the driving of all vehicles except pedal cycles in the cycle lane. Waiting and loading restrictions can be included in the order with time restrictions imposed on this if necessary.

2. Advisory Cycle Lane

This does not need a Traffic Regulation Order and therefore has little legal status and is often prone to obstruction by cars parking. Vehicles are permitted to drive along the lane if absolutely necessary, for example, due to width restraints on the carriageway.

The introduction of mandatory or advisory cycle lanes should comply with **Table 12**. A contra-flow cycle lane may be provided on a one-way street and should ideally be 2.0 m wide, but, where the road width is restricted, it can be a minimum of 1.5 m.

Standard	Width (m)	Comments
Desirable Minimum Width	2.0	Enables the cyclist to safely pass other cyclists within the cycle lane.
Absolute Minimum Width	1.5	Enables the cyclist to avoid the majority of obstructions found adjacent to the kerb; for example debris and gullies
Limiting Width	1.2	Where road width is restricted on a cyclists route to an advanced stop line

TABLE 12
Cycle Lane Widths

17.21 Cycle Tracks

A cycle track is a route for pedal cycles which can either be part of a road adjacent to a carriageway or a separate route in its own right, with or without a right of way on foot. **Table 13** gives the widths required for shared pedestrian/cycle tracks. Street lighting should be provided on cycle tracks in built up areas.

Boundary Constraints	Desirable minimum width			
	Footway/Footpath (m)	Cycle track (m)	Carriageway Verge (m)	Total (m)
Open site	1.5	1.5	N/A	3.0
Wall, bushes etc	1.5	1.7	N/A	3.2
Carriageway on cycle track side	1.5	1.5	N/A 2.0 on a Distributor Road	3.0

TABLE 13
Cycle Track Widths

17.22 Construction Details

Construction of a cycle track should be to the same specification as a standard footpath, as detailed in **Table 15**. Drainage must be provided in accordance with **Part III, Section 22** of this document.

17.23 Toucan Crossings

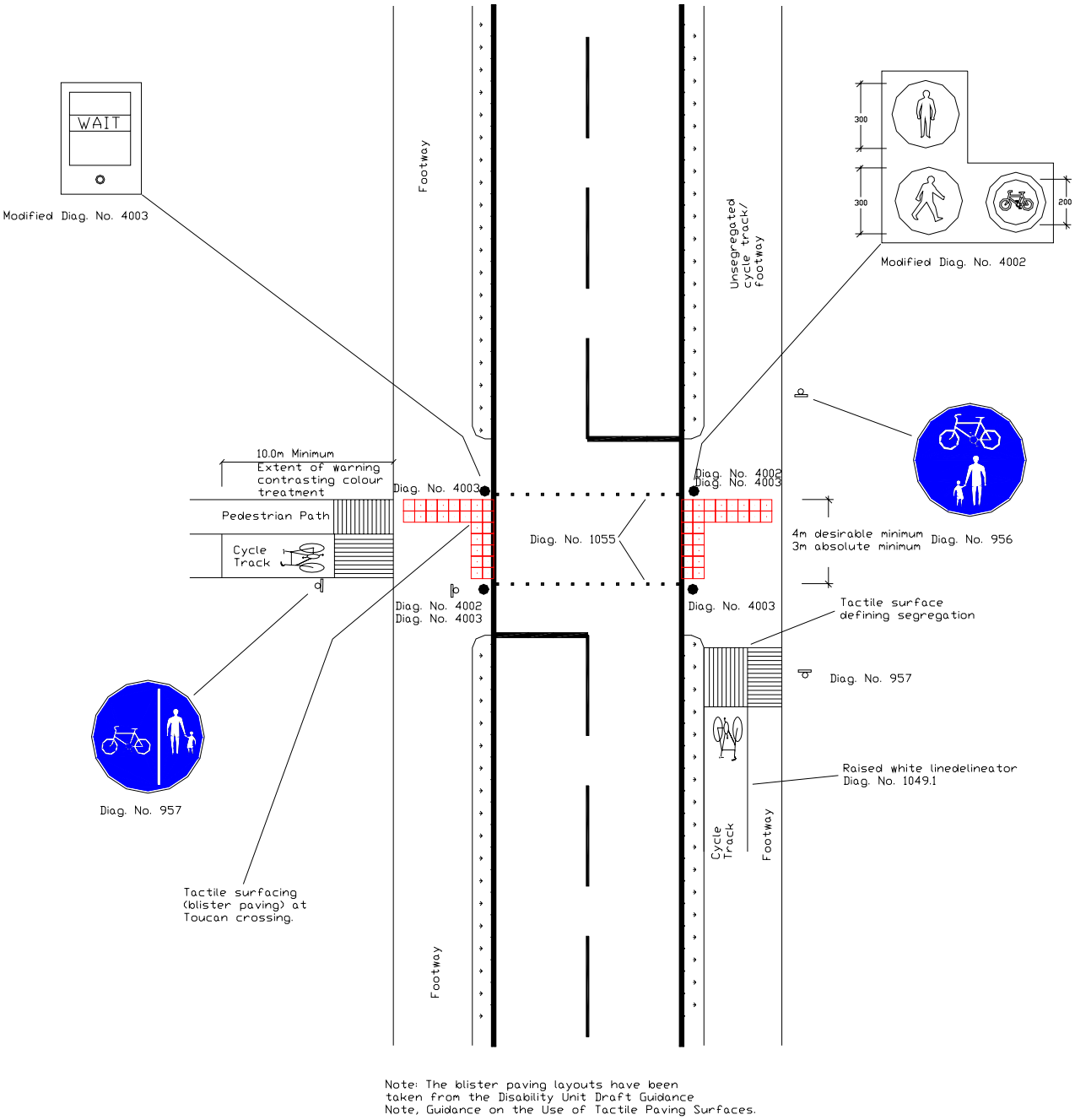
A “Toucan” crossing is a "shared" controlled road crossing for cyclists and pedestrians. Details for a Toucan crossing can be found in the Department of Transport: Local Transport Notes 1/95 “The Assessment of Pedestrian Crossings” and 2/95 “The Design of Pedestrian Crossings”. **Figure 10** shows typical layout details for a Toucan crossing.

17.24 Grade Separated Crossings

Grade separated crossings where facilities have been provided for people with disabilities will also be suitable for cyclists. However, where subways are concerned, clear headroom of 2.4 m is required as a desirable minimum and on bridges a parapet height of 1.4 m will be required.

17.25 Roundabouts

Care should be taken in the installation of roundabouts where there is a large number of cyclists as they often experience difficulty in using them. Further information and guidance on roundabout design may be obtained from the technical documents listed at the beginning of this section and Traffic Advisory Leaflet 9/97 "Cyclists at Roundabouts, Continental Design Geometry."



Note: The blister paving layouts have been taken from the Disability Unit Draft Guidance Note, Guidance on the Use of Tactile Paving Surfaces.

Figure 10 - Typical Layout for Toucan Crossings

17.26 Advanced Stop Lines at Traffic Signals

Advance stop lines were introduced as a means of giving cyclists a head start at signalised junctions. Typical details of advance stop lines are shown in **Figure 11.**

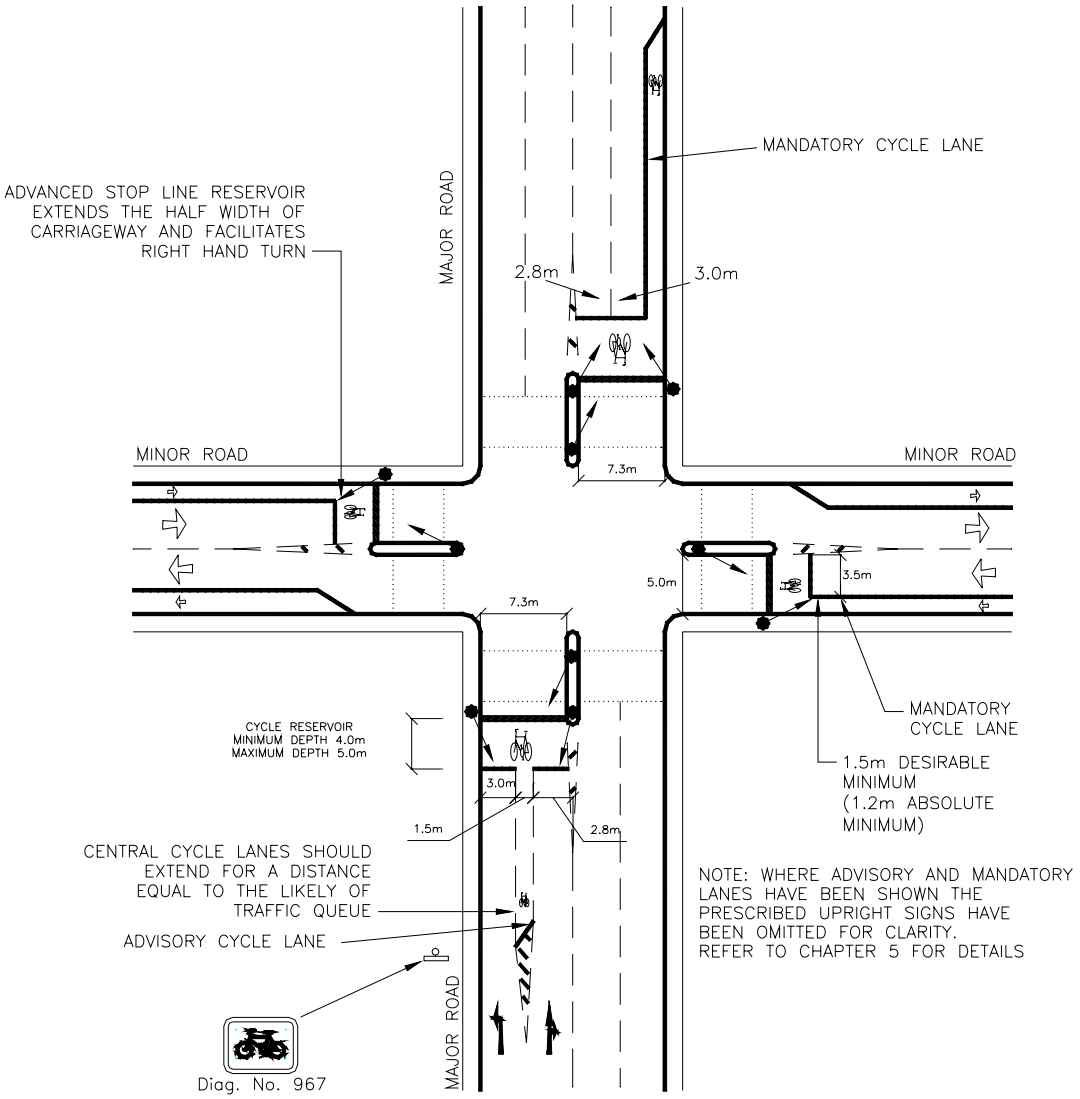


Figure 11 - Typical layout for Advance Stop Lines

17.27 Signing

Signing for cycle facilities must be in accordance with The Traffic Signs Regulations and General Directions 1994.

17.28 Cycle Parking

Requirements for new developments are given in **Part 5**, **Section 5** and **Table 27**. For maximum security, facilities should be placed so as to minimise conflict with motor vehicles and be in a prominent position visible to passers-by (i.e., not hidden at the side or rear of buildings.) It is preferable for the provision to consist of a number of groups each comprising a mix of racks and lockers rather than extensively long racks.

17.29 Access Barriers

Generally it is desirable not to have access controls onto cycle tracks or shared facilities. However, experience has shown that there is a need at some locations to discourage unauthorised use by motor vehicles, particularly motor bikes, on a cycle facility. Typical examples of barriers are shown on **Figure 12**.

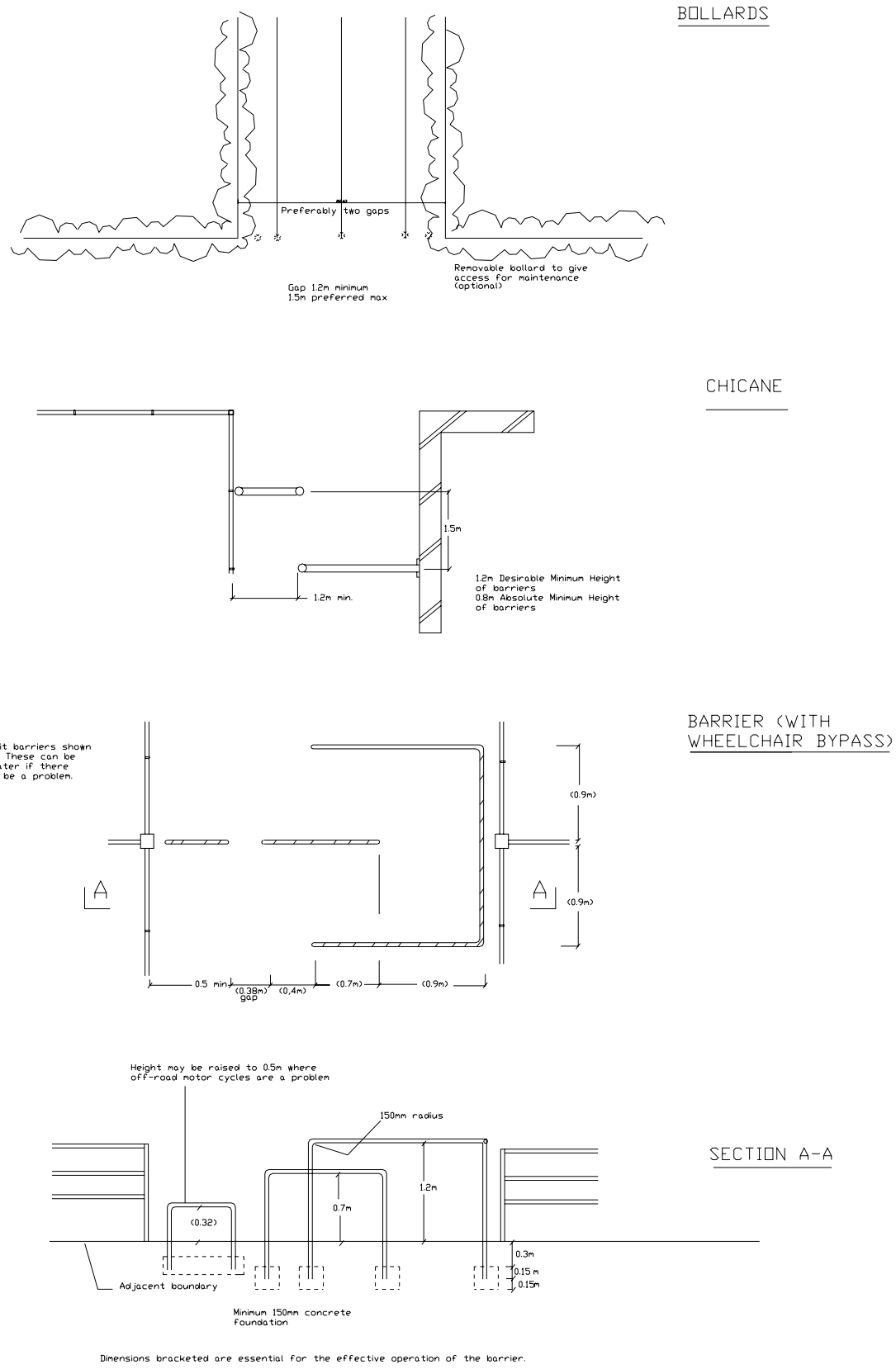


Figure - 12 Cycle Access Barriers

PUBLIC TRANSPORT

17.30 Provision of New and Additional Services

In planning major new developments consideration will have to be given as to how they are to be served by public transport. There may be a need to provide new or augment existing local bus services and this will have an effect on road types, layouts, widths, corner radii and pedestrian access arrangements. Where an existing service is to be extended from its terminal point into the new development, there will be requirement to provide a new layover facility. The developer should hold early discussions with the relevant bus operators to agree the location and layout of this facility. Where the new development's distributor road links two existing roads, it may be possible to re-route existing bus services through the site. In this case, layover facilities may not be required. For larger developments where public transport access is poor the developer would be asked to contribute funding to the provision of a bus service for an initial period of 3 years. Consideration will also have to be given as to how rail services can be accessed where there is a station near to the development.

17.31 Bus Routes (DSNHA 2.6)

Bus routes, in order to be practical, must be reasonably direct and connect the centroids of the residential, business and shopping areas which they serve. Services will generally be based on DISTRICT and LOCAL DISTRIBUTOR ROADS for conventional size buses. Ideally bus penetration should be such that no house or workplace is more than 400 metres from the nearest bus stop where these are spaced at two or three per kilometre. Consent will be required from the Council to run smaller vehicles on other roads within a development.

Where a new development includes clinics, old person's dwellings, schools, shopping centres or other areas of intense pedestrian activity, these should be located so that they have ready access to bus services. Where bus shelters are to be provided, these should be sited so as not to obstruct vehicles' sight lines or footways and should be to a design agreed with the Public Transport Section of the Council. Additionally culs-de-sac should provide suitable access and turning arrangements for Dial-a-Ride and Dial-a-Bus type vehicles ie mini and midi buses for use by disabled people.

17.32 Road Width for Bus Routes

Roads which are or may be used as bus routes should be suitable in width, alignment and construction. The minimum carriageway width for two-way operation of buses in new developments should be 6.0 metres increasing to 7.3 metres where the two-way bus frequency is likely to be high. Corner radii should take into account the fact that buses have a large swept turning circle in the order of 20-25 metres diameter, see **Section 14**. Bus bays, boarders and turning arrangements should be provided as appropriate in agreement with the Council's Public Transport Section.

17.33 Bus Stops and Shelters

Depending on the size and nature of the development the developer should provide bus stop poles, plates, raised boarding kerbs, boarders and shelters to a specified standard as agreed with the Council's Public Transport Section. It may also be appropriate to provide cycle racks or lockers at certain stops to allow residents to leave their bikes whilst using the bus.

17.34 Rail Services

Consideration will have to be given as to how rail services can be accessed where there is a station near to the development. The developer shall ensure that the footpath/cycle track network from the development links in to any existing paths/tracks which serve the station. Where appropriate, new shared footpaths/cycle tracks shall be provided from the development to the station. There may also be a requirement for the developer to contribute to the provision of cycle lockers and/or racks and additional car parking spaces at a station to serve the additional demand from the development.

17.35 Taxis

In certain types of new development, taxi ranks should be located so as to ensure easy access to facilities such as shops, clinics and community centres. This is particularly helpful for elderly and disabled people and those residents who do not have access to a car.

TRAVEL PLANS

17.36 Promotion

SPP17 seeks to promote the widespread use of Travel Plans amongst businesses and for schools, hospitals and other significant travel generating uses. These are documents prepared by the owners and operators of developments setting out proposals for the delivery of more sustainable travel patterns. They should relate to local targets for the reduction of road traffic or for the promotion of walking, cycling and public transport as outlined in the Council's Local Transport Strategy.

Travel Plans should be included in the Transport Assessment for a development and submitted as part of the application. They should include proposals for monitoring the Travel Plan and adjusting it where necessary in the light of outcomes.

17.37 Measures to be considered

Travel plans associated with a planning permission may be a suitable subject for a planning agreement in order that they may be adequately implemented and enforced. Guidance is available from a number of sources (see below) on how to develop a plan, which should be tailored to a specific site and include a range of measures which will make a positive impact at that site. Measures considered could include:

- Providing pedestrian and cycle facilities;
- Negotiating improved bus services;
- Setting up a car sharing scheme;
- Offering flexible working practices;
- Restricting and/or charging for car parking with priority spaces for car sharers; or
- Setting up video conferencing facilities to cut business travel.

Sources of information relating to Travel Plans can be found on the following websites:

http://www.scotland.gov.uk/Publications/2002/10/15454/11007

http://www.dft.gov.uk/pgr/sustainable/travelplans/

http://www.energysavingtrust.org.uk/fleet/organisations/traveladvice/

http://www.act-uk.com/

http://www.liftshare.org/travelplans.asp

http://www.clacksweb.org.uk/transport/travelplans/

18. CAR PARKING PROVISION

18.1 Level of Provision

In general, adequate off-road parking should be provided to ensure that vehicles are not parked on the road where they may constitute a safety hazard or impede traffic flow. Levels of parking provision are detailed in **Part 5 - Parking Standards**. Car parking for mobility impaired persons should be 5% of the total parking and not less than 1 space.

18.2 Retail Development

The parking requirement for retail development will be influenced by a number of factors including the type of goods sold, the size of the development and in the case of large developments the size of component units, whether petrol is sold on site and the competitiveness of the retailer involved. The figures shown in the Parking Standards Section should be taken as a general guide only. For larger developments a Transport Assessment will be required which should include an assessment of parking requirements. The Council has now set maximum standards for parking in accordance with SPP 17 and each application will be decided on its merits depending on location.

18.3 Residential Development (DSNHA 2.18 & 3.14)

In residential development, specific provision should be made for residents' and casual visitors' parking. A minimum of one parking space per dwelling should be dedicated for use by residents and their guests. Driveways and other off-road parking areas should provide these spaces. These latter spaces should be clearly separated from the carriageway. In general, parking for use by casual visitors (normally five spaces per ten dwellings) should be provided communally and may be either contiguous with the carriageway or provided off-road.

18.4 Rehabilitation

Whenever existing buildings are rehabilitated or modernised, the opportunity should be taken to provide parking at the level required for comparable new development. This may involve the selective demolition of certain derelict buildings, utilisation of former garden ground or some adjustment of road boundaries to create off-road parking areas. Careful attention to "built form" and landscaping details will often be necessary to incorporate appropriate parking provision while meeting aesthetic design criteria, and the developer should discuss such matters with the Planning Authority and the Roads Authority at an early date. In conservation areas, a reduced or zero parking provision may be acceptable in exceptional circumstances provided that there are demonstrable townscape and/or amenity benefits and that road safety in the locality is not compromised.

18.5 Location

The location of car parking areas in a development should be considered at an early stage in the design process to achieve a balanced distribution of spaces throughout the site, conveniently related to user destinations. The urban form should dictate the location of parking areas and pedestrian access to premises should be so arranged that it is easier and more convenient to use the designated parking areas than to park casually on the road with special consideration given to the needs of disabled people.

18.6 Bay Sizes

The size of the standard car in the UK is approximately 4.75 metres x 1.8 metres. Allowing suitable clearances all round and for the opening of doors, the minimum design module for car parking bays should be 5 metres x 2.5 metres. Longer bays will be required in certain situations (eg **Lay-bys 18.14**), while the width of bays provided for the disabled should be increased to 3.4 metres and comprise a 2.4 metres wide parking space together with a 1.0 metre wide adjacent strip to facilitate the transfer of wheelchair passengers. This strip may be shared between 2 car parking spaces. These spaces must be clearly marked for use by disabled people and must be located not more than 45 m from the principal entrance to the building which they serve.

18.7 Residents' Parking (DSNHA 2.19)

Parking spaces reserved for the exclusive use of residents and/or their guests should be located off the carriageway to the side or rear of buildings to minimise the visual impact of vehicles on the streetscape. This can be achieved by the provision of private driveways and rear parking courts. The location and surface treatment of off-road parking areas should emphasise their private nature. In localities where there is a significant demand for public car parking, private spaces should be screened from public view.

18.8 Visitors' Parking

Parking areas provided for communal use by casual visitors should be located so as to be obvious to strangers to the development. It will usually be appropriate for such public parking to be located in laybys, particularly since their presence can positively discourage indiscriminate kerbside parking elsewhere on the road.

18.9 Walking Distances

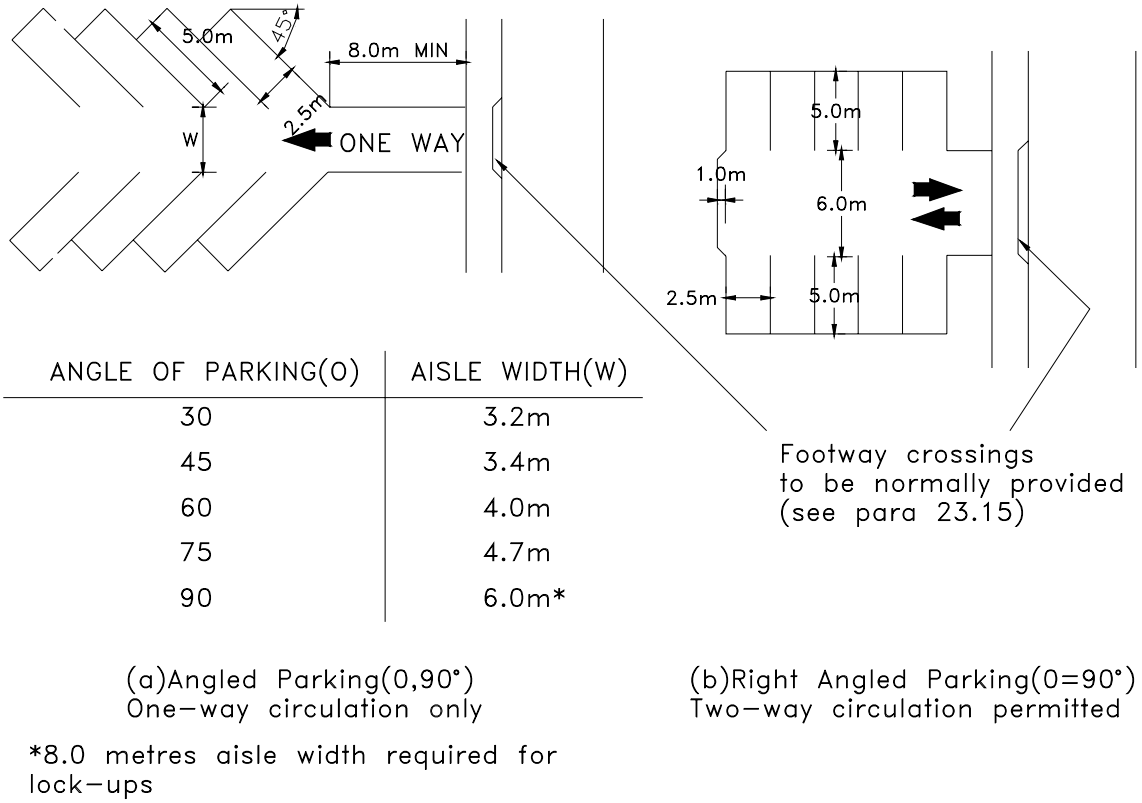
Residents' parking spaces should generally be situated no more than 30 metres walking distance from the nearest entrance to the dwelling they serve and the maximum distance for visitors' spaces should be similarly limited to 100 metres. Consequently, where lock-up garages are provided at some distance from the dwellings they serve, other off-road areas may be required for the convenient parking of residents' cars.

18.10 Conspicuity

Since parked vehicles can be visually intrusive, particularly in the residential environment, it is desirable for there to be an element of screening of the actual parking bays, either by the judicious use of landscaping or preferably by setting them behind building lines. At the same time, communal parking areas in some localities are subject to anti-social behaviour which militates against their use. Off-road parking should therefore be located in such a manner that parking spaces are within sight of associated premises and, where spaces are allocated to individual dwellings, they should be visible from the relevant house and well lit.

18.11 Car Park Layouts

Typical layouts for off-road parking areas are shown in **Figure 13**. It should be noted that angledparking layouts tend to be appreciably less efficient in land-use than 90° parking layouts even with the narrower aisle widths possible with single-way working. The use of angled parking may, however, be appropriate in certain circumstances.



ANGLE OF PARKING(O)	AISLE WIDTH(W)
30	3.2m
45	3.4m
60	4.0m
75	4.7m
90	6.0m*

Figure 13 - Off Road Parking Area

18.12 Large Car Parks

In industrial, commercial and retail developments parking provision will normally be in the form of either large surface or multi-storey car parks. The layout will depend upon operational requirements, particularly where it is proposed to control entry and exit by means of barriers, with adequate space provided to ensure that any queues which develop do not extend onto the public road. Large unbroken expanses of parking are visually unattractive and can be confusing to the driver trying to find his/her car. It is desirable for larger parking areas to be subdivided, with the use of appropriate landscaping, into units of between fifty and one hundred spaces. Detailed design guidance for multi-storey car parks can be obtained from the Roads Authority.

18.13 Access

Vehicular access to residential off-road parking areas will normally be taken from the public road via a footway crossing **(Figure 20)**. Access to rear parking courtyards from a LOCAL DISTRIBUTOR ROAD should use a modified HOME ZONE access. For large car parks liable to generate substantial traffic flows, access should be taken via a road junction formed in accordance with **Section 15**. In such cases the car park access should be constructed to GENERAL ACCESS STREET standards although a reduced width may be appropriate where one-way operation is to be enforced.

18.14 Lay-by Parking

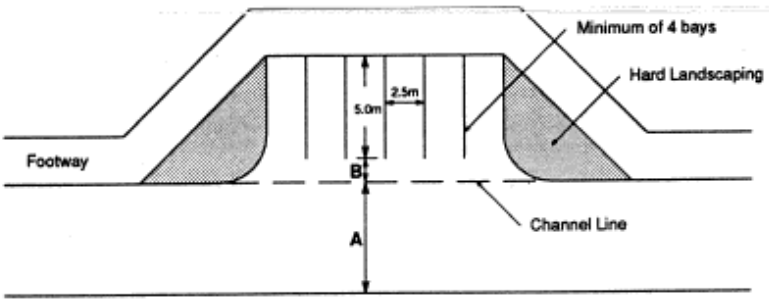
The layout of lay-by parking areas is dependent on the road type and the traffic flow. On GENERAL ACCESS STREETS lay-by parking should normally comprise bays, 6 metres long x 2.5 metres wide, located parallel to the carriageway, but on lightly-trafficked roads (ie serving less than 100 dwellings) deeper lay-bys may be provided to permit parking at right angles to the road.

In housing areas, on street parking bays must be laid out to minimise their use of public space, complement traffic calming objectives and be integrated creatively into the housing area so that they do

not dominate the streetscene; in HOME ZONES, in conjunction with landscaping and sharp horizontal deflections in the carriageway, parking bays must be used to divert the route of vehicles to slow them down. On street parking bays can be orientated perpendicular, in parallel or in echelon (angled) to the carriageway alignment. Long blocks of bays parallel to the carriageway alignment do not make best use of space and can appear monotonous, create long sightlines and encourage faster vehicle speed. Such bays must not be arranged consecutively in groupings of more than six. A small widening of the carriageway opposite perpendicular bays may be required to allow vehicles to manoeuvre, particularly in narrow carriageway sections. The function of such a widening must be combined to provide a necessary passing place from which access to a private parking area must also be taken. Some angled bays may cause situations where vehicles can leave bays facing in only one direction. To ensure narrow carriageway width and satisfactory access, there must be two ways of reaching such bays, or in the case of culs-de-sac, turning facilities are required.

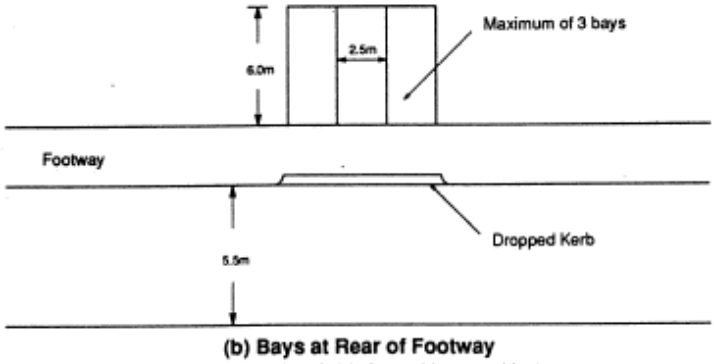
18.15 Right Angled Parking (DSNHA 3.14)

Figure 14 illustrates the layout of public parking bays located at right angles to the carriageway. Public parking (e.g. for casual visitors) should preferably be provided in-groups of not less than four bays, located in lay-bys immediately adjacent to the carriageway (**Figure 14a**). Long lay-bys should be subdivided, by appropriate landscaping into groups of between six and ten bays. Significant lengths of footway flanked by end-on parking will be discouraged. Private parking (e.g. for residents) should be provided in groups of no more than three bays, located at the heel of the footway (if any) and take access via a dropped kerb if required (**Figure 14b**). In HOME ZONES, there may be situations where there is no footway and some definition between public and private space must be provided. Parking areas should be hard-surfaced, loose chipping are unacceptable.



ROAD TYPE	A	B
General Access Road	5.5	1.0
Minor Access Link	3.5	3.5
Short Cul–de–sac	5.5	1.0

(a) Lay–by Parking



(b) Bays at Rear of Footway
(Normally only suitable for residents parking)

Figure 14 - Parking Bays at Right Angles to the Carriageway

19. UTILITY SERVICES (DSNHA 4.6)

19.1 Provision

The provision of statutory or other services laid underground constitutes a basic element of development design. The utilities who provide such services must therefore be consulted during the preparation of design briefs so that their requirements can be co-ordinated in the design and a balance struck between their needs and other objectives. Where public utilities are located in the carriageway or footway/footpath the trench backfill material must be Type 1 Sub-base or other approved granular material.

19.2 Routeing

In the interests of both the Utilities and their consumers, all mains and services serving more than one proprietor should be located in land which is both publicly maintained and readily accessible. It has been recognised that these criteria are best met by public roads and, as well as making provision for pedestrian and vehicular movement, it is therefore a function of most roads to provide routes for underground services.

19.3 Location

Sewers will normally be placed under the carriageway and early consultation should be made with Scottish Water regarding that organisation's provision, in accordance with the Sewerage (Scotland) Act 1968, of surface water sewers for the drainage of roofs and paved areas within the curtilage of premises and the foul water drainage system. The Scottish Environmental Protection Agency must also be consulted with regard to the provision of Sustainable Urban Drainage Systems (SUDS) in accordance with the SUDS Design Manual. All services other than sewers and occasionally water mains, should be grouped in "service strips" located within the limits of the adoptable space with a minimum of service connections across the carriageway

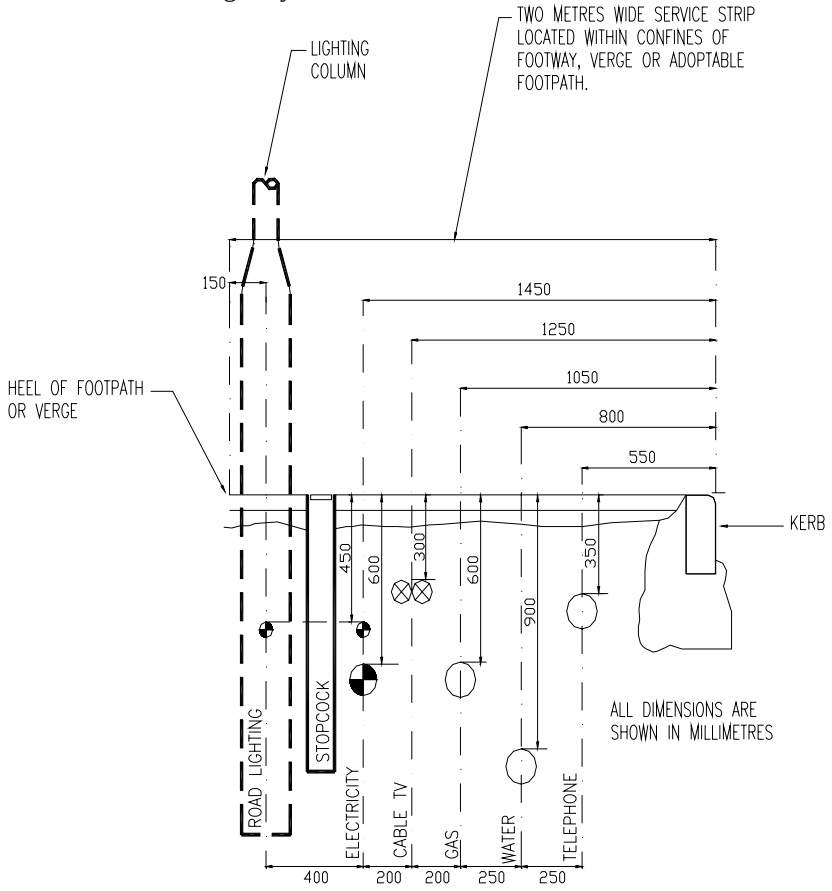


Figure 15 - Location of Service Mains

19.4 Service Strips (DSNHA 4.6 – 4.8 & Part 3 paragraph 21.18)

The width of a service strip will depend on the number and type of premises serviced. Normally, all domestic services (gas, electricity, lighting, water and telephones) will be accommodated in a 2 metres wide reservation and **Figure 15** shows typical positions, the minimum clearance between each service being to the utilities' satisfaction. This diagram is, however, only a guide and does not absolve the designer of the development from the requirement of consulting the utility companies. The depth, clearance and relative position of each service will require to be decided by the utilities, and the method of laying cables and pipes left to their discretion. Special arrangements will required where a footway is less than 2 metres wide and local widening in excess of 2 metres may be necessary to accommodate access chambers or where roads have tight bends. Where service strips are not located adjacent to carriageways their width must allow for access by mechanical plant and/or vehicles for maintenance or repair. In all cases there must be a permanent and continuous demarcation of the boundary between the service strip and any adjacent private property (e.g. by a fence, wall or concrete edge kerbing).

Such service strips may not always be appropriate for HOME ZONES due to the shared surface design and the need to accommodate changing carriageway alignments. With a well-connected layout it may be possible to accommodate services under the vehicle track. This will only be acceptable if two or more routes for vehicles are available for reaching the same destination, and the siting of utilities and manhole covers does not prevent access to properties, driveways or any rear parking areas. If a cul-de-sac is proposed, service strips should be accommodated within the defined pedestrian area of the shared surface, and must be accommodated off the vehicle running track. In relevant cases services should be fitted into the landscaping structure by, for example, grouping them to avoid features such as trees and potential root disturbance. This will allow the necessary street side and plot frontage landscaping treatment to be provided. Services could be routed away from main streets through back streets or rear courtyards provided access is secured for and agreement is obtained from service / maintenance authorities. The route of all services should avoid disruption to the use of on street parking bays.

19.5 SUDS

Drainage in shared surface streets will require careful consideration and creating a low point in the centre of the street may be an appropriate solution (a reverse camber), or shedding runoff towards landscaped areas. In consultation with SEPA and Scottish Water, the developer should maximise opportunities to incorporate SUDS into their proposals, consistent with the management train approach. This will require reducing the rate and volume of runoff, using porous surfaces, swales, storage systems, wet lands and attenuation ponds where appropriate.

19.6 Road Furniture and Lighting

All road furniture should normally be located adjacent to footpaths or at the rear of footways or recessed behind them and no furniture or structures should obstruct any road junction sight line. Conversely, no services other than road lighting cables should be located within 0.5 metres of the rear of the footway to allow for lighting columns and joint pillars or other road furniture. Detailed guidance regarding the provision of road lighting is contained in **Part 4 - Section 23**.

19.7 Maintenance Access

Ready access must be available at all times to all parts of service routes for both routine maintenance and emergency repairs. Lorry access will be needed to some places such as manholes, electricity sub-stations, telephone junction boxes and gas governor house installations. The utilities' requirements for such facilities should be ascertained at an early stage and planned in to the development. They should be positioned so as to minimise disruptions to vehicle and pedestrian access when routine maintenance is being carried out, whilst ensuring that access to services will not itself be obstructed by parked vehicles. Special consideration in this respect will be necessary where services run beneath or adjacent to single lane carriageways and parking bays.

19.8 Fire Hydrants

The position of all hydrants should be agreed with the Firemaster and Water Authority and preclude the possibility of vehicles being parked on top of them.

19.9 Carriageway Crossings

Where service strips or branch connections cross the carriageway, cabled services should be individually ducted at increased depths in accordance with the requirements of the utilities as directed by the Roads Authority. 900mm is the normal minimum cover, ducted crossings for road lighting cables are detailed in **Part 4**. Crossings of HOME ZONES and other shared surface roads should be located at passing places to minimise disruption to traffic flow during maintenance/repair work.

19.10 Surface Treatment

The surface finish of all service strips must form an integral part of the environment and be acceptable for general maintenance by the Roads Authority. Services adjacent to carriageways and parking areas should normally be located under paved footways or be otherwise protected when there would be risks of damage from occasional overriding by vehicles.

19.11 Landscaping

Any landscaping of service strips must conform to the Landscaping Section and be such that each service runs at a constant depth. It is essential that any trees adjacent to service strips are located so that their roots will not damage underground services or be damaged themselves during the maintenance of such services.

19.12 Location Plans

The proposed location of all services within road boundaries, including those required under the New Roads and Street Works Act 1991, should be indicated on plans submitted for Construction Consent as detailed in **Section 5**.

19.13 Existing Services

The developer is responsible for contacting the utilities regarding the position of, and connection to, any existing underground plant. In all cases, the necessary Road Opening Permit must be obtained from the Roads Authority before any excavation is undertaken in a public road. For sewer connections, permits must be obtained from Scottish Water.

20. ADDITIONAL DESIGN CONSIDERATIONS AND STATUTORY REQUIREMENTS

21.1 Headroom

The minimum headroom for any structure other than a footbridge must be 5.3 metres when spanning a MAIN or DISTRICT DISTRIBUTOR ROAD and 5.1 metres for all other roads, including those through pends. Footbridges should be constructed at a clear height of 5.7 metres above the carriageway. Appendages to buildings (i.e. sunblinds, projecting signs, etc) should be fixed at least 2.25 metres above adjacent footways, footpaths or verges and should be at least 0.5 metres clear of a vertical line above the carriageway edge.

20.2 Security

Little used or non-overlooked public open spaces, footpaths/cyclepaths and routes under or between buildings can be prone to vandalism. For such reasons, as well as for economy, it is important to ensure that as much space as possible around buildings is within curtilages or clearly visible from adjoining roads or buildings.

20.3 Disabled Persons

It is a statutory requirement (Disability Discrimination Act) to have regard to the needs of disabled people in designing any building to which the public have access. This will include the provision of suitable access routes for wheelchairs and the marking out of parking bays for use by disabled drivers close to pedestrian entrances. The problems of blind and visually impaired people should be borne in mind when siting street furniture, road signs etc. Provision should be made for dropped kerbs in accordance with **Section 17**. Particular reference should also be made to the provision of parking spaces as covered in **Section 18**.

20.4 Traffic Management

The layout of a development may be influenced by existing or proposed traffic calming or traffic management measures and the Roads Authority should be consulted about these at an early stage. Where the Roads Authority decides that traffic management measures should be introduced to facilitate a particular development, the developer may be required to reimburse the Authority for expenses incurred in the promotion and implementation of these measures.

20.5 Fire Fighting

The width of roads and reinforced emergency vehicle paths and their proximity to buildings is detailed in Part E of the Building Standards (Scotland) Regulations. This document specifies a minimum width of 3.7 metres between kerbs.

20.6 Refuse Collection

In accordance with Part R of the Buildings Standards (Scotland) Regulations, waste containers shall be readily presented at a collection point suitable for emptying or removal by the waste collection authority. The waste collection authority may designate this collection point.

20.7 Traffic Noise

The Planning Authority will normally require new housing to be designed taking into account the advice given in Planning Advice Note PAN56 on Planning and Noise. Traffic noise from the following sources should be taken into account:

(a) Existing roads.
(b) New roads being constructed as part of the proposed development.
(c) Alterations to the road network to accommodate the proposed development.

20.8 Play Areas

Play areas should be provided within residential developments and these should be located away from traffic routes and sited so as to be overlooked by surrounding buildings and linked to the footpath and cycle track network. Each site should be examined on its merits and treated accordingly. The Council's Landscape and Countryside section should be consulted regarding the detailed requirements for play areas.