North Lincolnshire Council

Residential Roads

Design Guide

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RESIDENTIAL ROADS DESIGN GUIDE

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1.0 INTRODUCTION.

1.1 AIMS

1.1.1 The Council of North Lincolnshire was formed in 1996 and it assumed responsibility for both Planning and Highway Authority functions within North Lincolnshire.

1.1.2 This document replaces the guidance and technical standards adopted by the former Highway Authority, Humberside County Council, set out in it's Estate Roads Design Guide

1.1.3 The main aim of this document is to produce highway standards that enable designers to create safe, convenient, nuisance free, visually attractive and secure environments that are economic to construct and maintain.

1.1.4 The information contained in Design Bulletin 32 Second Edition (DB32.2) and Places, Streets and Movement (PSM), together with the extensive experience gained since the publication of the Estate Roads Design Guide (ERDG) has been embodied into this document. The layout and adoption standards have been established to conform with the principles set out in both DB32.2 and PSM, whilst still providing local flexibility for designers and developers to confront the challenges associated with the design and construction of new residential development sites within North Lincolnshire. These developments affect many thousands of people. It is, therefore, a demanding task to produce housing layouts that provide attractive and safe living environments that are free from traffic nuisance. This is something that can only be achieved when everyone involved in the process works together to integrate their various skills into the final design of the site.

1.1.5 This document sets out the criteria necessary to provide the designer with sufficient information to enable residential road layouts to be produced that are capable of being accepted for adoption by the Highway Authority. It also contains information about the procedures to be followed to enable the road works to be included in the normal adoption agreement (Section 38 of the Highways Act 1980) together with other relevant information on associated matters.

1.2 OBJECTIVES

1.2.1 The objective of this document is to provide a degree of flexibility sufficient to allow design solutions to be accommodated which: -

(a) Create safer environments.
(b) Ensure that all features within the potentially adoptable area are designed to minimise future maintenance costs.
(c) Enhance the overall development.
(d) Provide essential safety features to protect vulnerable road users.
(e) Reduce vehicle speeds.
(f) Integrate the development into it's wider surroundings.
(g) Encourage the use of a wide range of transport modes.

1.2.2 Discussions, which should involve the Highway Authority, need to take place at the earliest stages of the design of any new development so that the designer can formulate a satisfactory policy to take account of comments or specific requirements.

1.2.3 This document offers the opportunity to all those involved in the development process to limit the impact on the existing highway network and ensure the proposed roads enhance the housing layout without dominating it. It will also permit the designer to create housing layouts which provide attractive living environments for residents whilst accommodating the requirements of the utilities, other service providers and the Highway Authority.

1.2.4 The Council welcomes initiatives and ideas on traffic calming, 20 mph zones, Home Zones and the emphasis on road safety that have been identified in DB32.2 and PSM. This information will provide opportunities for innovative solutions to be considered to suit specific site circumstances. The use of traffic calming measures will be particularly important in the provision of safe living environments and to reduce the number and severity of injury accidents especially those involving children. These features have been used extensively for many years in Europe and are now becoming widespread in this Country. However, because their use within new developments is more limited their inclusion will need to be carefully assessed so that the most effective and efficient design arrangements can be implemented to provide the maximum safety benefit. These measures will be a considerable challenge to all parties involved in the development process.

1.2.5 The quality and success of a particular development will initially be judged by those involved in the design and approval of the layout. However it must be recognised that those people who purchase properties and visitors, as well as others in the local community will have to live with the consequences of any design solution which has been produced and built. Designers therefore must be fully aware of the repercussions of their proposed designs on the people, living in, and affected by the residential environment they are creating.

1.2.6 This document has been produced in a format that will allow updating to take place without having to be completely reprinted. This will enable the Highway Authority to react to research, adjust highway standards to respond to new legislation and innovative design solutions, and to minimise waste.

1.2.7 The Council’s objective to provide for all members of the community, including those who are disadvantaged, is incorporated into the document which seeks to promote positive initiatives on providing access and services for everyone within the Residential Road network.

1.2.8 Environmental considerations must be accommodated within new developments to promote designs which minimise journeys taken by service vehicles, reduce the dependence of motor car usage, encourage walking and cycling and give identity to different types of residential access road which will enable people to understand the network hierarchy. This can have a significant impact on reducing wastage of fossil fuels and the resultant pollution levels involving exhaust gases as well as creating a safe, healthy and attractive environment.

1.2.9 The creation of an integrated system, which promotes the accessibility and acceptance of public transport and the creation of a network of cycle routes, footways and pedestrian facilities in preference to the use of private cars must be given prominence in the design of the road layout. Design arrangements, which address the other main issues of landscaping, provision of parking facilities and security of both users and properties within the development should also be given equal priority. The main goal of the successful design will be to ensure that whilst the needs of the car are accommodated they will not be at the expense of the environmental considerations and will not dominate the development.

2.0 DESIGN CONCEPT / DESIGN BRIEF.

2.1 The designer is encouraged to contact all parties involved in the design process at the earliest opportunity. This will have positive benefits, as it will: -

(a) Promote a co-ordinated "team" approach to the layout of the site.
(b) Identify potential difficulties at the initial stage of the design.
(c) Reduce expensive and abortive work.

2.2 The provision of an accurate and comprehensive site survey is a vital part in establishing the way in which sites may be developed, accordingly this plan should accompany any proposal for the development of an area **(See Clause 6.3.5).**

2.3 The highway design concept/brief will involve the following: -

(a) The location of the principal junction(s) with the existing highway network.
(b) The visibility splays required at each junction.
(c) The works required to the existing highway network resulting from the development of the land (Section 62 & 278 of the Highways Act 1980).
(d) The integration of existing landscape features with the proposed planting.
(e) The production of a highway layout that is visually attractive and suitable for the type of housing proposed. This is a particularly important issue on developments utilising Shared Surface Roads **(see Section 3.4)** and Home Zones **(see Section 3.5).**
(f) The establishment of a road, pedestrian and cycling hierarchy which must include features to highlight the individual nature of particular roads. This will increase driver awareness of locations within the estate layout.
(g) The design arrangements to create better security for residents and visitors.
(h) The measures to reduce vehicle speeds.
(i) The protection of routes for highway improvement schemes.
(j) The provision of public transport, cycling and pedestrian facilities in order to minimise the use of motor vehicles.
(k) The parking standards required for the development, including appropriate arrangements for access and parking for the disabled and for the use of cycles.

2.4 The preservation of existing mature planting will be an objective of any proposal as this is a major influence on the layout of new development sites. The mixture of existing landscaping with new planting can add variety to the landscape and reduce the visual impact of both carriageways and parking areas.

2.5 Specialist advice will be required when undertaking the site survey and analysis as well as the production of a landscape design which protects and enhances existing features as well repairing any damage.

2.6 Adoption and maintenance of planted areas should be considered at the initial design stage to determine whether it will be by the Council as highway verge or as public open space. In all cases the developer will be required to make provision for their future maintenance, after adoption, by way of commuted sums.

2.7 The use of Traffic Calming measures mentioned in **clause 2.3(h)** above and detailed in **Section 5** is an essential part of the aim to reduce the overall number and the severity of accidents in residential areas particularly where child pedestrians may be involved. The effectiveness of restraints may be enhanced by changes in paving, planting and other features. This will indicate to drivers that they are in residential surroundings where careful driving at slow speeds is expected. The combined visual impact of speed constraints and complementary measures must be an integral part of the overall design concept for the development.

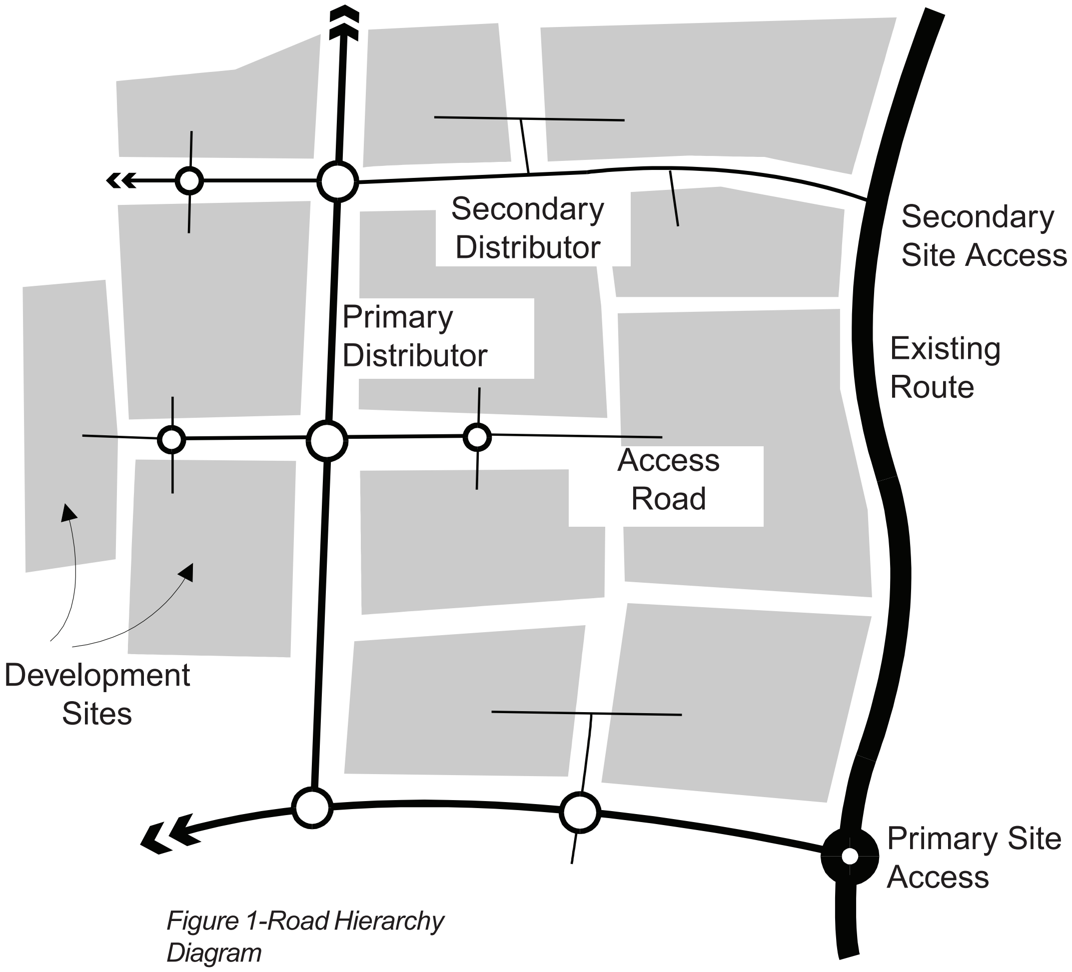


Figure 1-Road Hierarchy Diagram

3.0 LAYOUT OF RESIDENTIAL ROADS

3.1 DEFINITIONS & STANDARDS

PRIORITY ROADS - are roads which are higher in the road hierarchy than a road which joins onto it. Example: In a situation where a Minor Access Road joins a Major Access Road the latter is the Priority Road, however if a Major Access Road joins a Secondary Distributor Road the Distributor Road is the Priority Road etc.

SECONDARY DISTRIBUTORS -	form the primary network for the town/city as a whole and all long distance traffic is channelled onto such roads.
RESIDENTIAL ACCESS ROADS -	are those roads that link groups of dwellings and their associated parking areas to distributor roads, and are sub divided as follows: -
(1) ACCESS ROADS -	are residential roads with footways serving up to 400 dwellings and providing direct access to dwellings.
(2) SHARED ACCESS ROADS -	are residential roads without footways serving up to 70 houses (35 cul-de-sac or 70 on through routes)
(3) SHARED DRIVEWAYS -	are unadopted paved accesses serving up to 5 dwellings.
(4) DRIVEWAYS -	are unadopted paved areas that provide access to garages and other parking spaces within the curtilage of an individual dwelling.
CARRIAGEWAYS -	are those parts of access roads which are intended primarily for use by vehicles.
SHARED SURFACES -	are paved areas which are intended for use by both pedestrians and vehicles.
FOOTWAYS -	are those parts of access roads which are intended for use by pedestrians and which are generally parallel with the carriageways.
FOOTPATHS -	are those pedestrian routes which are located away from carriageways and not associated with routes for motor vehicles.
CYCLE TRACKS -	are routes which are intended for use by cyclists, with or without rights of way for pedestrians.
SEGREGATED CYCLE TRACKS -	are cycle tracks adjacent to footways or footpaths but separated from them by a feature such as a kerb, verge or white line.
CYCLE LANES -	are one way lanes marked on the carriageway and reserved for use by cyclists.

RESIDENTIAL ROADS - DESIGN STANDARDS (Table 3.1)

	Major and Minor Access Road	Shared Access Road
Carriageway width	5.5m	Variable width from 4.5m to 5.5m
Carriageway widening	6m width when center line radius is less than 80m	Increased by 0.5m on bends less than 30m center line radius
Junction radii	6m with other Residential Roads, 10m with Local Distributor Roads	4m with Minor Access Roads, 6m with Major Access Roads or wherever reduced size turning spaces are used (see section 4.6)
Junction spacing	30m(center line spacing) same side, 15m on opposite side for connections with Distributor Roads	No restrictions
Junction alignment	Must join Priority Roads at 90^0	Must join other Residential Access Roads at an angle of within 10^0 of a right angle
Traffic calming	Unrestrained road lengths of up to 100m (see Section 5)	Unrestrained road lengths of up to 40m (seee section 5)
Footways (see Note 1)	2m wide (see section 4.1)	2m wide from the Priority Road to a point extending 2m beyond the top of the ramp
Vertical alignment	Maximum gradient 6% (1in 17) along the carriageway	Maximum gradient 7% (1 in 14.5) along the carriageway
Vertical alignment at junctions	Maximum gradient shall not exceed 5% (1in 20) when rising or 4% (1 in 25) when falling to the Priority Road for a distance of at least 20m	
Turning facilities	Must be provided at or near then end of culs-de -sac (see section 4.7)	Must be provided at the street end (see section 4.7)
Verges & planted areas (see Note 2)	2m wide provide on both sides (1 side on on Minor Roads)	2m wide around entire surface of street unless otherwise agreed
Horizontal alignment (see Note 4)	Minimum center line radius 20m	Minimum center line radius 10m
Carriageway camber	2.8% (1 in 36)	3% (1 in 33)
Footway crossfall	2.5% (1 in 40) towards the carriageway	N/A
Verge crossfall	5% (1 in 20) towards the carriageway including hard paved service strips & margins	
Major Access Roads	Must be straight from Priority Road junction for a distance of at least 20m, no junctions or accesses along that length	N/A
Private accessways & drives	No crossings within junction limits	No crossings within 2m of any ramp or within junction limits

Notes on Table 3.1

note 1 - Footways on Shared Access Roads shall extend 2.0m beyond the top of the ramp. Thereafter, (dependant on the access road design), a 2.0m wide services strip (soft) or 0.5m wide maintenance strip (hard paved) will be provided around the full perimeter of the Shared Access Road, (1.0m when centreline radius<10.0m).

note 2 - Major Roads must be provided with 2.0m verges on both sides. Minor Roads may be provided with a 2.0m verge on only one side, or this may be aggregated into larger areas more suitable for landscaping.

note 3 - No accesses shall be provided on any road at junctions. On Shared Access Roads no accesses will be permitted within 2.0m of a ramp.

note 4 - The Shared Access Road shall be designed to: -
(a) meander throught its length in an informal way.
(b) provide an angular alignment i.e. courtyard/mews court.
(c) be laid out as a Home Zone where pedestrians and cars share a joint surface but pedestrians take precedent.

note 5 - Forward visibility depends on the likely speed of vehicles and the nature of traffic calming features.

note 6 - Carriageway clearance shall generally be 0.5m except around turning heads, junctions and centreline radii < 10.0m where it should be 1.0m.

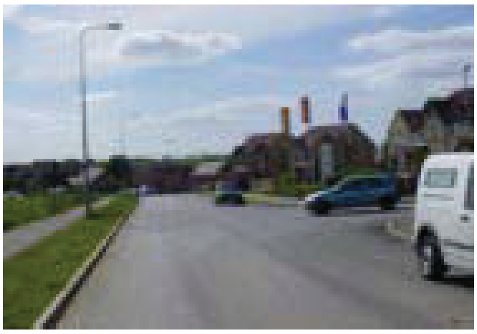
note 7 - Access provision for the disabled or people with impaired vision must be carefully integrated into the layout design.

note 8 - Communal parking must be integrated into the overall layout and sited in locations where the demand is likley to be at its greatest.

3.2 SECONDARY DISTRIBUTOR ROADS

3.2.1 Generally, the route between residential sites and the wider highway network will consist of Secondary Distributor Roads, (SDR's). Large sites may have direct access whilst smaller sites will be located on Access Roads (see following pages), which in turn will connect to Secondary Distributors.

Secondary Distributor Road



3.2.2 The layout of SDR's does require careful design to achieve the objectives previously described. Preferred layouts will have all SDR's as through roads, as this affords each site more than one means of access, and so increases operational flexibility. SDR's will generally have an operating speed of 50km/h and this should be acknowledged by designing for higher speeds than on Access Roads.

3.2.3 The primary purpose of an SDR is to provide means of access to multiple sites and therefore frontage access should be limited. The Residential Road Hierarchy illustrates that junctions onto SDR's should be limited, with Access Roads providing access to individual sites. This restriction may be relaxed in cases of large or high traffic generating concerns, however in these circumstances a higher standard of junction access will be required than normally expected for an individual site.

3.2.4 Technical information on the layout standards to be used for the design of SDR's is shown below: -

Carriageway Width	6.75 metres
Carriageway widening	Increased to 7.3 metres on bends of less than 75 metres centre line radius
Junction radii	10.0m
Junction spacing	90 metres adjacent 40 metres opposite
Forward Visibility	90 metres
Footway width	2 metres plus cycleway
Vertical alignment	Maximum gradient 5% (1 in 20)
Verges / planted areas	2.0 metres wide normally but could be increased to permit tree planting
Horizontal alignment	Minimum centre line radius 60 metres
Carriageway camber	2.8% (1 in 36)
Footway crossfall	2.5% (1 in 40)
Verge crossfall	5% (1 in 20)

3.3 MAJOR ACCESS ROAD (see Table 3.1)

3.3.1 A Residential Access Road serving between 150 and 400 dwellings (from a cul de sac will be subject to satisfactory arrangements for emergency access). Additional numbers of dwellings will be considered subject to the provision of further satisfactory connections with priority roads and provided the traffic distribution and vehicle flows in the directions of these junctions are approximately equal. **In all cases a Transport Assessment (TA) will be required as part of the Planning Application submission.**

2 Layouts for Major Access Roads - dependant on size of development

3.3.2 Visibility splays for Major Access Road connections to priority roads shall be as follows: -

(a) An X dimension of 4.5m should be provided where a Major Access Road meets the Priority Road.
(b) An Y dimension should be provided as shown in the table below dependant on the traffic speed on the Priority Road.

Example: -
If 60 is the vehicle speed in miles per hour then from the Table the correct Y distance is the figure directly below, which in this case is 215m.

Speed (mph)	70	60	50	40	30*	30	25	20
'Y' distance (m)	295	215	160	120	90	70	45	33

**Where the junction is located within a 30mph speed limit but the actual speed of vehicles is not known then the higher Y distance figure, for 30mph, shall be used for the visibility splay.*

3.3.3 Carriageway widening will be required on bends where the centre line radius is below 80m to allow larger vehicles to negotiate the bend without infringing on the path of other oncoming vehicles or overrunning footways or verges.

3.3.4 Pedestrian crossing points at all junctions must be provided wherever footways or footpaths intersect carriageways (**See Clause 4.1.3)**

3.3.5 Features such as verges or landscaped areas must be included to provide an identity for the Major Access Road.

3.3.6 A relatively short section of Minor Access Road will be required wherever a Shared Surface Road is to be connected to a Distributor Road or Major Access Road.

3.3.7 Speeds shall be kept below 30mph by the use of Traffic Calming Features

3.4 MINOR ACCESS ROADS (see Table 3.1).

3.4.1 A Residential Access Road serving up to 150 dwellings (from a cul-de-sac will be subject to satisfactory arrangements for emergency access if considered to be appropriate). **A TA may be a requirement but this will be dependent on the developments' location and sensitivity in impacting on the surrounding land uses.** The Highway Authority will establish the necessity and will notify the Developer accordingly.

Minor Access Road layouts

3.4.2 Visibility splays for Minor Access Road connections to the priority road shall be as follows: -

(a) An X dimension of 2.4m should be provided where a Minor Access Road serving up to 50 dwellings meets the priority road. The dimension is increased to 4.5m in excess of this number.

(b) An Y distance should be provided as shown in the table below dependant on the traffic speed on the Priority Road.

Example: -

If 30 is the vehicle speed then from the Table the correct Y distance is the figure directly below which in this case is 70m.

Speed (mph)	70	60	50	40	30*	30	25	20
'Y' Distance (m)	295	215	160	120	90	70	45	33

**Where the junction is located within a 30 mph speed limit but the actual speed of vehicles is not known then the higher Y distance figure, for 30mph shall be used for the visibility splay.*

3.4.3 Carriageway widening will be required on bends where the centre line radius is below 80m to allow larger vehicles to negotiate the bend without infringing on the path of other oncoming vehicles or overriding the verge or footway.

3.4.4 Suitable pedestrian crossing points must be provided at all junctions wherever footways or footpaths intersect with carriageways **(See Clause 4.1.3).** These areas should be constructed to permit easy access for the disabled.

3.4.5 Specific features may be used to identify the Minor Access Road and improve driver awareness. However these will need to be carefully considered so that such arrangements do not conflict with design arrangements for other types of road and do not increase the maintenance liability on the Highway Authority.

3.4.6 A relatively short section of Minor Access Road will be required wherever a Shared Surface Road is to be connected to a Distributor Road or Major Access Road.

3.4.7 Speeds shall be restricted to 20 mph by the use of Traffic Calming Features

3.5 SHARED ACCESS ROADS (see Table 3.1).

3.5.1 Shared Access Roads may serve up to 35 dwellings in a cul-de-sac and up to 70 dwellings on a through road provided vehicle flows are likely to be equally divided between both junctions.

Shared Access Roads

3.5.2 Visibility splays for Shared Access Roads shall be as follows: -

(a) An X dimension of 2.4m should be provided where the Shared Access Road meets the priority road.
(b) An Y distance should be provided as shown in the table below dependant on the traffic speed on the Priority Road.

Example: -
If the site is located within a 30 mph speed limit, and the actual speed of traffic is not known, then from the Table the correct Y distance is the figure directly below which in this case is 90m.

Speed (mph)	70	60	50	40	30*	30	25	20
'Y' Distance (m)	295	215	160	120	90	70	45	33

**Where the junction is located within a 30 mph speed limit but the actual speed of vehicles is not known the higher Y distance figure, for 30mph shall be used for the visibility splay.*

3.5.3 Carriageway widening will be required on bends where the centre line radius is below 80m to enable vehicles to manoeuvre without causing damage to adjacent service margins.

3.5.4 Pedestrian crossing points will be required where the footway joins the shared surface and special attention will be necessary to provide a satisfactory access for disabled or partially sighted pedestrians **(See Clause 3.1.3)**

3.5.5 Speeds shall be kept well below 15mph by the use of Traffic Calming features and the design shall include the essential design characteristics shown in this Section.

3.5.6 Statutory Service Providers should be consulted at the earliest stage of the design to establish their requirements for areas to contain their equipment. Reductions in Service Strip widths (2m) will only be considered when supporting evidence from all the Statutory Service Companies is provided. In all cases a minimum width of 0.5m is required which must be hard paved. Additional widening may be required at the locations of street lighting columns.

3.5.7 The problems experienced from previous examples where the design was poor or not in accordance with principles set out in Design Bulletin 32.2 or the Estate Roads Design Guide resulted in: -

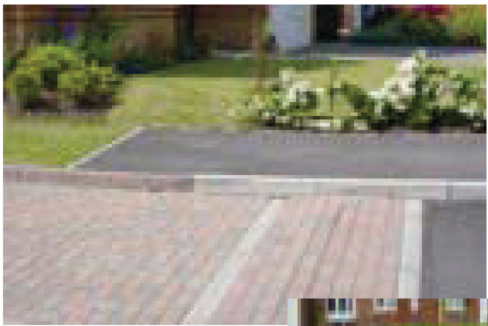
(a) Cars travelling too fast.
(b) Children playing in the road.
(c) Inconsiderate parking of vehicles.
(d) Inadequate intervisibility between motorists and pedestrians.
(e) Damage to service strips.

3.5.8 These issues can only be successfully overcome by ensuring that the character of the Shared Access Road is significantly different from that provided along roads with footways. Good design is of primary importance on this type of Residential Access Road to allow pedestrians, cyclists and drivers to mix safely. The design of Shared Access Roads must include features that indicate to drivers that they are intended to share the same surface as pedestrians and cyclists. The Designer will, therefore, need to produce a layout that clearly indicates the differences of visual character and surroundings between roads with footways and Shared

Access Roads. It is not sufficient merely to remove the footways from a Minor Access Road layout and to designate the remaining layout as a Shared Access Road.

3.5.9 The design characteristics and features required to restrain 85th percentile vehicle speeds to well below 15 mph and to identify the special nature of Shared Access Roads are as follows: -

(a) Unrestrained road lengths restricted to 40m.
(b) Ramp located at the entrance to the Shared Access Road.
(c) Footways from the priority road shall extend to point at least 2m beyond the top of the ramp. This allows easy and direct access for pedestrians from the footway network on to the Shared Surface.



Examples of accessway ramps and footway treatments

(d) The layout shall not give any impression of separate/divided carriageway and footways.
(e) Tight kerb radii or severe changes in the horizontal alignment. These changes should create a meandering road pattern to assist in reducing vehicle speeds.
(f) Carriageway offsets, by at least the width of the Shared Surface, joined by bends, or in the case of Courtyard/Mews Court a more angular configuration may be acceptable.
(g) Carriageway alignment integrated with the configuration of dwellings. This may provide for areas of on street parking within the carriageway limits but outside the vehicle tracking space.
(h) Carriageways shall not be designed to provide a constant width. They must vary between 5.5m and 4.5m and may include further isolated restrictions in width or planted islands. In all cases the Shared Surface must be wide enough to allow pedestrians and vehicles to pass comfortably and for vehicles to manoeuvre.
(i) The entrance to the Shared Surface road should be arranged to produce a layout with closely spaced buildings or a “gateway” effect with walls, pillars etc. The ramp should be located at the inner tangent points.
(j) The surface treatment must be used to provide a surface which is different in texture and can be installed using a contrasting colour to that of Major and Minor Access Roads which is tarmacadam. This surfacing material should suit both pedestrian and vehicular traffic usage. It may also be effectively used to demarcate parking areas, planted areas

and the Highway Authority's adoption limits.

(k) Edge details in contrasting materials and significantly lower in height than used on Major or Minor Access Roads. The adopted area will be defined by a kerb upstand, normally of 25mm - 60mm approx. This is one of the differences between the visual character of shared surface roads and other road types. This difference must be further emphasised by design features listed in this clause.

(l) Centre drainage channels may be only be used in difficult circumstances where the site is particularly flat and then only with the express consent of the Highway Authority.

(m) Spaces free of vehicles can be created by the use of appropriately positioned bollards and other features. These spaces and areas between the shared surface and adjacent entrances to dwellings or garages will allow pedestrians or drivers to see each other and be seen by approaching traffic. This intervisibility between pedestrians and vehicles must be provided throughout the layout, especially where footways, footpaths and accesses meet the shared surface.

(n) Street lighting must be designed to enable all road users to see potential obstacles and each other after dark as well as to enhance the built environment.

(o) Routes for services beneath or immediately adjacent to the shared surface including strips must be carefully planned. The Utilities may require special provisions when mains, cables or apparatus are to be laid under the shared surface. The limit of the service strip must be identified where it crosses each Shared Driveway or Driveway. In addition any other hard paved area within the service strip must be constructed to the Highway Authority's specification and surfaced with the same material as the carriageway.

(p) Where a 0.5 m minimum clearance strip is included it must be hard paved.

(q) Approved types of planting may be used in service strips. Furthermore the designer should include additional landscaping, which is essential with this type of layout, especially where the Shared Access Road serves detached or semi-detached dwellings with open plan front gardens. Under no circumstances shall any paving flags, hedge, fence, rockery, loose gravel (unless as part of an approved scree garden) or any type of structure be included within any service strip.

(r) Speed restraint at bends can also reduce speeds at junctions between shared surface roads but these will need to be designed with care to avoid possible damage caused by overrunning.

(s) An amorphous turning facility must be provided at or near the end of a Shared Access Road cul de sac **(see Section 4.7)**.

(t) Courtyard/Mews Court developments generally include properties and road designs specially developed to suit site characteristics within urban areas.

(t.i) These designs are unsuitable for inclusion in situations where standard house types are used.

(t.ii) The core area should encompass a standard turning space **(see Section 4.7).**

(t.iii) The minimum width of the core area is 6m or 16m if on street parking on both sides of the area is a feature. This will provide adequate manoeuvring. The core area may be reduced to 4.5m outside areas used for turning and communal, within highway, parking.

3.5.10 Shared Access Roads include a number of different layout possibilities as follows: -

(a) A design serving detached or semi-detached properties with open plan front gardens which includes a high standard of landscaping and a meandering carriageway alignment.

(b) A design usually more angular in nature (Courtyard/Mews Court) generally used in urban areas or on redevelopment sites where hard paving predominates and the dwelling density is high (Grouped, Linked or Terraced dwellings)

(c) A layout incorporating the features of a Mews Court/Courtyard but with no private parking facilities, where all spaces are communal.

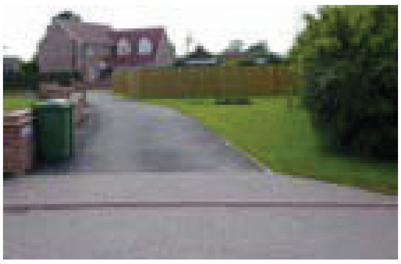
(d) A Home Zone, which may be incorporated into either a Minor Access Road or a Shared Access Road. This will invariably be of an urban character and will include planting, street furniture as well as a creative use of paving materials.

The above are suggestions and intended to indicate what would be acceptable. However it is the Council's policy to encourage creative and innovative development that relates to its surroundings in order to both retain and enhance the unique character of each specific area, town or village. This will be the primary goal and therefore, subject to the above parameters, any proposal will be carefully considered on its merits and will not be rejected purely because it does not conform to a particular stereotype.

3.5.11 Service strips are soft margins abutting the kerb line to the Shared Surface. These strips are 2 metres wide around the entire perimeter of the Shared Surface but may be reduced provided the utility companies and the Highway Authority are agreeable to any reduction and subject to an area sufficient to accommodate their mains, cables and apparatus being included. These areas can be the subject of considerable difficulty if the purchaser is not informed of the reason for the provision of the service strip. This has often been a major contributory factor in delaying the timescale for adoption of the roads until the developer has satisfactorily resolved the matter. A covenant should be inserted in the conveyance to each purchaser and whilst it is recognised that such covenants are a matter between the developer and the purchaser, the following wording is recommended: -

"The purchaser hereby covenants with the vendor that he/she/we the purchaser(s) and his/her/our successors in title will not at any time hereafter erect or construct any building, wall, fence, hedge, rockery or plant any tree or shrub on the strip of land shown cross hatched on the plan annexed hereto nor do or suffer to be done therein or thereon any act matter or thing whereby the cover of soil over the support of pipes, wires and/or cables laid or to be laid in the said strip of land shall be altered or which may render access thereto more difficult or expensive and shall understand that the highway authority and statutory service providers have unencumbered right of access to the said strip of land"

3.6 SHARED DRIVEWAYS (see Table 3.1).



3.6.1 These are private roads that can wholly serve up to a maximum of 5 dwellings.

3.6.2 The layout characteristics should be designed to enable vehicles such as refuse lorries to use the access and Shared Driveway when its length exceeds 25m (the maximum bin carry distance).

3.6.3 Vehicular crossings, to the shared driveway, within the existing highway limits must be constructed in accordance with the Highway Authority's Specification.

3.6.4 The connection to the highway must be wide enough to provide two way vehicle movements at this point (generally 4.5m but will depend on the location).

3.6.5 The design of the Shared Driveway should allow cars, service vehicles, pedestrians and cyclists to gain access to the dwellings in safety, without undue delay and with the minimum of inconvenience.

3.6.6 The highway boundary must be clearly defined by the use of a change of surface material or the installation of a row of block paving, kerbs or edging kerbs.

3.6.7 The shared driveway should be surfaced with bound materials. No loose surfacing material of any type is acceptable within 10m of the public highway.

3.6.8 The Shared Private Drive must be adequately drained and lit but these must be separate from the maintained highway infrastructure.

3.6.9 Utility Companies and other affected parties should be contacted at the earliest stages in the design process to enable satisfactory solutions to be amalgamated into the layout.

3.6.10 The connection to the priority road shall be laid out as a dropped crossing without radius kerbs.

3.6.11 Visibility splays for Shared Driveways shall be as follows: -

(a) An X dimension of 2m should be provided where the Shared Driveway meets the priority road.
(b) An Y distance should be provided as shown in the table below dependant on the speed of traffic on the priority road.

Example: -
If 30 is the vehicle speed in miles per hour, then from the Table the correct Y distance is the figure directly below which in this case is 70m.
Visibility splay 'Y' distances

70	60	50	40	*30	30	25	20
295	215	160	120	90	70	45	33

*Where the drive is located within a 30 mph limit and the actual speed of vehicles is not known then the larger Y distance figure, for 30 m.p.h., shall be used for the visibility splay.

3.6.12 Pedestrian visibility splays with X and Y dimensions of 2.0m should be provided where a driveway meets the back edge of a footway. These areas must be kept clear of obstructions to allow intervisibility between pedestrians and drivers with clear visibility at a level of 0.6m above road level. This is in addition to the visibility standards indicated in the above table.

3.6.13 On straight sections of the Shared Driveway a width of 4.1m will be sufficient to accommodate two way vehicle movement. Widths down to an absolute minimum of 3.0m may be acceptable in the following circumstances: -

(a) There is sufficient passing space for pedestrians and/or cyclists and motor vehicles.
(b) There are no vehicular accesses located on the narrow sections.
(c) There are sufficient vehicle parking spaces within the layout to accommodate visitor parking.

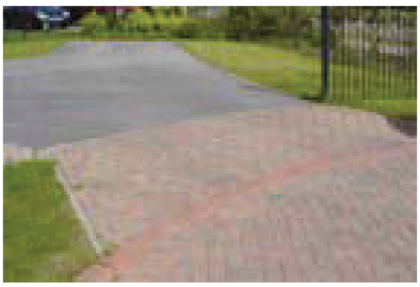
3.7 DRIVEWAYS (see Table 3.1).

3.7.1 Driveways serving garages and hardstandings within the curtilage of dwellings must be long enough to accommodate a car parked in front of a garage and enable the door to be opened without the car having to project onto the adoptable area. This length should be 6m or an absolute minimum of 5.5m. Dependant on the layout double width driveways will be acceptable as will a hardstanding alongside the garage where the garage is built close to the highway boundary. Under no circumstances should garages be closer than 1m to the highway boundary.

3.7.2 If gates are to be provided at the entrance an additional length over that given in **Clause 3.7.1** will be required to allow the gate to be opened inwards (gates must not open out over footways or carriageways).

3.7.3 The driveway should be wide enough to allow access to both sides of the parked car and also, on one side, allow for a pathway to the house. This width shall be no less than 3.2m. A narrower driveway width of 3m may be acceptable where the driveway does not have to provide a pathway to the house.

3.7.4 Special consideration should be given to widths and lengths of driveways serving dwellings designed for occupation by wheelchair users.



3.7.5 Gradients should be below 10% (1 in 10) or, whenever possible, no more than 12.5% (1 in 8) for a distance 6m back from the edge of the carriageway. Water must not discharge onto the highway and measures will be required to prevent this on those driveways falling towards the adoptable area.

3.7.6 Vehicular crossings must be constructed in accordance with the Highway Authority's Specification.

3.7.7 The highway boundary must be clearly defined by the use of a change of surface material or the installation of a row of block paving, kerbs or edging kerbs.

3.7.8 The driveway should be surfaced with bound materials. No loose surfacing material of any type will be acceptable within 10m of the public highway.

3.7.9 The connection to the priority road shall be laid out as a dropped crossing.

3.7.10 Visibility splays for this type of access shall be as follows: -

(a) An X dimension of 2m should be provided where the driveway meets the priority road.
(b) An Y distance shall be provided as shown in the table below dependant on the traffic speed on the priority road.

Example: -
If 60 is the vehicle speed in miles per hour on the priority road then from the Table the correct Y distance is the figure directly below which in this case is 215m.

Visibility splay Table 'Y' distances

70	60	50	40	*30	30	25	20
295	215	160	120	90	70	45	33

*Where the access is located within a 30 mph speed limit but the actual speed of vehicles is not known then the larger Y distance figure, for 30 m.p.h., shall be used for the visibility splay.

3.7.11 The shaded triangles with X and Y dimensions of 2m should be provided where a driveway meets the back edge of a footway. These areas must be kept clear of obstructions to afford intervisibility between pedestrians and drivers with clear visibility at a level of 0.6m above road level. This is in addition to the visibility requirements set out in the above table.

3.8 HOME ZONES

(for more detailed information please see Home Zone Design Guidelines published by IHIE - 2002).

3.8.1 A Home Zone is essentially a shared surface road but with the main difference being that it is laid out in a manner where pedestrians and other users have equal priority with vehicular users.

3.8.2 They will mainly be suitable for layouts incorporating terraced or linked dwellings where the majority of the vehicle parking will be communal.

3.8.3 It will be unsuitable for standard house types and a high degree of individual design will be required.

3.8.4 A speed retarder ramp and/or a pinch point will be required to define the zone limits together with relevant signage and design features to create a sense of identity.

3.8.5 Vehicle speeds shall be kept to substantially less than 10mph by means of street furniture, landscaping features, vehicle parking bays and severe changes in direction of the traffic route.

3.8.6 Parking provision shall be kept to a minimum and therefore these layouts will be more suitable for starter homes, low cost homes, small homes and those for the elderly or disabled.

4. DETAILED INFORMATION

4.1 FOOTWAYS.

4.1.1 Footways are those parts of access roads intended for use by pedestrians and which are parallel with carriageways.

4.1.2 The layout and design of footways should aim to provide safe, reasonably direct, secure and visually attractive routes for pedestrians. In addition parking on footways, which is a particular hazard to blind and partially sighted people, should be prevented by the use of permanent barriers such as high kerbs or bollards. The design solution must however meet all other requirements regarding visibility etc. The provision of convenient and easy to use parking facilities will be a significant factor in discouraging indiscriminate parking on pedestrian routes

4.1.3 Whenever footways interconnect with carriageways at pedestrian crossing points, dropped crossing kerbs should be installed to assist wheelchair users and those with prams or pushchairs. The gradient should be no more than 8% and the kerb should be flush with the carriageway. Tactile paving should be provided at dropped kerbs to assist blind and partially sighted people in accordance with the relevant technical guidlines.

4.1.4 Footways should be designed to take account of: -

(a) The type and function of adjacent carriageways.
(b) The location of apparatus for statutory and other services.
(c) The number of pedestrian movements.
(d) In the vicinity of schools, shops or other community buildings there will be a need for v variations in design compared with those adjacent to dwellings.
(e) Requirements of pedestrians where the nature of the development includes a high portion of the very young or people with disabilities.
(f) The space occupied by street furniture such as street lighting columns, traffic signs etc.
(g) The provision for cyclists.
(h) The provision of access to dwellings for the emergency services.
(i) Methods of reducing the damage to footways, resulting from over running or parking of vehicles, particularly at junctions.

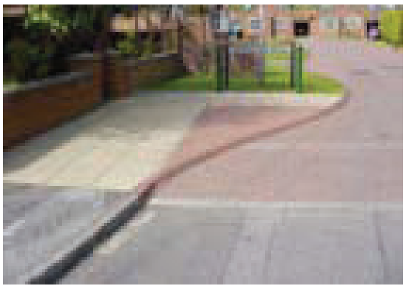
4.1.5 Footways should always be provided where the use of shared surfaces would not be appropriate.

4.1.6 Footway widths should normally be 2m. Reductions may be permitted on roads serving less than 50 dwellings subject to satisfactory arrangements for street furniture and provided adequate space is still available for the installation of equipment by statutory and other service providers **(see criteria in 3.1)** and minimum widths for different types of pedestrian passing movements).

4.1.7 Where vehicles park at right angles to footways an additional width of 800mm (in a different paving material) will be required to allow for the vehicle overhang.

4.1.8 At entrances to Shared Driveways or Driveways, a minimum width of 900mm carried through at the rear of the footway, level with the adjoining lengths, shall be provided to enable pedestrians wheelchair users to avoid ramps to the dropped kerbs.

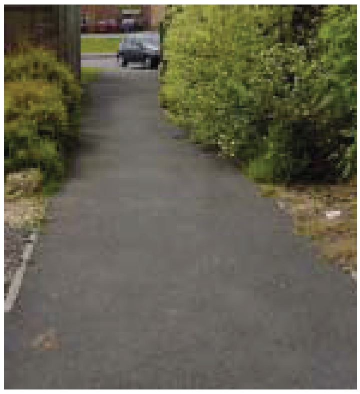
1.1.9 A minimum footway width of at least 3m should be provided outside entrances to schools and similar community buildings.



4.1.10 Vertical clearances over footways should be at least 2.6m. Where the distance is less than 10m, an absolute minimum headroom of 2.3m may be acceptable. Restricted headroom may extend up to 0.5m from the carriageway edge provided no damage to the structure or archway is likely to occur from passing vehicles.

4.1.11 Footways should extend to a point 2m beyond the top of ramp into the Shared Access Road so that pedestrian access to the carriageway can be taken directly from the footway network.

4.1.12 The location of any barriers to prevent unauthorised use of the footways by motor vehicles or to direct pedestrians to safe crossing places should be identified at the outset.



4.1.13 Linking footpaths between culs-de-sac will need to be carefully designed so that the security of the users and adjacent dwellings is not adversely affected. The designer will also need to include design features that may reduce nuisance to the adjoining householders from inconsiderate users of these types of footpath. This has been the principal factor behind the closure and removal of some unnecessary or poorly designed routes in recent times. Accordingly careful consideration and well-reasoned arguments will have to be put forward by the developer whenever these footpaths are presented for adoption.

4.1.14 Planted verges may be used to discourage pedestrians from stepping off footways along the busiest Major Access Roads or to discourage parking on footways or other areas alongside carriageways. The designer will, however, need to consider the impact of such arrangements on the likely parking of visitors' vehicles and the ability to gain access to vehicles.

4.1.15 Footways should always be provided for a distance of at least 20m from the junction with a Distributor Road.

4.2 PUBLIC RIGHTS OF WAY

4.2.1 North Lincolnshire Council has published a separate Supplementary Planning Guidance document on developments affecting Public Rights of Way and developers should consult this directly.

4.2.2 Many development sites are affected by public rights-of-way in the form of highways, public footpaths and bridleways, and the developer will normally be informed of them when planning permission is granted. The policy of the Highway Authority is covered comprehensively in the

Public Rights of Way Supplementary Planning Guidance document. In summary however, North Lincolnshire Council's policy as Highway Authority is that: -

(a) New developments should, wherever possible, take account of public rights-of-way over the land in question.

(b) Headland paths that run on the perimeter of development sites should be preserved wherever possible and where circumstances permit. This may involve creating landscaped buffer belts through which the footpath will run.

(c) Paths which now cross open land should be accommodated within the proposed site layout without diversion whenever practicable to do so.

(d) Paths outside the development boundary may be subject to increased usage as a result of the development. Where this is possible North Lincolnshire Council will pursue Section 106 agreements to bring those routes up to a higher specification.

4.2.3 Developers are reminded that, where it is necessary for rights-of-way to be diverted or closed, the requisite procedures under the Town and Country Planning Act, 1990 must be completed before works commence.

Existing PROW integrated & improved as part of a residential development

4.3 CYCLE TRACKS.

4.3.1 Cycle tracks are routes intended for use by pedal cyclists.

4.3.2 Segregated cycle tracks are those adjacent to footways or footpaths, and separated from them by a feature such as a kerb, verge or white line. Physical segregation with the use of textured blocks will assist the visually impaired and this arrangement is therefore the usual option in such cases.

4.3.3 Cycle tracks should be designed to provide safe, convenient, secure and visually attractive routes for both pedestrians and cyclists. In addition they must be adequately lit with particular attention being paid to intersections.

4.3.4 Wherever a development needs to be integrated into a wider system of cycleways, it may be necessary to consider the use of cycle tracks contiguous with but segregated from footpaths or footways. Every effort should be made to integrate new cycle facilities into those in the surrounding area.

4.3.5 Appropriate signs should be provided at the start of the Cycle Track. They will also be required on the road network where cycle tracks intersect roads. At these points cycle tracks should be treated as a minor road at a priority junction and include the appropriate visibility standards referred to in **Section 4.5.**

4.3.6 A vertical clearance of at least 2.7m - with a minimum of 2.4m for a distance no greater than 23m shall be provided above the Cycle Track.

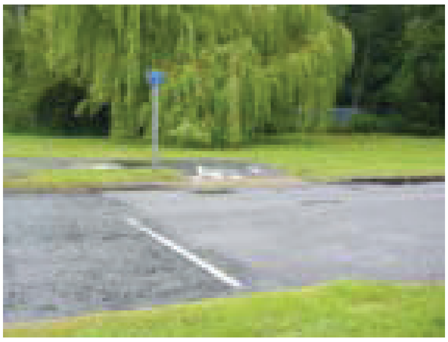
4.3.7 The maximum gradients shall be as follows: -

3% (1 in 33) for all distances
5% (1 in 20) for distances up to a maximum of 100m
7% (1 in 14) for distances up to a maximum of 300m.

4.3.8 Barriers must be provided wherever it is necessary for cyclists to dismount at the end of the cycle track. The minimum spacing between staggered barriers should be 1.2m to allow for wheelchairs to negotiate these features. Barriers may also be needed to prevent the use of cycle tracks by motor cycles.

4.3.9 Dropped kerbs should be provided at the connections between cycle tracks and carriageways, with the kerb installed flush with the carriageway. The entry into the carriageway should be at an angle of 90 degrees. These facilities should be located clear of any road junction to prevent conflict from arising at these locations.

4.3.10 Visibility distances along cycle tracks (using a height of 1.05m above the level of the Cycle Track) should be: -



20m on gradients less than or equal to 2% (1 in 50).
26m where gradients are in excess of 2% (1 in 50).

The minimum radius for use on cycle tracks should be 6 metres.

4.3.11 The Cycle Tracks Act 1984 provides a procedure for converting all or part of a footpath to a cycle track.

4.3.12 The provision of cycle tracks or segregated cycle tracks may be necessary on large developments as well as on smaller sites where their inclusion would allow for the integration or development of existing networks in the area.

4.3.13 Widths can be between 1.5 and 3.6m and the edge of cycle tracks should be at least 0.5m from lamp standards, trees and street furniture.

4.3.14 Joint use of footways/ footpaths may be permitted in appropriate circumstances.

4.3.15 The location of cycle facilities should take into account local destinations i.e. schools, shops, etc. Residential roads may form part of local cycle advisory routes and networks.

4.3.16 The use of coloured surfacing for cycle tracks is recommended. Surfaces must be smooth but non-slip and appropriate tactile paving should be installed on all shared cycle tracks/footways at relevant locations. In all cases it must be easy to maintain and not place an undue burden on future maintenance budgets.

4.3.17 Cycle parking at community use buildings within residential areas should be provided.

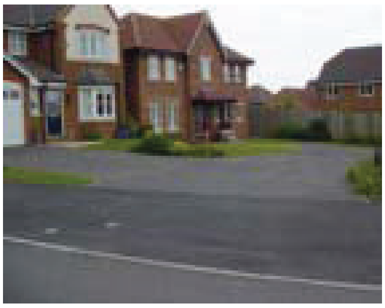
4.3.18 Further information on cycle facilities and provision can be found in a number of Local Transport Notes, in particular 1/86, 2/86 and 1/89.

The Highway Authority should be consulted regarding the provision of cycle facilities (routes and networks) to ensure that every opportunity can be taken to positively promote cycling and assist in reducing the use of motor vehicles.

4.4 PARKING.

4.4.1 The numbers of parking spaces included in any proposed development should take into the following into account: -

(a) The characteristics of the development.
(b) The location of the development.
(c) The sizes and types of dwellings.
(d) The proportions of grouped parking spaces assigned to individual households.



(e) The proportions of spaces provided within each dwelling curtilage.
(f) The layout and design of parking facilities should ensure that the parking spacesprovided are convenient for use, secure and provide for easy access for vehicles.
(g) Planting and paving to enhance the visual character of parking areas.

4.4.2 The number of spaces provided within each curtilage will need to match the the size of the dwelling but an overall average of 1.5 spaces per dwelling unit should be the design goal as recommended in PPG 3.

4.4.3 The maximum requirements for off street parking facilities, (either within each curtilage or in grouped areas), for particular types of dwellings are shown below: -

Dwellings (4 bed or greater)	2 spaces
Dwellings (2/3 bed)	1 space
Terraced/grouped dwellings	1 unassigned space
Flats (1/2 beds)	1 unassigned space
Dwellings (Retired persons)	0.5 unassigned space

In addition 0.5 communal space per dwelling (those with within curtilage parking) shall be provided throughout the development in locations to be agreed with the Highway Authority. These may be in groups, small laybys or on street dependant on the nature of the layout.

4.4.4 Parking spaces (within a dwelling curtilage) will only include: -

(a) Car ports.
(b) Hardstandings.

Garages will not be included as off street parking provision.

4.4.5 Off street parking spaces should be more convenient to use than the road in front of the property and each parking space must be independently accessible.

4.4.6 Where the carriageway is 5.5m wide or greater short stay parking may be accommodated within the carriageway subject to careful design of vehicular accesses. However, additional facilities will be required in the following locations: -

(a) Vehicle turning heads where parked vehicles can prevent the turning head from being used.
(b) Shared access roads where indiscriminate parking can hinder pedestrian and vehicle movement.

4.4.7 Parking spaces located contiguous with the highway and constructed in accordance with the Highway Authority's requirements will rank for adoption.

4.4.8 The layout of grouped parking bays and communal parking spaces should accommodate sufficient space for trees or other landscaping features.

4.4.9 Vertical clearances to suit the vehicles in the parking area should be as follows: -

Cars	2.1m
Small service vehicles	2.5m
Touring caravans	2.8m
Motor caravans	3.3m
Fire appliances	4.0m
Most large service vehicles	4.1m
The largest service vehicles	4.5m

Greater clearances will be required at changes of slope.

4.4.10 The layout and dimensions of grouped and communal parking spaces are detailed in the North Lincolnshire Council's Parking Provision Guidelines.

4.4.11 Bays for disabled people should each be 3.6m wide or at least 3m wide where there are two adjacent bays

4.4.12 The following details should be incorporated into any parking areas: -

(a) Changes in surfacing materials or rows of setts (or similar) should be used to demarcate individual hardstandings in grouped parking areas.

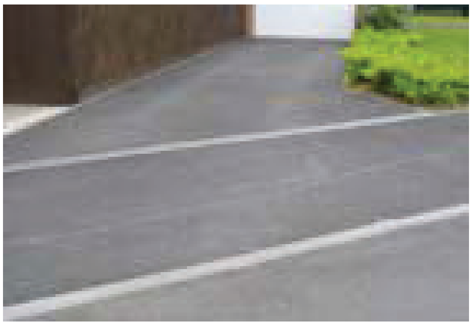
(b) Permanent and attractive means should be used to number grouped spaces assigned to individual households (not paint markings on the surface or posts).

Private group parking areas delineated by different surfacing

(c) Parking spaces contiguous with carriageways should be demarcated in suitable materials such as block paving laid flush with the road surface.

(d) A change of surface material or a row of block paving should be used to identify the boundary of adopted areas at entrances to private drives and driveways serving grouped parking areas.

(e) The driveway or shared driveway must be surfaced with bound material.



Private parking hard surfaced & drained

4.5 VISIBILITY.

(1) VISIBILITY SPLAYS

4.5.1 The criteria used for visibility splays should reflect the speed of vehicles along the priority road. The Y distance will therefore be determined using the following guidance in connection with the tables in PPG 13 and DB32.2. PSM has revised this in some instances and these figures should be used where appropriate.

4.5.2 There are three main areas that will have implications for the provision of satisfactory sight lines. These may be summarised as follows: -

(a) The speed limit of the priority road.

(b) The 85th percentile speed of vehicles along the priority road, calculated from appropriate speed check measurements.

(c) The design of the road network to restrain vehicle speeds below the recognised speed limit.

Items (a) and (b) can be established from the information contained in this Guide, DB32.2, PPG13 and PSM. Item (c), the design of the road network to achieve vehicle speeds below the speed limit, is more difficult to determine and will depend very much on the site location relative to the highway network. Accordingly it will be necessary for design features to be incorporated into the proposed highway system which can be shown to reduce the speed of vehicles to enable any reductions to be accepted **(See Section 5 Traffic Calming).**

4.5.3 Initiatives on traffic calming measures and the introduction of 20 M.P.H. speed limit zones willobviously allow visibility splay distances to be adjusted to reflect the reduced vehicle speed. his will no doubt affect a significant number of the new residential schemes.

4.5.4 An X distance of 9m is the normal requirement for junctions between access roads and district or local distributor roads. This provision will be required where the non-priority road is busy (e.g. where it serves as a main connection between the public road system and a large housing estate development with traffic volumes on the non-priority road in excess of 400vph).

4.5.5 An X distance of 4.5m is acceptable for traffic volumes (in the peak hour) on the non-priority road of 400vph or less.

4.5.6 For a small cul-de-sac development of up to 50 dwellings, the acceptable X distance is 2.4m.

4.5.7 For other types of access serving single dwellings or a shared private drive serving up to 5 dwellings the X distance is 2m.

4.5.8 Visibility splays should incorporate an Y dimension which is dependent on the speed of traffic on the priority road. The appropriate distance can be read off Table A or Table B. If the highest traffic speed on the road in wet weather (excluding the fastest 15% of vehicles) is known, then this speed or the next highest speed which appears on the table should be used as the priority road speed in Table A to arrive at the appropriate Y distance. In the following tables the vehicle speeds in miles per hour are shown in bold and the appropriate Y distances are positioned directly below the speed figures.

Example: -
If 50 is the vehicle speed in miles per hour then from the Table the correct Y distance is the figure directly below which in this case is 160m.

TABLE A

70	**60**	**50**	**40**	***30**	**30**	**25**	**20**
295	215	160	120	90	70	45	33

Where there is a speed limit and the actual speed of traffic on the priority road is not known, it will be necessary to provide Y distances as shown on Table B overleaf

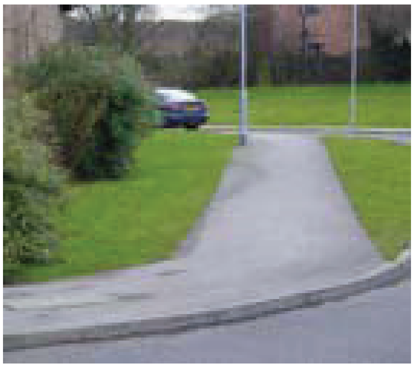


TABLE B

70	**60**	**50**	**40**	**30**	**25**
295	215	160	120	90	45

4.5.9 The Y distances in Table A will be appropriate for priority roads where restraints have been used to reduce driving speeds to about 20mph. The Highway Authority should be consulted about requirements for Y distances in places where vehicle speeds are likely to be well below 20mph.

4.5.10 The eye level of drivers can vary from 1.05m above the carriageway in a standard car to approximately 2m in commercial vehicles. To enable drivers to see each other across summits, across bends and at junctions, unobstructed visibility will be required at least between these heights above the carriageway. However, for drivers to see and be seen by pedestrians, particularly child pedestrians and wheelchair users, unobstructed visibility will be required to a height of 600mm above the level of the adjoining carriageway wherever the potential exists for conflicts between motorists and young children. This will apply along most sections of residential roads and especially where shared surface roads are used.

4.5.11 Visibility splay areas will be adopted by the Highway Authority to ensure that adequate sight lines can be protected and to enable any obstructions to be removed from these areas.

4.5.12 Developers must obtain ownership and control of land required for the provision of adequate sight lines. These areas will be adopted as part of the publicly maintainable highway.

4.5.13 The Developer will be required to set out, establish, and remove any obstructions from the visibility splays, to the satisfaction of the Highway Authority Representative, prior to the commencement of any works on the site. This will be a requirement of the planning approval.

(2) FORWARD VISIBILITY

4.5.14 Forward visibility along carriageways will be beneficial to people who are deaf or hard of hearing, both so that they are aware of vehicle hazards and so that drivers of vehicles can see them.

4.5.15 The visibility required on bends should be related to the expected speed of vehicles and their stopping distances.

4.5.16 The expected speeds can be used to construct a forward visibility curve.

4.5.17 Generally it will not be necessary to construct such a curve as in most cases visibility will be achievable within the footway/service strip limits but on occasions when such a curve is required details of its construction may be found in the companion Industrial Roads Design Guide.

4.6 JUNCTIONS.

4.6.1 The spacing and layout of junctions should be designed to take into account: -

(a) The types and numbers of vehicles likely to use the junction.
(b) The directions of movement at the junction.
(c) The extent to which delays may be caused by conflicting large vehicular movement at junctions.

4.6.2 Visibility at junctions should enable drivers from the non-priority road to enter the priority road safely and to be seen by other vehicles approaching the junction. The visibility criteria are detailed in **Section 4.5.**

4.6.3 Junctions involve cross traffic and/or converging traffic movements and are therefore potential points of hazard. Accordingly careful design of these features is an important issue in any proposal for development of a new site.

4.6.4 Cross roads are generally regarded as the most dangerous form of junction, largely because of the cross traffic movement. The use of this form of junction arrangement should therefore be avoided, except in areas where speeds are low as a result of traffic calming features.

4.6.5 The junction arrangements on larger developments, with the additional traffic movements may necessitate further precautions to deal with any potential increase in cross traffic movement and to control the movement of turning traffic. This can most effectively be achieved by: -

(a) The introduction of a staggered junction. This type of design shall, in the case of staggered crossroads, include a minimum stagger of at least one carriageway width.This shall be increased when a large amount of cross traffic is envisaged for example from a large residential area. Right/left staggers should be provided to avoid the potential problems created by hooking movements.
(b) The use of simple T-junctions that are the most common form of design on connections from residential areas to the distributor road network and within the layout of accesses roads on housing developments.

4.6.6 Major Access Roads serving more than 150 dwellings should join priority roads at an angle of 90 degrees, and shall be straight for a length of at least 20m. Other Access Roads should meet the priority road at an angle within 10 degrees of a right angle.

4.6.7 Junctions should normally be located at the outside of bends so that the driver has maximum visibility on to the priority road. This will involve smaller areas being taken up for highway purposes and will therefore allow the designer to maximise land for residential areas.

4.6.8 Junction spacing along distributor roads shall accord with the recommendations contained in Transport in the Urban Environment. This is based on the stopping sight distance appropriate for the 85th percentile speed of vehicles on the priority road and an indication of the requirements is given in the following Table: -

Vehicle speeds (mph)	70	60	50	40	30
S.S.D. Desirable Minimum (metres)	295	215	160	120	90
S.S.D Absolute Minimum (metres)	215	160	120	90	70

4.6.9 The block spacing and housing layout will determine the junction spacing within the residential road layout. This will lead to spacings of at least 30-40m between adjacent junctions. The criteria for junction spacing within the residential road network have therefore been set as follows: -

(a) Where the priority road serves no more than 150 dwellings there need be no restrictions on junction spacing and cross roads may be used.

(b) Where the priority road serves between 150 to 400 dwellings junctions should be at least 30m (centre line spacing) from another junction on the same side of the priority road and at least 15m from another junction on the other side.

4.6.10 Where a Residential Access Road joins a Distributor Road, it should be 5.5m wide for a distance of 20m from the junction. In addition footways should be provided for that distance and no junctions with other roads or accesses should be included along this length.

4.6.11 Most road junctions will be pedestrian crossing points and therefore dropped kerbs for prams and wheelchairs will be required located on the radii within the road network, or at the inner tangent point of the non priority road if the connection is with a Distributor Road. These crossing points should have kerbs flush with the level of the carriageway and include tactile paving.

4.6.12 Kerb radii should be 10m at junctions with Local Distributor Roads (subject to a 30mph speed limit) and 6m at junctions between Residential Access Roads where either the priority or non-priority road serves more than 50 dwellings. 4m kerb radii may be used at junctions between Residential Access Roads where both the priority and non-priority roads are 5.5m wide and the non-priority road serves no more than 50 dwellings. 4m kerb radii may also be used at junctions between Shared Access Roads.

4.6.13 No Shared Driveway or Driveway should enter at the bell mouth of a junction. This area will include the full radius such that the taper kerb to any Shared Driveway or Driveway can only be installed starting from beyond the first straight kerb from the tangent point.

4.6.14 Priority markings and appropriate signing will be required at all junctions formed as a result of residential development.

4.7 TURNING SPACES

4.7.1 Looped roads and through roads compared with culs-de-sac: -

(a) Reduce the nuisance and inconvenience caused by vehicles turning.

(b) Allow greater areas to be made available for housing purposes.

and should therefore serve as the means of access to the majority of dwellings on the site.

4.7.2 Turning space configurations may be used to create alternative layout arrangements but in all cases the design should provide an area sufficient to accommodate the manoeuvring characteristics of all vehicles likely to use the residential road on a regular basis.

4.7.3 The spacing and layout of turning spaces should be designed to take into account: -

(a) The sizes and turning ability of vehicles expected to use them.
(b) The need to avoid vehicles having to reverse over long distances.
(c) The need to prevent parking in turning spaces by the careful location of adjacent Shared Driveways, Driveways, footpaths to the front doors of properties and off-street parking provision.

4.7.4 The layout of turning spaces should be designed to: -

(a) Allow for refuse vehicles to turn when they would otherwise have to reverse more than 40m. The size of the area will be reduced, when the cul de sac is less than 40m in length, such that the layout will allow car movements to be completed without undue inconvenience to other road users or adjacent property owners

Y shaped turning heads are the preferred option but T, L & banjo shaped layouts are also appropriate especially on "formal" type layouts

(b) Provide an area that can be easily maintained by a mechanical sweeper.
(c) Allow surface water run-off from the street to be drained into gullies located at any corner points formed by the kerb line.
(d) Include locations around the turning space for the installation of street furniture such as lamp posts by ensuring the minimum area is taken up by vehicular crossings. This will generally only be acceptable in cases when 50% of the area is kept clear of these accesses.

4.7.5 Turning spaces shall be provided in the vicinity of the ends of culs-de-sac.

4.7.6 When it is assumed that refuse vehicles or pantechnicons will reverse into the road: -

(a) The road should not serve more than 10 dwellings.

(b) 6m kerb radii should be provided at the junction.

4.7.7 The size of vehicles must determine the dimensions of turning spaces.

4.7.8 Turning spaces are required whenever vehicles have to reverse over long distances or in locations which otherwise could result in damage to adjacent verges or footways.

4.7.9 Larger vehicle turning facilities may be required if it is envisaged that they will be used by buses. Local public transport operators should therefore be consulted as early as possible in the design stage so that appropriate facilities can be incorporated into the design.

4.8 PUBLIC TRANSPORT

4.8.1 It is the Councils' policy to encourage the use of public transport and therefore usage will become more significant, particularly for local journeys.

4.8.2 The requirements for a regular bus service and access for school and work buses will need to be appraised when considering the design of any new development at an early stage in the design.

4.8.3 Public transport services have, on occasions, found carriageways blocked by parked vehicles in schemes where both inadequate off-street parking provision is made and the carriageways are too narrow. Accordingly the designer will need to establish at the earliest stage whether there is any possibility of the roads on the site being used by public transport. Local operators should be consulted about the types of buses they propose to use and for their requirements for footway widths at bus stops, highlighted with different coloured surfacing material, where shelters are to be provided. Build outs or bus-boarders should be considered to deter parking where bus stops are identified.

4.8.4 Schemes should be directly served or be within easy reach of the bus service network.

4.8.5 Close co-operation is required between public transport operators, the local authority, and the developer. This co-operation should continue from the initial planning stage to the completion of development.

4.8.6 Bus operators are free to run services wherever they see a commercial opportunity and the scheme should take that possibility into account.The Council may also choose to subsidise particular services where social needs are identified to allow people, particularly vulnerable road users, to access local services.

4.8.7 The roads that are likely to be used by buses should be identified at the outset.

4.8.8 Bus operators will be encouraged to start their services as soon as there are enough residents to outweigh the economic and practical disadvantages of serving a partly occupied development.

4.8.9 Large developments should be planned to allow the earliest phases to be provided with a bus service.

4.8.10 Many buses today are no larger than the service vehicles that use residential roads.

Consequently, such buses may use roads designed in accordance with the recommendations set out in this Design Guide.

4.8.11 Design requirements for roads should be determined in consultation with the operators when buses are likely to use the road layout. The provision of links that could only be used by buses may be appropriate in some circumstances, however the design of these sections will need to be carefully assessed by the Highway Authority.

4.8.12 Bus stops should be located and designed to ensure that: -

(a) Residents will find them convenient and safe to use - usually grouped with telephone kiosks, post boxes, shelter provision, good street lighting and in places which can be seen from dwellings and by passers-by.
(b) Bus drivers will find them convenient to use - usually at straight stretches of kerb, and in places where parked cars will not cause obstruction.
(c) The special needs of people with disabilities are provided for.
(d) The provision of timetables and other information is included.

4.8.13 When necessary, adequate space should be provided for buses to turn or to wait.

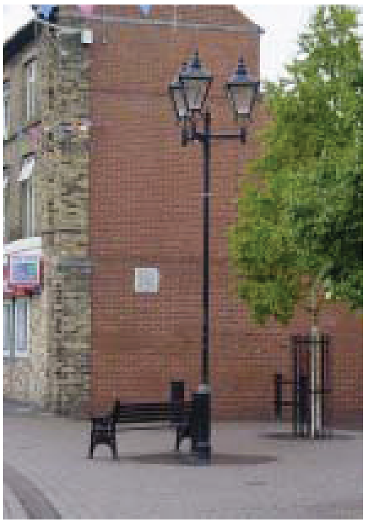
4.8.14 The design and provision of public transport facilities should attempt to ensure that the least possible nuisance is created for residents living in nearby houses.

4.8.15 The overall visual character of the road can be enhanced by: -

(a) Carefully selecting and designing the signs and bus shelters.
(b) Using any large space required for buses to turn for planting large trees.
(c) Integrating (a) and (b) above in the overall design concept of the road.
(d) More detailled guidance on designing for buses is given in Local Transport Note 1/91.

4.9 LIGHTING

(For full details please see Standard Specification for Highway Power Supplies & Street Furniture)



4.9.1 The standard of street lighting to be adopted on Residential Access Roads is generally to be in accordance with British Standard 5489:1992 (parts 1-9 inclusive). The Highway Authority will determine the level of provision and any amendments to the specification.

4.9.2 Lighting columns and fittings make a major impact on the appearance of the scheme and should be planned as part of the overall design concept. It is especially important that in historic towns and conservation areas particular attention should be paid to the aesthetic quality of the street lighting installation.

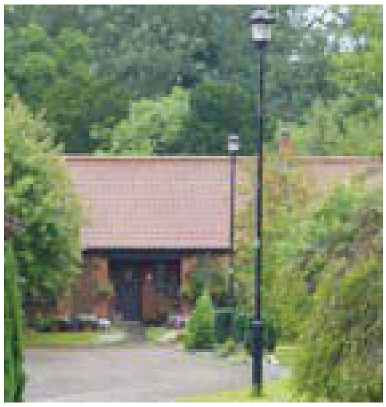
4.9.3 Lighting arrangements may be used to identify the functions of different roads.

4.9.4 Adequate lighting should be provided in all parts of the layout to enhance safety and security for drivers, pedestrians and cyclists.

4.9.5 Lighting is necessary to illuminate bends and traffic calming features, to enable road users to see potential obstacles and each other after dark and to reduce the fear of crime.

4.9.6 Sizes of trees and shrubs when mature and their location in the layout must be considered in relation to street lighting.

4.9.7 Lighting must be planned as an integral part of the initial layout of access and shared surface roads, shared driveways, footpaths and in conjunction with the location and anticipated growth of trees.



4.9.8 It will be a requirement that all private driveways serving more than 2 dwellings and having a length from the publicly maintained highway greater than 25m be provided with some form of lighting. This can take many forms but need not be to an adoptable standard. The private lighting cannot be connected to the public system.

4.9.9 Lighting has an important role to play in: -

(a) Reducing risks of night time accidents.
(b) Assisting in the protection of property.
(c) Discouraging crime and vandalism.
(d) Making residents feel secure.
(e) Enhancing the appearance of the area after dark.

4.9.10 The standard of lighting provided should ensure that shadows are avoided in places where pedestrians would otherwise be vulnerable.

4.9.11 Lighting columns, wall-mounted brackets and other fittings need to be as resistant to vandalism and be placed in positions that minimise risks of damage by vehicles. Detailed advice on such matters is contained in British Standard 5489 Parts 1, 3 and 9.

4.9.12 The installation of street lighting should be programmed such that no dwelling on the site shall be occupied until the Residential Access Road has been adequately lit from the junction with the existing publicly maintainable highway up to the access to the dwelling. This requirement will be a condition of the planning permission.

4.9.13 Lighting columns should be located within the limits of the adoptable highway, at the back edge of the footway, verge or service strip. However, it is acceptable to attach lighting units to buildings for example in Courtyard/Mews Court developments, provided electrical connections are external to the building. This will necessitate an agreement between the freeholder of the property and the Highway /Lighting Authority. The Developer must insert specific clauses in the Deed of Title to the property, to the satisfaction of the Highway Authority.

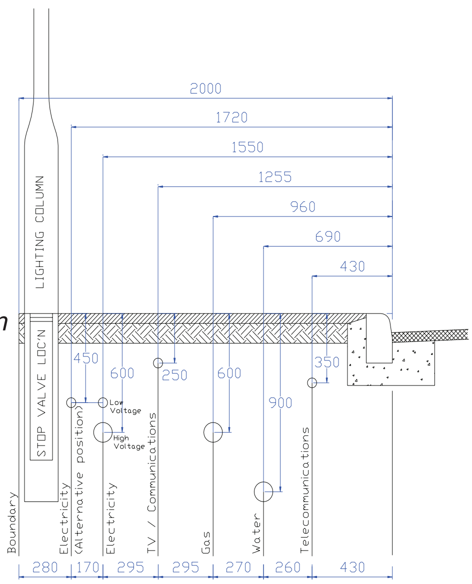
4.9.14 If required the Highway Authority can provide a complete design service on a rechargeable basis, including the preparation of the necessary street lighting details required for the Section 38 Agreement. The Council can also provide an installation service if so requested.

4.9.15 Where the Developer makes alternative arrangements for the design and installation works he must contact the Highway Authority to ensure that the street lighting design complies with the Highway Authority standards. In addition the Developer must contact the Highway Authority before installation commences. The Electricity Company will service the columns on receipt of a written order and will normally require prior payment of connection costs before they will programme connection work. On completion of the works the Developer shall submit to the Highway Authority a completion and inspection certificate to confirm that the works comply with the current edition of BS 7677 (formerly I.E.E. Regulations) together with as built electrical detail drawings and specifications.

4.9.16 The Highway Authority, from the commissioning date for each lamp, will accept the energy costs and responsibility for routine maintenance. Prior to adoption, however, the Developer will be responsible for the replacement and repair of damaged equipment.

4.9.17 The Developer must advise all prospective purchasers of the location of lighting columns in relation to the position of each plot on the development.

Agreed Locations for Services in Footways (National Joint Utilities Group)



4.9.18 All lighting equipment must be installed in accordance with the approved drawing and specification.

4.9.19 The above requirements equally apply, where appropriate, to the installation of any other illuminated street furniture and signage which has been approved as part of the development scheme.

4.10 PUBLIC UTILITIES

4.10.1 In addition to providing for pedestrian and vehicular movement, roads and footpaths in residential estates have an important function in providing routes for statutory and other underground services. These services are an essential integral part of the layout and the arrangement for the installation and future maintenance of service apparatus must be considered in the initial design of an estate.The location of mains in footpaths and landscaped areas, reproduced from the National Joint Utilities Group publication No 7, is shown adjacent.

4.10.2 Developers are also reminded that their responsibilities to consult with and meet the costs of any works required in respect of statutory undertakers' plant that may be affected by the development. Non-statutory plant must not be laid within the prospectively maintainable highways until a licence has been issued by the Highway Authority under Section 50 of the New Roads and Street Works Act 1991. Developers are advised not to sanction or grant easements for such plant prior to receiving approval in writing from the Highway Authority.

4.10.3 Wherever possible services should be laid under footways or landscaped areas in order to minimise cost of installation, repair and reinstatement that would arise from laying services within the carriageway.

4.10.4 It will be necessary for Developers to consult the appropriate Water Company, The Environment Agency and the appropriate drainage board where required regarding disposal of both foul and surface water at the earliest opportunity.

4.11 LANDSCAPING

(For full details please see Specification for Landscaping & Planting within the Highway).

4.11.1 It is important that any existing mature planting is retained wherever possible. The mixture of mature landscaping and new planting can add variety to the landscape and reduce the visual impact of the development. Specialist advice will be required when undertaking the site survey required to produce the landscape design. It is important to gain a proper understanding of the site and the existing ground conditions before deciding on the form of landscaping. Early evaluation of the topography, existing features, soils etc. will enable the landscape designer to take account of important features and ground conditions.

4.11.2 The Highway Authority, prior to planting, must approve landscaping within any potentially adoptable highway area.

4.11.3 Site conditions will limit the choice of plant material considerably and must be the main reason for plant selection.

4.11.4 Landscape plans should be easily understood and be to scale of 1:200. Plans should contain the botanical names and varieties of plants, planting distances or the number of plants per square metre and the size of the nursery stock.

4.11.5 Shrub planting can be used in a variety of ways on the site. For instance in service strips as ground cover and to break up large areas of parking bays.

4.11.6 Trees that are to remain shall on no account be pruned, felled or interfered with without the Highway Authority's consent. The developer shall take precautions to ensure that the trees are not damaged by plant or other works.

4.11.7 The Developer shall provide, on completion of the works, a record of planting including the following: -

(i) List of species
(ii) Sizes and number
(iii) Date of planting
(iv) Precise location on site
(v) An “as constructed” drawing of the landscaped area

4.12 DRAINAGE

4.12.1 Global warming is having an increasing effect on weather patterns and as a result it will, in many cases, not be possible to discharge the highway surface water run off into an existing suface water sewer or highway drain due either to the absence of the necessary infrastructure or lack of capacity.

4.12.2 Previously it has often been the case that the highway surface water run off could be discharged into an existing watercourse, piped system or conventional soakaways but this is becoming an increasingly difficult goal to achieve. It is therefore necessary to examine other possible solutions and to this end the Highway Authority may be prepared to consider “non standard” solutions to surface water drainage problems.

4.12.3 It will be the Developers’ responsibility to provide full engineering details of the proposed drainage infrastructure and the justification for proposing the submitted scheme. It is possible that the Council may seek commuted sum payments in cases where the agreed solution could lead to increased maintenance costs, but these will be examined on a one off basis and the details/costs agreed prior to the acceptance of the proposed scheme.

4.12.4 The Council as part of its’ overall environmental improvement strategy is willing to consider Sustainable Urban Drainage (SUDs) schemes as well as other forms of surface water discharge such as shallow trench soakaways, online storage systems, soakaways using propriety products that are becoming available, porous paving systems, especially for block paved surfaces, as well as other solutions provided that they are tenable and technically achieve the design goal.

4.12.5 SUDs have been used for some years in other countries, particularly the USA, but there is a growing amount of work that has been carried out in this country in particular Scotland and North West England. Designers proposing this solution should fully research the available data and practice and should be prepared to explain their proposals in detail and justify their design solution on the basis of published data.

4.12.6 It is possible in some urban areas that the existing surface water public sewers may be capable of accepting the highway run off and the Developer should first enquire of the Water Company as to the acceptability of this solution. Written evidence confirming acceptability or non-acceptability should be submitted as part of the technical submission for highway approval of the scheme.

5. TRAFFIC CALMING

5.1 Speed restraints are measures to reduce the speed of vehicles in residential areas that shouldalso have the benefit in creating a deterrent to non-access traffic from using Residential Access Roads. These features will include changes in the horizontal and vertical alignment of the carriageway. This will involve the use of the following for horizontal changes: -

(a) Short culs de sac.
(b) Carriageway offsets.
(c) Junctions.
(d) 90 degree bends.
(e) Tight radii.
(f) Islands within the carriageway.
(g) Mini roundabouts.
(h) Carriageway width restrictions.

5.2 Vertical alignment changes will also be suitable within the Residential Access Road network especially as raised junction tables and at locations away from junctions where high levels of pedestrian crossing movements are anticipated.

5.3 The Highway Authority will need to be satisfied that any proposed speed restraining measures come within the meaning of the relevant legislation.

5.4 The acceptability of traffic calming features to road users and residents will depend upon the types of restraints, their spacing and detailed design and the combined impact of different types of restraints.

5.5 Long term experience of speed restraints in this country within new residential areas is still limited and the Highway Authority therefore, whilst encouraging these features, will take account of the information available at the time when assessing the acceptability of particular designs.

5.6 The overall appearance of speed restraints may also affect their acceptability to road users and value in achieving the required reduction in vehicle speeds. This aspect is particularly important and the designer must consider carefully the type, location, materials, position of Shared Driveways or Driveways, landscaping treatment, visitor/ casual parking arrangements and any other features that may affect the objectives associated with the introduction of traffic calming measures.

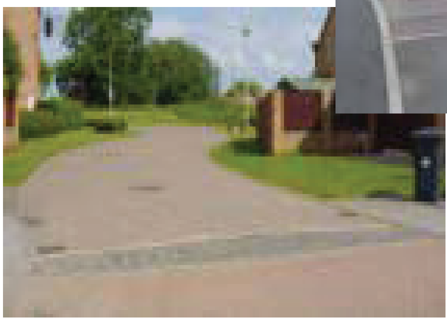
5.7 The influence of restraints on vehicle speeds can be enhanced by changes in paving, planting and other features that indicate to drivers that they are in residential surroundings where careful driving at slow speeds is expected. The combined visual impact of speed restraints and complementary measures must be an integral part of the overall design concept for the development.

5.8 The design of new residential developments should aim to restrict 85th percentile vehicle speeds to: -

(a) Well below 20mph along shared surface roads - by keeping unrestrained road lengths to no more than 40 metres.
(b) 20mph along minor access roads - by keeping unrestrained road lengths to no more than 60 metres.
(c) Under 30mph along major access roads - by keeping unrestrained road lengths to no

more than 100 metres.

(d) The design should also restrain 85th percentile vehicle speeds to well below 20mph immediately outside schools and at any other points in the road layout where children may be especially at risk.



Raised table junctions,ramps & short culs-de-sac form useful traffic calming features

5.9 The designer will need to use traffic calming features carefully, particularly those that involve a change in vertical alignment as the road frontage occupied by speed restraints adversely affects the provision of entrances to Shared Driveways and Driveways. Accordingly the location and design of restraints should be carefully considered where roads give direct access to dwellings.

5.10 Every effort should be made to keep to a minimum the number of speed restraints that have to be negotiated between individual homes and roads where speeds of 30mph are acceptable.

5.11 Trees, shrubs and other features are an integral part of vehicle speed restraints and must be included in any design proposal to assist in identifying, to the motorist, the location of these features.

5.12 Speed restraints must be clearly visible to drivers and others during the day and night. The lighting installation, use of contrasting materials, signing and landscaping of the adjacent area should be designed to achieve maximum benefits of this type of design.

6. PLANNING & HIGHWAY APPROVAL

6.1 TRANSPORT ASSESSMENT

6.1.1 North Lincolnshire Council has adopted the Transport Assessment (TA) process for determining the nature and extent of off site highway works required by the development proposals. TA's are generally required in support of planning applications when one or more of the following criteria is met: -

(a) Business and industrial (B1 and B2) land uses with gross floor area exceeding 5,000 square metres.

(b) Warehousing (B8) uses with a gross floor area exceeding 10,000 square metres.

(c) Retail land uses with a gross floor area exceeding 1,000 square metres.

(d) Sites with in excess of 100 parking spaces.
(e) Sites with an estimated in/out peak hour trip rate in excess of 100 vehicles.
(f) Residential sites in excess of 150 dwellings (in some cases where locations are sensitive this will be reduced to 50 dwellings).

6.1.2 A TA provides the developer with the opportunity to gather in one document all the issues relating to the traffic impact of the development proposals. It should form a stand-alone document and contain all the relevant information on assessment assumptions, base traffic, development type and size, assessment years and internal layout. In general the TA should address the following areas: -

- Description of the development
- existing conditions
- Traffic generated by development
- Modal split (Car, bus etc.)
- Trip distribution
- Trip assignment
- Assessment years
- Highway impacts
- Internal layout and circulation
- Parking arrangements
- Public Transport
- Pedestrians / cyclists
- HGV traffic

6.1.3 TA's should also include a non-technical summary and a glossary of terms.The TA process has been adopted nationally, and is based on the guidance produced by the Institution of Highways and Transportation. This guidance has been used as the basis for a guide to the process produced by North Lincolnshire Council. Copies of this guide, and general advice on the TA process can be obtained from the Transportation Team.

6.2 TRAFFIC ISSUES

6.2.1 North Lincolnshire Council seeks to promote the safe and efficient use of the highway network and to this extent any new development will have an effect on the adjoining roads. As part of this aim it seeks to: -

(a) Reduce the risk of injury from traffic.
(b) Encourage the transfer of resources to sustainable modes.
(c) Encourage social inclusion.

6.2.2 In order to achieve these overall goals the developer will be expected, as part of the evaluation and design process, to: -

(a) Assess the change in risk of injury from all modes of traffic generated by the development and to include proposals to remedy or reduce this risk.
(b) Identify the types of traffic that will be generated by the development and explain how transfer to sustainable modes will be achieved.
(c) Explain and demonstrate how the development will encourage social inclusion for: -

(i) People with disabilities.
(ii) Access for vulnerable road users.

(d) Submit a Stage 1 Safety Audit assessing the works proposed as a result of the TA.

6.3 PLANNING & HIGHWAY APPROVAL

6.3.1 Application for planning permission for the construction of residential access roads shall be made to the Council as Planning Authority **(See 7.1).**

6.3.2 The Council as both Planning and Highway Authority will need to be satisfied that the following aspects of the development are in accordance with current standards: -

(a) The geometric layout of the proposed roads, including traffic calming measures and visibility splays at the junctions with existing highways.
(b) The construction materials and related details.
(c) The surface water drainage.
(d) The positioning of services, together with any associated ducts and/or other apparatus, within the limits of the highway.
(e) The street lighting layout, signing and lining details.

In order to speed up this process, it is important that applicants ensure that the drawings submitted with their application include these details and are consistent with the standards set out in this document and the Estate Roads Construction Guide.

6.3.3 The establishment of technical and engineering details for new Residential Access Roads should take place concurrently with the planning process and will be the subject of direct negotiations between the Developer and the Highway Authority.

6.3.4 The Highway Authority will issue a Construction Approval Notice immediately after the technical and engineering details have been accepted. No work may commence on site before the Highway Authority has agreed full details and the Developer has paid the inspection fee. In addition the Highway Authority will require the Developer to enter into a legal agreement, including a bond guarantee, to allow works to be carried out within the publicly maintainable highway (S.62 or 278 Highways Act 1980).

6.3.5 The specification details are set out in the Development Roads Construction Guide, but the following drawings and associated details will be required: -

(a) An accurate site survey plan showing the highway, site boundary and other relevant features. In addition all levels included on the survey plan shall be in metres and related to Ordnance Datum at Newlyn with the benchmark location and value clearly identified.

(b) A site layout plan of the entire scheme at 1:2500 or 1:1250 scale, including details of the existing external highway network.

(c) 1:500 scale* layout plans showing: -

(i) Comprehensive highway details, including visibility splays, boundaries, access positions, traffic calming and landscaping.
(ii) Comprehensive highway drainage details and means of disposal of highway water.
(iii) Longitudinal sections, to a horizontal scale of 1:500 and appropriate vertical scale showing: -

(a) Existing and proposed highway levels
(b) Highway drainage details

(iv) A typical cross section drawn to a natural scale of 1:20 showing the proposed highway construction.

(v) Drawings and calculations required for retaining walls and other structures. These plans shall be accompanied by the relevant Approval in Principal, submission and design check certification from Consultants who are familiar with the technical approval procedures. (Reference Documents - DTp BD 2/89 and BA 32/89 Part 1). In any event no works on the structure shall be commenced until the Highway Authority have issued a written approval of the submitted structural details referred to above. This should remove any potential impediment, on this element of the design, from jeopardising the future adoption of the residential access road.

(vi) Details of Utilities and other Agencies apparatus, mains, cables, pipes and ducts.

(vii) A drawing detailing the setting out information for the residential access roads on the site.

(viii) An approved street lighting design.

(The scales used in the above drawings are to be approved metric scales, e.g. 1:500, 1:200, 1:100, and 1:50. * In the case of Shared Surface Roads, 1:200 scale is preferred).

(d) Evidence must be provided that CDM regulations will be complied with during all stages of the road design and construction and that a planning supervisor has been appointed. In addition the Health and Safety file must be passed to the Highway Authority prior to adoption.

6.3.6 Unless alternative details are agreed with the Highway Authority, the construction will be one of the alternatives described in the Development Roads Construction Guide.

6.3.7 It will be acceptable for the submitted drawings to be in Autocad 14 or later format.

6.3.8 On schemes of a “non conventional” nature it will be necessary for the designer to demonstarte that the proposed highway layout will support use by the type of traffic generated as a result of the development. Whilst this can be achieved by vehicle movement overlays the most suitable method is the use of tracking movement software on cad generated drawings and as such this will be the preferred choice.

7. LEGAL REQUIREMENTS/ADOPTION OF STREET WORKS

7.1 LEGAL REQUIREMENTS

7.1.1 The designer must take into account the Highway Authority’s policies for the adoption and future maintenance of Residential Access Roads.

7.1.2 Developers should produce well-reasoned design arguments if they seek the adoption of road layouts that differ substantially from those envisaged in this document. However, it should not be assumed that innotative designs will be rejected soley because they differ from those suggested in this guide. Provided it can be demonstrated that the design will enhance the environment and the living experience of the residents, that it will not lead to an undue increase in maintenance costs and most importantly will be user friendly then it is likely that a favourable response will be forthcoming.However, it is possible that some design elements may require the payment of a commuted sum to offset future increased maintenance costs **(see section 7.3)**.

7.1.3 Developers must recognise that any planted areas for public adoption must be designed for minimum maintenance and in addition it will be a requirement for these areas to be the subject of separate agreements securing replacement of planting until the landscaping features have become established. In all cases a commuted sum to cover future maintenance will be a requisite for adoption **(see section 7.3)**.

7.1.4 All new Residential Access Roads must be constructed to a layout and specification that will render them suitable for adoption as highways maintainable at the public expense.

7.1.5 Shared Driveways will only be permitted where the number of dwellings wholly served is 5 or less.

7.1.6 The Highway Authority will advise the type of traffic signs, road markings and street nameplates required and their location. The Developer should however note that: -

(a) Their provision is the responsibility of the developer.

(b) The Highway Authority may, however, be prepared to carry out this work on behalf of the Developer subject to the receipt of an official order.

(c) Street nameplates must be provided prior to the occupation of any dwelling in the street in question and all signing, road markings and other street furniture must be provided as soon as the final surfacing work has been completed unless otherwise previously agreed.

7.1.7 In order to ensure that construction is carried out in accordance with the approved drawings and specifications, all developments must be inspected by representatives of the Highway Authority, provided appropriate fees have been paid and drawings have been approved. Every facility must be given for these purposes, otherwise it will prejudice adoption. Failure to comply with these requirements will result in the Developer facing additional costs for any necessary investigation work and remedial works in respect of sub-standard materials or workmanship. Under no circumstances must work commence on site until the Construction Approval Notice has been issued and the fee paid.

7.1.8 Drawings should indicate which parts of the layout the developer expects to be adopted and how the adoption limits are to be differentiated on the ground. Widths and other key carriageway dimensions and the location and dimensions of parking spaces should also be shown. Full details of all planting must be shown.

7.1.9 The Highway Authority will require a guarantee under the provisions of the Highways Act 1980 that Residential Access Roads will be completed to the approved standards.

7.1.10 Section 38 and the Advance Payments Code under part (XI) of the Highways Act 1980 provide the statutory basis for the adoption of development roads. The most significant differences between these two options are: -

(a) The Section 38 Agreement is a voluntary arrangement. This does however have certain benefits as such agreements mean that: -

(i) Developers are able to sell their houses more easily with road charges paid.
(ii) The Highway Authority acquires roads constructed to their standards that should not require expensive maintenance and repair costs ahead of time.
(iii) Ready access to services is available in emergencies and for routine maintenance.
(iv) House purchasers are assured that they will not be faced with road charges at a later time.
(v) The security for the Agreement can be in the form of a bond guarantee from a Bank, Building Society or other financial institution.

It is for these reasons that this is the route chosen by a majority of House Builders.

(b) The Advance Payments Code is the compulsory process to secure the road charge liability for frontage properties. This involves cash deposits being made by the Developer to the Highway Authority before building works can commence. It is an offence, subject to prosecution, to undertake any house building until these payments have been deposited with the Highway Authority. The money securing the road charges liability is used to offset the cost of works in instances where the Highway Authority carries out a Private Street Works Scheme.

7.1.11 Before any construction begins, the Developer will be required either: -

(a) To secure the payment of the estimated cost of the highway works under the Advance Payments Code provisions that are set out in Section 219 of the Act.

OR

(b) To make an agreement with the Highway Authority under Section 38 of the Act and provide a Bond of Surety.

7.1.12 The Council operates a detailed policy with regard to Advance Payments Code and Section 38 Agreements and Developers should consult the Highway Authority at the earliest opportunity to avoid the risk that new roads will not be adopted as public highways.

7.1.13 Developers are advised that until such time as there exists a deposit under the Advance Payment Code or an Agreement under Section 38, Local Land Charge Searches will disclose the road charge liability to prospective purchasers.

7.1.14 In exceptional circumstances the Highway Authority may resolve that a particular development be granted exemption from the Advance Payments Code provisions. In any such cases the development will still be required to comply with the criteria set out in this Design Guide in respect of junction standards, road widths and parking and turning facilities. Developers will be required to submit details of the construction specification, drainage and lighting arrangements as well as comprehensive details of the maintenance programme for the site at the earliest stage so that exemption from the Advance Payments Code Procedure can be considered.

7.1.15 The Highway Authority also requires Developers to obtain Agreements under the provisions of Sections 62 or 278 of the Highways Act 1980, insofar as they affect the construction of those parts of the approved roadworks which are located within the boundaries of existing publicly maintainable highways. Under normal circumstances, the Highway Authority will, after executing the Agreement, authorise the Developer to carry out such works subject to approving the contractor and programme of works.

7.1.16 On those developments which require works to be carried out both within the site (S.38 Agreement) and within the highway (S.62/278 Agreement) it will be possible for the Developer to request the preparation of a combined Agreement in order to simplify the legal process.

7.1.17 Where it is proposed to construct a building over the highway, a licence under Section 177 of the Highways Act 1980 is required from the Highway Authority.

7.1.18 The Highway Authority also allows some verges and all service strips to be cultivated and maintained by frontage owners. This requires a licence under Section 142 of the Highways Act 1980. This licence is an integral part of the Section 38 Agreement. Developers who do not elect to enter into this type of agreement must ensure that purchasers are aware of the implications regarding the service strip.

7.2 ADOPTION STANDARDS

7.2.1 The Highway Authority will normally be prepared to adopt the following subject to the exclusions noted: -

(a) All layouts complying with this Design Guide that have: -

  (i) The benefit of a Highway Authority Construction Approval Notice, and
  (ii) Have been satisfactorily constructed of materials complying with, and to, the Highway Authority's specification of works (Estate Roads Construction Guide).

(b) Major Access Roads, Minor Access Roads, Shared Access Roads, combined Footways and Cycle Tracks.
(c) Footways adjacent to carriageways and spine footpaths linking into residential areas. Footpaths that provide the principal means of pedestrian access to grouped dwellings will be considered on merit and determined by the Highway Authority. Footpaths may, of course be segregated from carriageways subject to the provisions set out in sub-paragraph (f) below for the adoption of grass verges. All other footpaths will be considered for adoption on their merits and will not be adopted purely because they are provided.
(d) Land within visibility splays at junctions and on bends.
(e) Trees, shrubs and other features that are an integral part of vehicle speed restraints.
(f) Any verges and planted areas adjacent to the carriageway will be adopted on the basis of an aggregate area of such verge or planted area not exceeding 4 square metres per metre run of carriageway (excluding visibility splays). For this purpose, verges and planted areas may be concentrated alongside certain carriageways in a development subject to the total area not exceeding the above aggregate. Inevitably this will mean that verges and planted areas cannot be provided on all roads within a particular development.
(g) All other verges and planted areas which are not immediately adjacent to a carriageway will be regarded as amenity areas and will not be adopted as publicly maintainable highway. Developers will have to make alternative arrangements for their

maintenance. It is intended that the amalgamation of verges & planted areas into larger more informal areas as envisaged by this clause will allow greater scope for the development of attractive landscaped areas within the highway.

(h) Casual parking spaces provided for use by visitors, service and delivery vehicles immediately adjacent to carriageways. Such spaces would be: -

(i) Additional to the off street parking requirements set out in the Section 4.4.
(ii) Not allocated to residents.
(iii) Subject to highway law.

(i) Grouped parking areas will not be adopted unless for casual parking by visitors adjacent to roads referred to in (h) above.
(j) Access Roads serving only garage blocks or parking courts will not be adopted.
(k) Splays to Shared Driveways or Driveways at the back of the Highway Boundary will not be adopted.
(l) Service strips immediately adjacent to Shared Surfaces, including strips that are located in front gardens and privately maintained under a licence **(see Section 3.4 Shared Access Roads).**

7.2.2 All highway road and drainage works which have been inspected by the Highway Authority's representative and have been passed as being satisfactory in complying with approved drawings, this Guide, the Development Roads Construction Guide and the terms of the planning approval.

7.2.3 On satisfactory completion of the works the Highway Authority will notify the developer that they have been placed on a 12 months maintenance period. At that time the Authority will also notify the Agreement Guarantor that the Bond has been reduced, provided that it has already been determined that such a reduction is appropriate.

7.2.4 At the end of the maintenance period and, subject to a further satisfactory inspection, adoption will take place provided the Water Company has adopted the sewer network. Written confirmation in respect of the sewer adoption will be a requisite of adoption of the highway works.

7.2.5 The Developer will continue to be liable for all of the highway works, with the exception of the normal maintenance and energy charges of the street lighting, until all matters have been resolved to the satisfaction of the Highway Authority.

7.2.6 On completion of the adoption procedures both the developer and the bond guarantor will be notified in writing by the Highway Authority provided the development has been the subject of a S.38 Agreement. For sites not so covered, adoption by posting a notice under S.228 will be undertaken. This will delay the formal adoption date by the posting period designated in the notice. Any deposits held by the Council under the Advance Payments Code will then be repaid under the regulations laid down.

7.2.7 It is the duty of the developer to advise the Highway Authority that the works have been finished and are ready to be placed on maintenance.

7.2.8 It is the responsibility of the developer to seek adoption of the sewers by the Water Company and to advise the Highway Authority accordingly.

7.2.9 It is the responsibility of the developer to seek adoption of the landscaped areas/public open spaces, outside highway limits, by the Council.

7.3 COMMUTED SUMS

7.3.1 All highway infrastructure including roads, footways, drainage and verges will generaly be adopted on satisfactory completion of the maintenance period without charge.

7.3.2 Certain aspects of the highway layout will however only be adopted by the Council provided a commuted sum covering maintenance costs over and above those which may normally be encountered. These will be determined on an individual basis but will generally cover the following categories: -

(i) Any culvert, bridge, retaining wall or other structure.
(ii) Any soft landscaping in excess of the areas of grass verge specified in **Section 7.2.1**
(iii) Unusual drainage systems including on-line storage, hydro breaks, pumping stations, open watercourses, SUDS and deep bore soakaways.
(iv) Additional areas of carriageway or footway over and above the minimum requirements specified in this Guide.
(v) The use of surfacing materials which whilst being approved will result in higher maintenance or replacement costs.
(vi) The installation of specialist or non standard street lighting equipment.
(vii) Any street furniture not required for road safety purposes.

7.3.4 The Highway Authority will advise the developer at the time of the issue of the Construction Approval Notice which parts of the development, if any, that will incur a commuted sum payment prior to adoption. The value of the sum will be the subject of a separate discussion and written acceptance of the terms of payment will be required prior to the commencement of any work on the site.

8. REFERENCES & CONTACTS

8.1 HIGHWAYS AND TRANSPORT SERVICES

Subject to the exceptions below all contacts are based at: -

Church Square House
PO Box 42,
Church Square,
Scunthorpe, DN15 6XQ

Principal Transportation Officer
(Advice on Transport Assessments) (01724) 297370

Engineering Projects Manager
(Advice on site investigation reports & construction materials)
Waters Edge
Maltkin Road
Barton upon Humber (01724) 297527

Traffic & Road SafetyTeam Manager
(Advice on road safety matters) (01724) 297471

Highway Maintenance Manager
(Advice on highway maintenance, street lighting & site inspections) (01724) 296671

Principal Highway Control Officer (01724) 297458
(Advice on all aspects of development road design, agreements & adoption)

Building Control Team Manager
(Advice on access for fire fighting appliances) (01724) 297400

Development Control Team Manager
(Advice on planning matters) (01724) 297492

Countryside Service Team Manager
(Advice on Public Rights of Way, landscaping & biodiversity matters) (01724) 297387

8.2 UTILITY COMPANIES

The following Utility Companies and Organisations are present in North Lincolnshire and should be consulted in respect of the provision of services to the development site: -

Yorkshire Electricity

British Telecom

Transco BG

Anglian Water Services Ltd

Severn Trent Water Ltd

Yorkshire Water Ltd

The Environment Agency

NTL (Cable) Ltd

To contact any of the above services please call The Highway Maintenance Team on 01724 296685/6.

8.3 REFERENCES

1. Estate Roads Construction Guide,
Director of Environment & Public Protection, North Lincolnshire Council

2. Town and Country Planning Act 1990,
H.M.S.O. London

3. New Roads and Street Works Act 1991,
H.M.S.O. London

4. Designing for Deliveries 1983,
Freight and Transport Association, Hermes House, St Johns Road, Tunbridge Wells, Kent, TN4 9UZ

5. N.J.U.G Publication No 7 Recommended Positioning of Utilities Apparatus for New Works or New Development in Existing Streets 1997,
National Joint Utilities Group Secretariat, c/o The Electricity Council, 30 Millbank, London, SW1P 4RD

6. Department of Transport Advice Note TD 42/95 - Geometric Design of Junctions,
H.M.S.O. London.

7. Highways Act 1980,
H.M.S.O. London.

8. Department of Transport Technical Memoranda TD 16/93 - Design of Roundabouts
DETR, London

9. Transport in the Urban Environment 1997,
Institute of Highways and Transportation, London

10. Specification for Highway Power Supplies and Street Furniture,
Director of Environment & Public Protection, North Lincolnshire Council.

11. Specification for Highway Landscaping and Planting,
Director of Environment & Public Protection, North Lincolnshire Council.

11. Parking Provision Guidlines for new & change of use developments,
Director of Environment & Public Protection, North Lincolnshire Council.

12. Places, Streets & Movements, Companion Guide to DB 32,
DETR, London.

13. Design Bulletin 32(2), Residential Roads & Footpaths,
DETR, London.

14. Home Zone Guidelines,
Inst. Highway Incorporated Engineers, London.

15. PPG 3, Housing,
ODPM, London.

16. Better Places to Live, Companion Guide to PPG 3,
ODPM, London.

17. PPG 13, Transport Issues,
ODPM, London.

18. Guidance on the use of Tactile Surfaces,
DETR, London.