East Sussex
County Council

LOCAL DESIGN GUIDE
FOR RESIDENTIAL DEVELOPMENT

East Sussex County Council
Communities Economy & Transport
Transport Development Control

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Introduction

This guide has been compiled as a local supplement to the 'Manual for Streets' (MfS1), published in March 2007, which ESCC have accepted as the base document for the design of new residential roads in the County.

In conjunction with the MfS1, it serves to inform Developers of our local preferences and adoption standards and replaces the design section of the rescinded, 'ESCC Manual for Estate Roads'(MFER). It should also be read in conjunction with the forthcoming 'Manual for Streets 2' (MfS2) which we expect to be published in draft form in September 2010. MfS2 is expected to fill the gap between MfS1 and the Design Manual for Roads and Bridges (DMRB).

This guide is brief so that it is more usable and informative, whilst still covering all of the salient issues. It is intended to update and review this guide on a frequent basis, so as to both embrace innovation and reflect the experiences of ourselves and others.

This guide is supported by and should be read in conjunction with the 'ESCC Highway Construction Specification for Developers'. For industrial roads, please refer to our separate guide 'Design Standards for Industrial Roads'.

These documents are both available to view and download on our website at:
www.eastsussex.gov.uk/environment/planning/applications/developmentcontrol/roads.htm

Objectives

The purpose of this guide is to inform Developers of basic layout and construction requirements acceptable to ESCC, when designing new residential streets.

The design of new residential streets has never been more challenging. Developers and Local Planning Authorities are under increasing pressure to meet new housing targets, whilst at the same time seeking higher levels of innovation and quality, in terms of layout, materials and planting design
.
In contrast, Highway Authorities are looking for simplicity and longevity in these aspects, to achieve best value from their maintenance budgets and not to be burdened with unsustainable maintenance liabilities.

In the presence of these contrasting approaches, it is the role of the Transport Development Control team to provide a new design framework for residential streets which satisfies the needs of all stakeholders. This guide therefore sets out to allow creativity and innovation in the planning and implementation of urban street design, but without placing undue burden on either our own budgets or on the Council Tax payers of East Sussex.

To achieve this, we will:

- Be flexible in our approach to adoptable standards, in terms of highway layout and construction.

- Negotiate with Planners and Developers at earliest stages of the development process to clearly identify highway assets that may incur commuted sums.
- Provide consistent advice throughout the development process, from pre-application discussion, through planning and onto construction.
- Adopt the ADEPT guidance 'Commuted Sums for Maintaining Infrastructure Assets' to determine commuted sum values.
- Properly manage commuted sums to ensure that the streetscape is maintained to the design intended and the standard required.

A New Design Framework for Adoptable Streets

Historically, ESCC has strictly adhered to a published set of adoptable standards which above all else, placed emphasis on the simplicity of highway design and the longevity of construction materials.

This approach is well founded, having been developed over many years of highway operation, and is known to fulfil our basic highway requirements. However, it does not blend well with the MfS1 ethos. To overcome this we are proposing a fresh and flexible design framework which allows the old and new approaches to be successfully combined.

In conjunction with our General Design Principles stated below, this guide describes a base standard for all new streets, known as 'ESCC Standard Construction'. This is founded on our traditional preferences for layout and materials as required by our Highway Network Engineers.

However, where desired, this base standard may be enhanced to satisfy the requirements of Developers, Local Planners and Urban Designers. These enhancements will be termed as 'ESCC Non Standard Construction'.

Our interpretation of Standard and Non Standard Construction is defined below.

<u>ESCC Standard Construction</u>

We consider standard construction to be:

- sufficient to perform the basic functions of the highway
- requiring only standard levels of maintenance
- that which does not incur the payment of any commuted sums.

Details of ESCC Standard Construction are listed in Appendix B.

<u>ESCC Non-Standard Construction</u>

We consider standard construction to be:

- in excess of the basic functions of the highway.
- requiring enhanced levels of maintenance
- that which does incur the payment of commuted sums

Details of ESCC Non Standard Construction are listed in Appendix C.

New Private Streets and the Advanced Payments Code (APC)

It is possible for new streets to remain as privately maintained. These roads will still be the subject of design advice at the planning application stage. It is vital that the future maintenance responsibilities are resolved at the planning stage. An obligation (or condition/informative) is required confirming that the developer will not seek adoption of the new streets in future. The maintenance of these streets will be undertaken by a management company set up by the developer.

The Advanced Payments Code (APC) process is not currently enforced in East Sussex as it is found to be ineffective in achieving the aim of adoption of new streets and is particularly resource intensive. A formal policy is being developed to confirm this.

Urban Design

One of the main aims of MfS1 is to develop different street character types on a location specific basis. Not only should these street types be identified by their place and movement functions within the highway network, they should also be heavily influenced by their geographical location within the county.

A companion document is being prepared to this effect which will be added to this Design Guide in due course. In the meantime, Developers should seek advice from our Environmental Advice team, prior to preparing their outline designs. See Appendix A for contact details.

General Design Principles

ESCC supports the MfS1 principles that streets should no longer be designed with the priority on vehicle movement. Developers should seek to submit designs that provide the appropriate balance between 'place' and 'movement', relevant to each street's function within a network.

In preparing their design, the Developer's attention is drawn to the following ESCC requirements:

Minimum Access Requirements

There is no set maximum number of dwellings that may be served by a single vehicular access onto the existing highway network. Each development will be considered on a case by case basis. It is reasonable to expect that developer lead measures to reduce car journeys by 10% would attract a 10% increase on the maximum number of dwellings.

No maximum number of dwellings will apply if the road is to remain in private ownership and without prescriptive highway rights. However, ESCC will require the private status of the access road to be remain in perpetuity, either through a planning condition or S106 Undertaking.

Home Zones/Shared surfaces

MfS1 actively encourages these principles. ESCC therefore accepts shared surfaces for adoption, however, we will be reconsidering our position on this following the further guidance due to be published by the DfT, which is expected later in 2010.

Design Speeds

The design speed for new streets is a key principle to their success in achieving a sense of place. All residential roads should therefore be designed to achieve an 85th percentile speed of 20mph. This may be further reduced to 10mph for certain streets, where vehicle movements are expected to be negligible.

Street Geometry

As far as is reasonably practical, Developers will be expected to comply with following criteria, having particular consideration for the Disability Discrimination Acts of 1995 and 2005 and also the forthcoming Equalities Act 2010, which will largely supersede the former.

- Maximum carriageway gradient 1:10 when measured at the centreline. An increase to 1:8 will be acceptable on the inner radii of bends.
- Maximum footway gradient 1:12
- Maximum gradient of a private access adjoining the highway 1:9
- Visibility Splays as per MfS1 Page 90-91 (up to 37 mph) where applicable, otherwise in accordance with DMRB. (Subject to review following recent planning appeal decisions and forthcoming MfS2)
- Road widths as per MfS1 page 79. Minimum 6m wide on Bus Routes.
- Road widths should be increased on bends and at junctions by providing overrun areas. The dimensions of these may be determined by swept path analysis. (see note below)
- Footway widths (see MfS1 Page 68)– our preference is for a minimum width of 1.2m, with this being increased on a street by street basis dependant on the likely pedestrian volumes and composition.
- Shared use Footway/Cycletrack Width – 3m standard, 2m minimum.
- Cycletracks – Minimum 2m wide, including a 0.5m wide safety strip where they are adjacent to a carriageway.
- Developers must provide a full swept path analysis to prove design layouts can accommodate refuse collection vehicles, buses, pantechnicons, etc. For this purpose, a maximum vehicle size of 11.2m long by 3.7m wide should be used.

Site/Soil Investigation Reports

Site/soil investigation reports must be provided for all sites proposed for adoption. An interpretive report only will not be accepted.

Road Hierarchy

The road hierarchy as previously described in the rescinded MFER no longer applies to new streets. Please refer to MFS1 Section A Part 2, which makes recommendations on how the function of streets are defined by their Design Code.

Car and Cycle Parking

Parking provision shall be in accordance with ESCC's Supplementary Planning Guidance 'Parking Standards at Development', published in 2002.

Servicing
Please refer to MFS1 Section C Part 6, Page 62

Traffic Signs and Road Markings
To promote a sense of place, Developers should as far as possible 'design out' the need for traffic signs and road markings. A combined highway lighting/signage drawing will be required as part of the technical approval process to eliminate any duplication of supports.

Inclusive Design
In accordance with the Disability Discrimination Acts of 1995 & 2005, the Developer will be expected to demonstrate that this design element has been fully considered and that all reasonable measures have been taken.

Highway Structures
All publicly owned and maintained highway structures within East Sussex are referred to as 'County Structures'. The definition of a County Structure, is that which:

- carries the adopted highway (i.e. a bridge, culvert, tunnel, subway or water retaining structure), and/or
- passes over the highway (i.e. a footbridge, accommodation bridge, bridleway/ cycle bridge or gantry), and/or
- supports the highway laterally (i.e. a retaining wall, reinforced earth embankment)
- All cattle grids within the publicly maintainable highway

The process for the adoption of a new structure as a County Structure is rigorous and requires specific expertise. As such, much of the technical liaison during the adoption process will take place directly between the Developer and the ESCC Structures Team, but will be facilitated by Transport Development Control.

ESCC operate the 'Approval in Principal' process in accordance with the Design Manual for Roads and Bridges. Developers will be expected to accord with this process to secure technical approval of the structure prior to its construction

Highway Lighting
Our preference is for all new developments to be provided with an adoptable system of energy efficient street lighting. However, unless there is an overriding highway safety issue, the decision on the level of street lighting rests with the relevant Town or Parish Council. This level of street lighting is normally decided in conjunction with the Local Planning Authority at the outline design stage. Some parishes prefer a low level of lighting or even none at all, in order to maintain the character of their rural villages.

For highway safety reasons, ESCC insist upon adoptable standard lighting being provided at new junctions on A class, B class & some important C class roads and also at all roundabouts and mini-roundabouts.

Historically, the implementation of highway lighting systems designed by outside consultants has frequently been problematic and resulted in delays and additional costs to the Developer. For this reason, we insist that all lighting designs must be procured through our own Highway Lighting Team, for which we will make a reasonable charge. Contact details for our highway lighting team are shown in Appendix A.

Adopted Non-standard columns will not be replaced like with like by ESCC, unless a commuted sum is available to cover our additional costs. Lighting units attached to buildings are unacceptable for adoption.

Developers must provide a combined signing/highway lighting drawing as part of their technical submission. This will allow our design check to identify unnecessary sign posts and reduce the number of connections required to the network providers electricity supply.

Trees and Planting Design

From the variety of our consultation responses, this is clearly a controversial area of street design, but it is also among the most significant in its potential to influence the streetscape. Some consider the provision of trees and other planting as an essential part of a high quality streetscape and yet others are rightfully wary of the potential maintenance implications.
We will need further time to develop this element of our design guidance, but for the time being please note the following advice.

The type, size and position of all trees and planting will ultimately be decided by the Local Planning Authority, but it is suggested that Developers liaise with our Environmental Advice team to discuss proposals for the highway.
Trees will normally be limited to native species. Some acceptable species are Silver Birch, Paper Birch, Hawthorn and Italian Alder.

A detailed planting specification must be submitted as part of the technical approval process. This includes private areas adjacent to the highway where the potential for visibility splay encroachment, obstruction and root invasion should be designed out.

Planted areas within the public highway are not usually maintained as highway assets. Provision for the future maintenance of these areas will need to be agreed between the Developer and the appropriate District or Borough Council.

It is suggested that Developers liaise with our Environmental Advice team to discuss possible landscaping options.

Street Furniture

MfS1 indicates how street furniture may be beneficial to the streetscape, but gives no advice on how it should be maintained in the future. We will therefore consider adoption of these items on a site by site basis.

Sustainable Modes of Transport

As a predominantly rural county there is a heavy reliance upon the motor car as means of travel around the County. Our emerging Local Transport Plan 3 is focused on constantly improving travel choices, improving accessibility and taking active steps to tackle climate change.

It is therefore essential that new developments provide links to existing pedestrian, cycle and public transport facilities, all of which will encourage sustainable modes of transport and reduce reliance upon the motor car.

MfS1 already covers this subject in some detail and we wholly support the design guidance therein.

Safe Cycle Routes

Cycle Routes must be provided in accordance with the ESCC Cycling Strategy and a COPECAT Audit must be provided as part of the Developer's detailed design submission. Further details may be found on our website at: http://www.eastsussex.gov.uk/roadsandtransport/localtransportplan/transportplans/cyclingstrategy.htm

Bus Routes & Facilities

Early discussions with our Passenger Services team are essential to maximise the opportunity for financially sustainable bus service provision. This may have a significant influence on the proposed Movement Framework of the development.

As part of the Movement Framework process, designers should strive to achieve a maximum walking distance of 400m to bus stops. In addition, we require high level access kerbs to be provided at all new bus stops, in accordance with our Construction Specification.

Bus Shelters are an important consideration, particularly on key routes, although there is currently no daily passenger number threshold at which they should become compulsory. Within East Sussex, Bus Shelters eventually become the responsibility of the Town or Parish Council and their local preferences should be established in each case.

Sustainable Urban Drainage Systems (SUDS)

MfS1 encourages the use of SUDS and we support this approach. The issue of future maintenance is a key concern and responsibilities for this are currently being debated following the recent enactment of the Flood and Water Management Bill.

ESCC will consider the adoption of SUDS on a site by site basis provided they are provided solely for highway run-off and are designed in accordance with the SUDS Manual (CIRIA C697).

Highway Drainage

New connections to the existing highway drainage system may be accepted as a 'last resort' and only where the Developer can demonstrate that there is sufficient downstream capacity and no increased flood risk. In all cases, the final decision to accept a new connection will be made by the Head of Highway Operations.

No private drainage waters will be accepted onto the highway or directly into the highway drainage system. The Developer will be required to show that such measures have been provided to prevent this.

Utilities, Mains and Services

All mains and services should be located within the adoptable highway, unless otherwise agreed with the relevant statutory undertaker. They should be installed within the footway (where provided) or otherwise within a dedicated service strip located alongside the carriageway. The nominal width of footways/service strips should be 1.8m, although this may be reduced to a minimum of 1m for short distances. The siting of service strips within the carriageway creates many complications and should be avoided.

Private services within the adoptable highway will require a Section 50 licence under the New Roads and Streetworks Act 1991, to be issued upon adoption.

Traffic Signals and Traffic Information Systems

These design items are rare within new residential developments, but are more common on the associated highway improvement schemes. All new installations shall comply with the ESCC Traffic Signal specification, which is available on our website at:
www.eastsussex.gov.uk/NR/rdonlyres/E51FC964-9045-492F-BAD0-48D12B9E0DCE/0/traffic_signal_design_install.pdf .

Health and Safety Matters

Construction (Design and Management Regulations) 2007

For the avoidance of doubt, the role of ESCC in the detailed design and technical approval process does not constitute that of either 'Client' or 'Designer' under the CDM Regulations 2007. ESCC's role is solely to advise and assist Developers to comply with our guidance and not to make specific design decisions, recommendations or risk assessments.

Road Safety Audits (RSAs)

ESCC does not require RSAs to be carried out on new roads proposed for adoption under a Section 38 Agreement, however, we reserve the right to require a RSA in specific situations.
A four stage RSA is compulsory for all works undertaken by S278 Agreement, although exceptions may be made at the Director's discretion where the works are minor or simple in nature.

Legal and Conveyencing Matters

Kerbing Easements

An unedged, 0.5m wide strip for future access for kerb maintenance shall be provided behind new kerblines where there is no footway or service strip present. Access shall be secured by way of a Deed of Easement, which the Developer will be expected to provide for each affected property.

Drainage Easements

Adoptable highway drainage assets may be located on private property if a Deed of Easement is provided by the Developer to ensure our future access in perpetuity.

A 6m easement width is required for drains up to 600mm diameter which may be centred on or offset from the centreline of the pipe.

APPENDIX A – ESCC/EBC/HBC - STAFF CONTACT DETAILS

Transport Development Control

Team Manager	Lawrence Stringer 01273 482251 lawrence.stringer@eastsussex.gov.uk
Senior Technical Officer	Claire Warwick 01273 482239 claire.warwick@eastsussex.gov.uk
Principal Engineers by Area	
Lewes DC and Rother DC	James Hore 01273 482254 james.hore@eastsussex.gov.uk
Wealden DC	Nathan Hancock 01273 482253 nathan.hancock@eastsussex.gov.uk
Eastbourne and Hastings BCs	Alex Jack 01273 482284 alex.jack@eastsussex.gov.uk

Other Contacts

Highway Lighting & Traffic Signals	Simon Hall Team Manager-Street Lighting & Traffic Signals 0345 60 80 193 Lighting.signals@eastsussex.gov.uk
Environmental Advice	Virginia Pullen County Landscape Architect 01273 482639 Virginia.pullan@eastsussex.gov.uk
Construction (Area 1)	Simon Marchant (Construction Manager) 01273 481436 simon.marchant@eastsussex.gov.uk
Construction (Area 2)	Stuart Watt (Construction Manager) 01323 463974 stuart.watt@eastsussex.gov.uk
Construction (Eastbourne BC)	Graham Kemp (Highway Manager) 01323 410000 graham.kemp@eastsussex.gov.uk
Construction (Hastings BC)	Derek Ireland (Highway Manager) 0845 274 1071 derek.ireland@eastsussex.gov.uk

APPENDIX B – ESCC STANDARD CONSTRUCTION (1 of 3)

(To be read in conjunction with the ESCC Highway Construction Specification for Developers)

Carriageway Construction

We have specified two types of standard carriageway construction for residential streets, depending on their primary function as identified in their respective Design Codes. These may described as Movement Priority and Place Priority. Minimum sub base thicknesses are shown below, but actual values should be determined based on site measured CBR values and agreed with ESCC prior to construction.

Movement Priority Street

Surface course	40mm thick HRA 55/14 F surf 40/60
Binder course	60mm thick AC20 dense bin 40/60
Roadbase	100mm thick AC32 dense base 40/60
Sub Base	Type 1 Granular Sub Base – minimum 150mm thickness

Place Priority Street

Surface course	25mm thick HRA 30/10 F surf 40/60
Binder course	50mm thick AC20 dense bin 40/60
Roadbase	75mm thick AC32 dense base 40/60
Sub Base	Type 1 Granular Sub Base - minimum 100mm thickness

Notes

1. Recycled capping and sub base materials may be acceptable as standard construction, subject to receipt of a satisfactory test certificate and visual site inspection.

2. The surface appearance and texture of bituminous surfaces may be varied by the use of coloured asphalts and chippings.

3. Asphalt Concrete surface course material may be substituted for the Hot Rolled Asphalts shown above, however, the Developer will be charged the equivalent cost of the first Surface Dressing Treatment, upon adoption.

4. Proprietary Surfacing materials may only be used with the agreement of ESCC.

Footway Construction

Standard footway construction is the same for all streets and should comprise:

Surface course	25mm thick HRA 15/10 F surf 40/60
Binder course	45mm thick AC20 dense bin 100/150
Sub Base	100mm thick - Type 1 Granular Sub Base

APPENDIX B – ESCC STANDARD CONSTRUCTION (2 of 3)

Note
Asphalt Concrete surface course material may be substituted for the Hot Rolled Asphalt shown above; however, the Developer will be charged the equivalent cost of the first Slurry Seal Treatment, upon adoption.

Cycleway/Vehicle Crossover Construction

Surface course	25mm thick HRA 15/10 F surf 40/60
Binder course	45mm thick AC20 dense bin 100/150
Sub Base	150mm thick - Type 1 Granular Sub Base

Note
Asphalt Concrete surface course material may be substituted for the Hot Rolled Asphalt shown above, however, the Developer will be charged the equivalent cost of the first Slurry Seal Treatment, upon adoption.

Kerbing
All Precast concrete kerbs and edgings to BS EN 1340

Modular Paving
Tactile paving units with dimensions 400mm x 400mm x 65mm thick.
These must be coloured red at controlled crossings and buff elsewhere.
Stick on type tactile paving is not acceptable.

Drainage
- That discharges directly to an adopted Southern Water sewer or watercourse.
- Precast concrete pipes and gully pots
- Ironwork to BS EN 124
- Twin wall plastic pipes will only be permitted by agreement.

Highway Lighting
- Standard ESCC Lighting column and fittings
- Illuminated Traffic Signs and Bollards

Traffic Signs and Road markings
- All standard signs and road markings in accordance with TSRGD 2002.

Traffic Signals and Information Systems
- In accordance with the ESCC Specification for Traffic Signals.
- unlike all other standard construction types, signals are liable for the payment of a commuted sum, which is calculated in accordance with TA84/06 of the DMRB which takes into account whole life costing over a 15 year design life.
- Vehicle Activated Signs

APPENDIX B – ESCC STANDARD CONSTRUCTION (3 of 3)

Street Furniture

- Highway Fencing (see standard drawings)
- Pedestrian Barriers
- Road Restraint Systems
- ESCC standard type Cast Iron Bollards
- Dolly Posts
- Verge Markers
- Bus Stop Poles and Flags

Landscaping and Planting

- Grass verges

APPENDIX C – ESCC NON STANDARD CONSTRUCTION (1 of 2)

All of the construction types and assets listed below are regarded by ESCC as an enhancement to the basic function of the highway. They will therefore attract the payment of a commuted sum to cover our extraordinary maintenance costs over their expected design life.

For commuted sum values, please refer to Appendix E.

Carriageway Surfacing

- High Friction Surfacing
- Modular, Block and Brick Paving
- Specialist Surfacing

Footway Surfacing

- Modular, Block and Brick Paving
- Specialist Surfacing

Kerbing

- Granite Setts
- Other conservation/decorative units

Drainage

- SUDS systems
- Soakaways
- Deep borehole soakaways
- Attentuation tanks
- Piped Attenuation
- Hydrobrakes
- Slotted drains
- In Kerb Drainage Systems

Highway Lighting

- Ornamental columns
- Any non-standard ESCC lighting columns

Traffic Signs and Road markings

- Special signs and road markings requiring Secretary of State approval

Structures

- Bridges
- Culverts
- Retaining walls
- Headwalls
- Cattle Grids

APPENDIX C – ESCC NON STANDARD CONSTRUCTION (2 of 2)

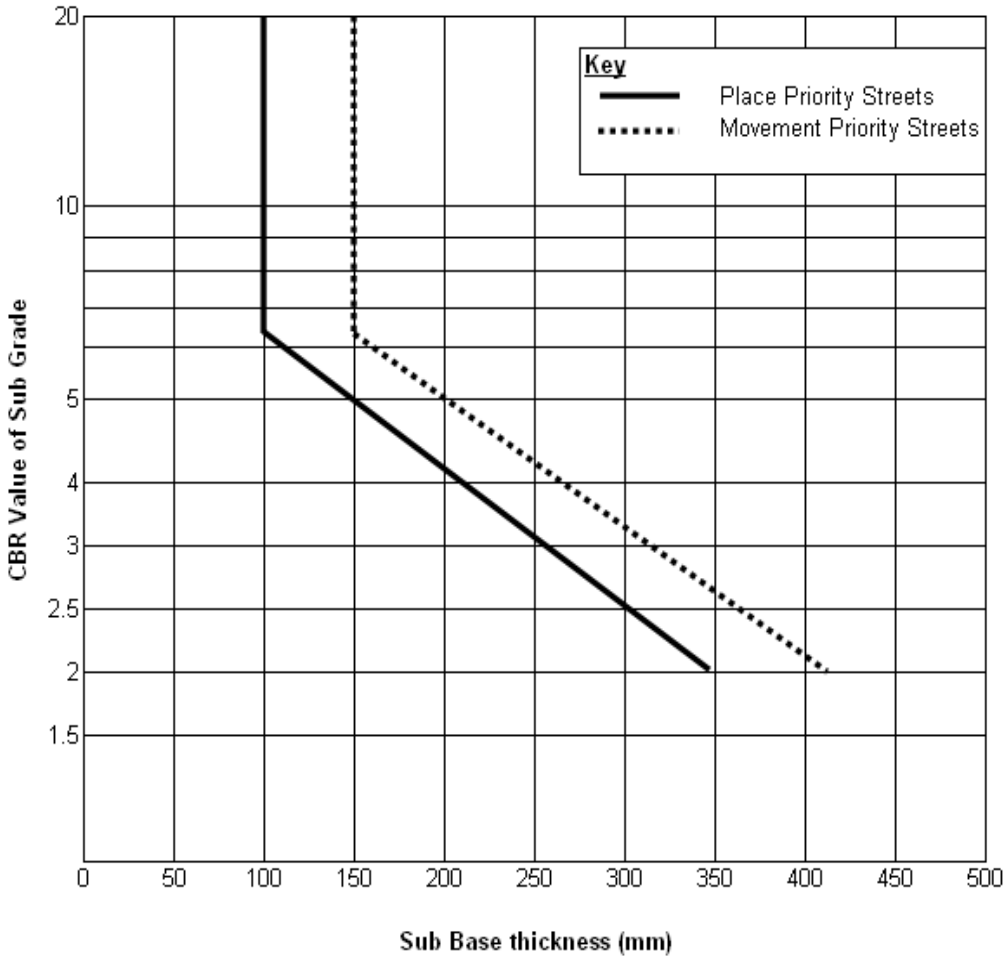
Trees and Landscaping

- Any approved species of tree, hedge or shrub
- Planted Areas, Planters and Raised Beds
- Tree Pits, Gratings, Supports and Protection

Street Furniture

- Decorative, Ornamental or Amenity Fencing
- Acoustic Barriers
- Ornamental Bollards
- Cycle Racks and Storage
- Bus Shelters
- Village Gateway Features

APPENDIX D – SUB BASE THICKNESS CHART



Note

For CBR values less than 2, use the sub base thickness value for a CBR of 2 and supplement with geotextile membrane.

APPENDIX E – COMMUTED SUM VALUES (1of 3)

Notes

- Unless stated otherwise below, the default period for the design life of 'non-standard' construction assets has been set at 60 years. This accords with the ADEPT Guidance 'Commuted Sums for maintaining Infrastructure Assets', published in November 2009.

- Traffic Management costs are included within the sums shown.

- Undertaking asset inspections at an appropriate frequency is key to keeping down our maintenance costs and consequently the commuted sum values. Our inspection charges have therefore not been included within the sums below, but will be calculated on a site specific basis, assuming a current hourly rate of £31/hr.

ESCC Non Standard Construction	Commuted Sum Value
Carriageway Surfacing	**Design Life 25 years for all surfaces**
High Friction Surfacing	£12 per square metre (grey and buff) £15 per square metre (red and green)
Block and Brick Paving	£8.50/m2
Specialist or Decorative Surfacings	Cost of inspection and maintenance over 25 years; amount determined on a scheme specific basis.
Footway Surfacing	**Design Life 25 years for all surfaces**
Block and Brick Paving	£8.50/m2
Other Modular paving	Cost of inspection and maintenance over 25 years; amount determined on a scheme specific basis.
Kerbing	
Granite Setts	£18 per linear metre
Conservation/Decorative units	Cost of inspection and maintenance over 25 years; amount determined on a scheme specific basis.
Highway Lighting	
Any non-standard lighting equipment	Cost of inspection, maintenance and replacement over 60 years, to be calculated on a scheme specific basis.

APPENDIX E – COMMUTED SUM VALUES (2 of 3)

Drainage	
SUDS systems	The overall cost of inspection & maintenance over a 60 year period will be determined on a site specific basis, using the values below as a basis.
Permeable Paving	£17 per square metre
Soakaways (upto 5m deep)	£4000
Deep borehole soakaways	£2000
Attenuation tanks	£600 per cubic metre
Oil Interceptor / Bypass Separator	£5000
Piped Attenuation (300 to 600mm dia.)	£200 per linear metre
Hydrobrakes	£3000
Slotted drains	£50 per linear metre
In Kerb Drainage Systems	£50 per linear metre
Trees and Landscaping	
Approved species of Tree	£300 each
Planted Areas and Raised Beds	£50 per square metre
Tree Pits Gratings Supports & Protection	£300 each
Street Furniture	**Design Life 30 years**
Decorative or Ornamental Fencing Acoustic Barriers Ornamental Bollards Village Gateway Features	**}** **}** **}** **}** Present value replacement cost **}** **}** **}**
Traffic Signs and Road markings	
Special signs and road markings requiring Secretary of State approval	Cost of inspection, maintenance and replacement over 60 years, to be calculated on a scheme specific basis.

APPENDIX E – COMMUTED SUM VALUES (3 of 3)

Structures All Structures	**Design Life 120 years** Cost of inspection and maintenance over a 120 year period and the replacement cost 120 years hence.
Traffic Signals & Vehicle Activated Signs	**Design Life 15 Years** Calculated in accordance with DMRB document TA 84/06