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LUTON BOROUGH COUNCIL

HIGHWAY STANDARDS

2009 – Anti Skid

2009 – Bollards

LOCAL TRANSPORT POLICY

2003 – Bus Strategy

2003 – Parking Strategy

2003 – Walking Strategy

2005 – Road Safety Strategy

2005 – School Travel Plan Strategy

2005 – Signing Policy

2006 – Accessibility Strategy

2006 – Motorcycle Strategy

2006 – Speed Management Strategy

2006 – Transportation Strategy 2020
2006 – Highway Maintenance Plan

2006 – Cycling Strategy

2006 – Local Transport Plan

GUIDANCE

2003 – Area Studies Criteria

2003 – Pedestrian Assessment Criteria

2009 – Safety Audit Policy
DEPARTMENT FOR TRANSPORT

TRAFFIC ADVISORY LEAFLETS

TAL 08/89 – Innovatory Cycle Scheme Manchester
Draws attention of highway authorities to measures which can help implement beneficial traffic conditions for cyclists, illustrated by the case study of Mancunian Way/Fairfield Street junction in Manchester.

TAL 03/90 - Urban Safety Management Guidelines from IHT
Draws attention of those involved with road safety to the advice in guidelines for urban safety management.

TAL 03/91 - Speed Control Humps - Scotland, England and Wales
Provides advice on the use of road humps as a traffic calming feature under the Highways (Road Humps) Regulations 1990 and the Road Humps (Scotland) Regulations 1990.

TAL 07/91 - 20mph Speed Limit Zones
Illustrates the main steps in the procedures for the implementation of 20mph zones. It provides brief details on: the approval process of 20mph zones; the signing for such zones; possible speed restraint features.

TAL 03/93 - Traffic Calming Special Authorisations
Discusses the circumstances in special authorisation for traffic calming measures will be required, with regard to road humps, traffic calming features, traffic signs and road markings.

TAL 04/93 - Pavement Parking
Describes some of the physical measures that can prevent or deter parking on the pavement.

TAL 07/93 - Traffic Calming Regulations
Provides an explanation of the Highways (Traffic Calming) Regulations 1993 and offers guidance on the use of measures prescribed in the regulations.

TAL 08/93 - Advanced Stop Lines for Cyclists
Summarises the findings of studies to monitor trial installations of Advanced Stop Lines for cyclists (ASLs); provides basic design details for two different layouts; and suggests possible further developments.

TAL 09/93 - Cycling in Pedestrian Areas
Draws attention to the results of a study which looked to establish whether conflicts resulted from the sharing of space by pedestrians and cyclists where motor vehicular movements in the highway had been reduced or removed.

TAL 10/93 – Toucan An Unsegregated Crossing for Pedestrians and Cyclists
Provides advice on the design and use of the Toucan signal controlled crossing, and describes future developments.

TAL 11/93 – Rumble Devices
Provides an explanation of the dimensions of rumble devices given in the Traffic Calming Regulations, and offers advice on appropriate uses for these features.
**TAL 12/93 – Overrun Areas**
Provides advice on seeking special authorisation for design of overrun areas that go outside of the dimensions set down the Traffic Calming Regulations.

**TAL 13/93 – Gateways**
Provides advice on the use of gateways which have been adapted for use as a traffic calming measure.

**TAL 01/94 – VISP Summary**
Summarises the findings of the VISP (Village Speed Control Working Group) report which investigated measures for constraining the speed of vehicles passing through villages.

**TAL 02/94 – Entry Treatments**
Discusses entry treatments which have been developed for use to distinguish between roads of different character, particularly design, vertical deflections, materials, carriageway narrowings, bollards, signing, speed reduction, kerb radii, planting, costs, as well as their use for pedestrians and cyclists.

**TAL 04/94 – Speed Cushions**
Discusses speed cushions, particularly their development, on-road trials, parking, speeds, driver behaviour, location and noise.

**TAL 07/94 – Thumps Thermoplastic Road Humps**
Discusses thermoplastic road humps, otherwise known as 'thumps', providing guidance and advice for their use.

**TAL 09/94 – Horizontal Deflections**
Summarises the information currently available on horizontal deflections, including speed control, signing, line markings, crossing conditions, road hump schemes, consultation, track trials, appearance, planters, visibility and the implications for cyclists.

**TAL 11/94 – Traffic Calming Regulations (Scotland)**
Provides an explanation of the Roads (Traffic Calming) (Scotland) Regulations 1994 and offers guidance on the use of measures prescribed in the regulations.

**TAL 02/95 – Raised Rib Markings**
Provides advice on the use of raised rib markings on all purpose roads with special reference to the needs of pedestrians, cyclists and motor cyclists.

**TAL 03/95 – Cycle Routes**
Summarises the findings of the Cycle Routes programme, which set out to investigate the safety benefits of cycle routes.

**TAL 04/95 – SCOOT Urban Traffic Control System**
Draws attention of highway authorities to the possible advantages and benefits of installing SCOOT, an urban traffic control system.

**TAL 05/95 – Parking for Disabled People**
Provides advice to local authorities, car park owners and operators for the provision of car parking for those with all of types of mobility difficulty.

**TAL 06/95 – Pedestrian Crossing – assessment and design**
Introduces two Local Transport Notes, which are 1/95: Assessment of pedestrian crossings and 2/95: Design of pedestrian crossings.
TAL 07/95 – Traffic Islands for Speed Control
Reviews the range of circumstances in which traffic islands can be used for traffic calming to control vehicle speeds.

TAL 08/95 – Traffic Models for Cycling
Summarises lessons learnt from a study which investigated the use of traffic modelling as a tool for developing cycle routes.

TAL 01/96 – Traffic Management in Historic Areas
Highlights how traffic engineering and highway improvements can be design sensitively in historic areas.

TAL 02/96 – 75mm High Road Humps
Highlights the findings of studies into the height of road humps and the incidence of vehicles grounding on the humps.

TAL 03/96 – Bike and Ride
Summarises research which investigated the value of bike and ride schemes in encouraging combined cycle-public transport trips.

TAL 04/96 – Traffic Management and emissions
Summarises research which investigated the effects of different traffic management techniques on the environment, with an emphasis on the implications for air quality.

TAL 05/96 – Further Development of Advanced Stop Lines
Offers additional design advice based on the findings of further research into the use of Advanced Stop Lines for cyclists (ASLs). The research investigated the effect of different layouts on the turning movements and floors of both cyclists and motor vehicles. The position of the approach cycle lane, and the signal timings at the junction, were the main variables.

TAL 06/96 – Traffic Calming Traffic and Vehicle Noise
Outlines research which investigated the effects of traffic calming measures on traffic noise and other environmental impacts with the aim of offering advice on limiting adverse noise effects.

TAL 07/96 – Highways (Road Humps) Regulations 1996
Provides general advice on the use of road humps under the Highways (Road Humps) Regulations 1996.

TAL 08/96 – Road Humps and Ground-Bourne Vibrations
Summarises the investigations into the possible effects of road humps on vehicle generated ground-borne vibrations, particularly from commercial vehicles, such as HGVs.

TAL 01/97 – Cyclists at Road Narrowings
Provides design advice for traffic calming features, particularly those that involve narrowing of the carriageway, for the benefit of cyclists.

TAL 02/97 – Traffic Calming on Major Roads
Describes the impact of a comprehensive set of traffic calming measures supporting a change of speed limit from 40mph to 30mph on the A49 trunk road in the village of Craven Arms in Shropshire.

TAL 07/97 – Supply and Demand for Cycle Parking
Offers advice for practitioners to assist in the choice of suitable locations for on-street cycle parking.
**TAL 09/97 – Cyclists at Roundabouts Continental Design Geometry**
Considers the engineering measures available that can improve the safety, convenience and attractiveness of roundabouts to cyclists.

**TAL 10/97 – Halifax Historic Core Zone**
Reports on the scheme installed in Crossley Street in the centre of Halifax. It gives an overview of the scheme as a whole and details of its component elements.

**TAL 11/97 – Cycling to Work**
Gives advice and guidance to employers on the good practice that is developing in the UK. It also refers to the co-ordination role that local authorities can play in stimulating changes to make cycling an attractive means of travel to work for more people.

**TAL 12/97 – Chicane Schemes**
A study was carried out to obtain further information to assist in the design of chicanes. This leaflet summarises the results of the study.

**TAL 01/98 – Speed Cushion Schemes**
Describes the results of a study of 34 speed cushion schemes installed by various local authorities in England.

**TAL 02/98 – Lincoln Historic Core Zone Newport Arch**
Reports on a scheme installed at Newport Arch in Lincoln.

**TAL 06/98 – Contraflow Cycling**
Gives advice on the range of traffic environments and circumstances in which various options for permitting cycling in the contraflow direction in one way streets may be appropriate.

**TAL 07/98 – Cycle Audit and Review**
Introduces and summarises the recently published ‘Guidelines for cycle audit and cycle review’.

**TAL 08/98 – High Street Route, Shrewsbury**
The historic core zones was initiated to investigate how traffic management schemes can be designed to suit areas that have a special historic character. This leaflet is based on TRL research fully described in TRL report 374.

**TAL 09/98 – Sinusoidal, ‘H’ & ‘S’ Road Humps**
Provides interim advice on investigations that have been made into three types of road hump; sinusoidal profile road humps, H shape road humps, and S shape road humps.

**TAL 01/99 – Monitoring Local Cycle Use**
The purpose of this leaflet is to offer general guidance on monitoring cycle use locally.

**TAL 02/99 – Leigh Park Area Safety Scheme, Havant, Hampshire**
The purpose of this leaflet is to offer general guidance on monitoring cycle use locally.
TAL 05/99 – Bikerail Combined Journeys by Cycle and Rail
Looks at how Local Authorities might develop bike rail in within Local Transport Plans.

TAL 06/99 – Cycle Parking – Examples of good Practice
Highlights a number of cycle parking initiatives taken by local authorities and others which appear to be good practice that others might follow.

TAL 09/99 – 20 mph Speed Limits and Zones
The purpose of this leaflet is to provide advice on how and where to implement 20mph speed limits and 20mph zones.

TAL 11/99 – Improved Cycle Parking at South West Train Stations in Hampshire
Presents a brief outline of a project which aimed to increase the level of cycle use between residential and employment areas of Hampshire, as well as designated rail stations, through better cycle parking facilities.

TAL 12/99 – Cycling for Better Health
Summarises the results from a cycling and health experiment carried out by Allott and Lomax and the Policy Studies Institute.

TAL 13/99 – Historic Core Zone Bury St Edmunds
Reports on two schemes in the historic centre, one comprising Hatter Street and Whiting Street, and the other Crown Street and Chequer Square.

TAL 14/99 – Traffic Calming on Major Roads
Summarises the impact of a traffic calming scheme on two roads at Costessey, Norfolk.

TAL 15/99 – Cyclists at Road Works
The safety of cyclists at road works was examined as part of a wider research study of cycling schemes by the TRL.

TAL 01/00 – Traffic Calming in Villages on Major Roads
The criteria for schemes in this study were that traffic flows should be greater than 8,000 vehicles per day and heavy goods vehicles should form at least 10% of the flow. The overall objective of the project was to see if schemes could be designed that would reduce the 85th percentile speed of vehicles to no more than relevant speed limit at each site. This leaflet summarises the results.

TAL 02/00 – Framework for a Local Walking Strategy
Aims to help local highway authorities to prepare their local walking strategies. It complements the guidance in 'Encouraging walking; advice to local authorities' and describes the minimum actions needed for a strategy to achieve measurable change.

TAL 06/00 – Monitoring Walking
A summary of the Institute of Highways and Transportation report - Providing for journeys on foot.

TAL 08/00 – Bus Priority in SCOOT
Amplifies advice given in TAL 7/99, regarding the effects that SCOOT gating can have upon traffic inflow, especially buses, into sensitive areas.
TAL 10/00 – Road Humps: Discomfort, Noise and Ground-borne Vibration
Provides a summary of the trials undertaken regarding road humps - discomfort, noise and ground borne vibration.

TAL 11/00 – Village Traffic Calming
Summarises the results of research undertaken to assess the effect on accidents of traffic calming measures in a number of villages.

TAL 12/00 – Urban Street Activity in 20 mph Zones
Summarises the results found in the 20 mph zone installed in the Ayres Road area of Old Trafford.

TAL 01/01 – Puffin Pedestrian Crossing
Introduces the Puffin crossing. It describes both the operation of the crossing and how it is intended to be integrated into existing traffic control systems.

TAL 02/01 – Bus Based Park and Ride
Provides planning and design advice to authorities considering implementing, expanding or improving bus-based park and ride systems. It moves from assessing demand and choosing an appropriate site, to designing the scheme, preparing a case for funding, managing day-to-day operation and monitoring the impacts.

TAL 03/01 – Urban Street Activity in 20 mph Zones
Covers one of six 20 mph zones. The investigation carried out covered vehicle emissions, travel modes and street activities, within the zone itself and in the immediate area surrounding it. The project also examined the perceptions and attitudes of residents to any changes that had arisen.

TAL 06/01 – Bus Priority
Summarises results from a number of DETR research projects examining how improvements to the bus priority network can assist in achieving sustainable transport.

TAL 01/02 – Installation of Puffin Pedestrian Crossings
Recommends good practice that should be followed when installing a Puffin crossing and other crossings using near side signals.

TAL 02/02 – Motorcycle Parking
Contains advice to Highway Authorities and other providers of parking facilities. It sets out how the needs of users can be met effectively by making available high quality, secure and accessible parking for motorcycles, offering a source of practical information, drawing on the experience of a number of UK local authorities.

TAL 04/02 – Benchmarking of Local Cycling Policy
Examines an initiative launched by the Cyclists’ Touring Club (CTC) to adapt the technique of benchmarking to support local authorities in the implementation of their cycling policies. The process involves assessing policy and practice to determine what actually works in encouraging cycling in the UK context. Also considers all aspects of cycling policy, from promotion to engineering design, and from training to maintenance of cycle tracks.

TAL 05/02 – Key Elements of Cycle Parking Provision
In the absence of formal parking provision, cyclists often use railings and other fixed structures as a securing point for their bikes. The existence of bikes parked in such a way is usually evidence of a distinct need for cycle parking. This leaflet aims to provide best practice on cycle parking provision, management and location. It draws on a report produced by Dave Holladay of Transportation Management Solutions, for Southampton City Council.
TAL 06/02 – Inclusive Mobility
Introduces the issues covered in the Department for Transport (DfT) publication Inclusive mobility: A guide to best practice on access to pedestrian and transport infrastructure. The full document contains technical advice on all the topics covered in this leaflet: it will be of interest to transport professionals involved in improving the transport environment and for those seeking to meet obligations under the Disability Discrimination Act 1995.

TAL 04/03 – Parking Guidance and Information
Provides local authorities with an overview of parking management system components and the benefits that can be achieved through their deployment.

TAL 05/03 – Public Transport Priority
Provides an overview of the various components that combine to provide Public Transport Priority, and show how these can be integrated into other traffic management systems.

TAL 07/03 – Public Transport Information
Public transport information systems provide travellers with journey planning and in journey information. The systems combine information gathering, processing, communication and delivery technologies to provide a service. Provides an introduction to Public Transport Information Systems and the benefits that can be achieved through their deployment.

TAL 13/03 – Leicester – Star Trak Real Time Information System
Intelligent Transport Systems (ITS) is a Department of Transport (DfT) initiative to promote information gathering, processing, communication and delivery technologies to provide an integrated transport logistics service. Star Trak is an intelligent transport system which tracks the position of buses using GPS systems, and uses this information to predict their time of departure and is displayed at bus stops, on LED signs, along their routes.

TAL 01/04 – Village Speed Limits
Seeks to give examples of the measures available to encourage compliance with the standard speed limit of 30 mph in villages. This guidance may be suitable for those villages situated on primary routes.

TAL 02/04 – Rural Traffic Calming
In Bird Lane designation as a Quiet Lane was considered. However, the high levels and speed of traffic, the perceived risks to non-motorised users, and the lack of other roads to make into a quiet lanes network, meant that designation was not considered an option. A single track with passing places scheme was decided on as the best available option.

TAL 04/04 – Bike and Rail – A Good Practice Guide
Publicises the "Bike and Rail - A Good Practice Guide" by Countryside Agency (CA) and Department for Transport (DfT). This guidance informs on a number of projects and gives practical advice to those working to deliver projects.

TAL 01/05 – Rumblewave Surfacing
Describes a traffic calming surface profile that has been developed as a quieter alternative to conventional rumble strips, and is considered suitable for residential areas.

TAL 05/05 – Pedestrian Facilities at Signal-Controlled Junctions
Describes the main options in providing pedestrian facilities at signal-controlled junctions.

TAL 06/05 – Traditional Direction Signs
Offers advice on the use, repair and conservation of traditional direction signs and guidance on their reintroduction in appropriate locations.
TAL 01/06 – General Principles of Traffic Control by Light Signals
The primary purpose of traffic control by light signals is to separate conflicting traffic by the division of time, within the available road space, in a safe, efficient and equitable manner. This document covers aspects of signal posts and signal displays, green arrow light signal displays, substitute green arrow signal, additional green arrows, amber arrows, signals for light rapid transit systems (LRTs or trams), wig-wag signals and street lighting.

TAL 01/06 – Understanding the Benefits of Intelligent Transport Systems – A Toolkit Approach
Presents an overview of the Department for Transport’s ITS toolkit. Explains how authorities can relate their own objectives to an investment in ITS. Highlights some of the tools available and the benefits that can be achieved.

TAL 02/06 – Speed Assessment Framework
To set more appropriate local speed limits, which reflect the needs of all road users and hopefully will improve the quality of life for local communities.

TAL 03/06 – High Occupancy Vehicle Lanes
Reviews the pioneering projects which have allowed existing bus lanes to be used as high occupancy vehicle (HOV) lanes in Leeds and South Gloucestershire. Provides guidance on conversion and considers some of the alternatives available, including projects that encourage changing travel behaviour such as car sharing. Includes scheme descriptions, legal issues, signing, monitoring and evaluation, safety and enforcement.

TAL 01/07 – Emergency services Traffic Calming Schemes Code of Practice
Discusses how best to consult with the emergency services when introducing and implementing traffic calming measures. Covers emergency strategic routes, available measures and annual traffic liaison meetings.

TAL 02/07 – Use of Bus Lanes by Motorcycles
Examines the policy, safety, signing, regulatory, consultation, monitoring, enforcement and maintenance aspects to be considered by local highways or traffic authorities when deciding whether it is safe and feasible for motorcycles to use bus lanes.

TAL 01/08 – Wig-Wag Signals
Advises on use of wig-wag signals and associated equipment and use of warning lights for cattle crossings. Informs on general layout design, signal aspects, installation requiring combined wig-wag and standard signals, posts, controllers, level crossings, swinging or lifting (moveable) bridges, tunnels, airfields, premises used regularly by emergency vehicles, signing and tactile paving surfaces.

TAL 01/09 – Compact MOVA
Looks at the development, application and promotes the use of Microprocessor optimised vehicle actuation (MOVA) systems. This traffic signal control strategy was developed in the 1980s to minimise delay and maximise capacity. Compact MOVA systems were developed to operate without IN-detectors and are suitable for use in urban areas. Looks at safety aspects and detection requirements.

TAL 02/09 – Integration of Pedestrian Traffic Signal Control within SCOOT – UTC Systems
Looks at adaptive methods of controlling signal-controlled junctions and stand-alone crossings, describing new facilities, operation aspects, modelling of puffin and pelican crossings, new SCOOT pedestrian priority strategies, long cycle times, SCOOT parameters and general considerations.
**DEPARTMENT FOR TRANSPORT**

**LOCAL TRANSPORT NOTES**

**LTN 01/07 – Traffic Calming**
Brings together in one comprehensive document a summary of the research commissioned by the Department for Transport (DfT, formerly the DTLR, DETR and DoT), together with research from external sources, to provide advice on the use of traffic calming measures today. It covers relevant legislation and the design, effectiveness and installation (including signing and lighting) of measures, specifically: road humps; rumble devices and overrun areas; narrowings and chicanes; gateways and entry treatments; roundabouts; vehicle activated devices; as well as additional traffic calming elements to be considered.

**LTN 01/08 – Traffic Management and Streetscape**
Intended to help those involved in the design of traffic management measures to prepare schemes that consider and care for the streetscape. Aims to enhance streetscape appearance by encouraging design teams to minimise the various traffic signs, road markings and street furniture associated with traffic management schemes. Advises with reference to case studies.

**LTN 01/09 – Signal Controlled Roundabouts**
To help designers achieve optimum design for signalised roundabouts. Examines reasons why signals are used, design considerations, assessment, control strategies and includes an illustrative example.

**LTN 01/94 – The Design and Use of Directional Informatory Signs**
These design principles form the basis of the directional signing system which is prescribed by the Traffic Signs Regulations and General Directions 1994. When published, the new Chapter 2 of the Traffic Signs Manual will give more comprehensive guidance on the design of signing schemes and include topics not covered by this document. This document was published in July 1994 and is still current.

**LTN 01/95 – The Assessment of Pedestrian Crossings**
This note recommends the practices to be followed when planning at-grade pedestrian crossings. It describes all types of crossings, including shared facilities with cyclists, other than those at signalled junctions.

**LTN 01/97 – Keeping Buses Moving**
Divided into 11 chapters; introduction; the agencies involved; priority through traffic management; withflow bus lanes; contraflow bus lanes; bus only streets; bus priority at junctions; bus stops; appraisal and funding; implementation, maintenance and monitoring; and the way ahead.

**LTN 02/08 – Cycle Infrastructure Design**
Comprehensive guide to improve the cycle infrastructure, aiming to encourage more people to cycle. Design principles embraced include convenience, accessibility, safety, comfort and attractiveness. Also considers signs, network management, traffic speeds, bus and tram routes, cycle lanes, off-road cycle routes, junctions, cycle track crossings, cycle parking and public transport integration.
LTN 02/09 – Pedestrian Guardrailing
This LTN strengthens the emerging policy development by providing guidance on pedestrian guardrailing, which has been installed more and more over recent years in many roads and streets in our towns and cities. This LTN provides guidance that local authorities may choose to adopt, including: a description of the development of policy guidance on guardrailing; an assessment procedure for the evaluation of the need for the installation or removal of pedestrian guardrailing, particularly at pedestrian crossings and road junctions; encouragement for authorities to consider developing and using an audit trail, recording decisions and actions taken when considering pedestrian guardrailing schemes.

LTN 02/86 – Shared Use by Cyclists and Pedestrians
This note contains advice on allowing cyclists to use facilities previously reserved solely for pedestrian use. It deals primarily with the conversion of footways (ie a public right of way on foot only which is part of a highway including a carriageway) and footpaths (ie a public right of way on foot only which is not beside a carriageway).

LTN 02/95 – The Design of Pedestrian Crossings
This note recommends the practices to be followed when planning, designing and installing at-grade pedestrian crossings. It describes all types of crossings, including shared facilities with cyclists, other than those at signalled junctions.

LTN 03/08 – Mixed Priority Routes Practitioner’s Guide
Highlights lessons learned and experiences gained from 10 government funded projects demonstrating the road safety of mixed priority routes. A brief definition of mixed priority routes (MPRs) is given, followed by details of the projects themselves, including the benefits and monitoring of performance such as safety, environment, accessibility and economics. Also looks at budgetary requirements and sources of funding, packaging proposals and timescales and delays. Other chapters examine the team composition for a project, the consultation process, design factors and implementation. Scheme evaluation looks at what to measure and when.
Circular 57/72 – Accidents Arising From Alleged Defects in the Highway
Circular 61/72 – Routes for Heavy and High Abnormal Loads
Circular 46/74 – Road Traffic Act 1974, Section 6 Traffic Surveys
Circular 52/74 – Inspection of Highway Trees
Circular 12/75 – Duty of Local Authorities to Promote Road Safety
Circular 13/75 – Preservation of Mileposts
Circular 24/75 – Highway Works Contracts
Circular 12/78 – Vehicle Crossings Over Footways and Verges
Circular 06/84 – Road Traffic Regulation Act 1984 Parking for Disabled People
Circular 01/86 – Cycles Tracks Act 1984, Cycle Tracks Regulations 1984
Circular 01/92 – Use of Technology for Traffic Enforcement Advice on Deployment
Circular 02/92 – Road Traffic Act 1991 Road Humps and Variable Speed Limits

Circular 02/93 – The Highways (Traffic Calming) Regulations 1993

Circular 03/93 – Street Name Plates and the Numbering of Premises

Circular 02/94 – The Road Traffic Regulation (Special Events) Act 1994

Circular 04/96 – Road Humps

Circular 01/97 – Zebra, Pelican and Puffin Pedestrian Crossings Regulations
1986 - Manual for the Maintenance and Repair of Concrete Roads
Provides much needed advice on maintenance strategies and specifications for the types of repairs required to keep-in-service concrete roads in good condition.

1998 - Guidance on the use of tactile paving surfaces
Tactile paving surfaces can be used to convey important information to visually impaired pedestrians about their environment, for example, hazard warning, directional guidance, or the presence of an amenity. Guidance is given on the use of a number of different types of tactile surfaces to give warning of potential hazards and for amenity purposes to give guidance and information.

1999 – 20 mph Speed Limits
The purpose of this circular is to set out the procedures to be followed for imposing 20 mph speed limits under the new system.

1999 – Secondary and Recycled Aggregates Uses in Road Construction Under Existing Specifications
The aim of this document is to assist producers of such potential road making materials understand the key parameters which have to be satisfied by the materials

2001 – PPG13 Transport
Provides advice on the integration of planning and transport at the national, regional, strategic and local level to: Promote more sustainable transport choices, Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling, and Reduce the need to travel, especially by car.

2002 – Code of Practice for Recording of Underground Apparatus in Streets
Gives recommendations for accurate record keeping of the apparatus buried beneath the street. Aims to reduce risk of injury to those carrying out works as well as minimising damage to apparatus.

2004 – Adjacent and Shared Use Facilities for Pedestrians and Cyclists
Provides updated guidance on the application and design of off-carriageway facilities for cyclists and pedestrians.

Contains guidance and recommendations to enable local authorities to deliver good practice and best value in lighting management and maintenance policies. It can be applied to both road lighting and other exterior lighting. Covering service provision, maintenance cycles, reactive maintenance, service agreements with distribution network operator and procurement
2005 – Guidance Document for Highway Infrastructure Asset Valuation
Provides a common framework for the discussion, development and implementation of highway infrastructure asset valuation by Local Highway Authorities within the UK.

2005 – Home Zones – Challenging the Future of Our Streets
Disseminates good practice in Home Zone design and scheme development, drawing particularly on the experience gathered from the Home Zones Challenge.

2005 – Inclusive Mobility – A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure
Overall objective is to provide inclusive design and through that achieve social inclusion. This guide starts with the pedestrian and street environment and then goes on to deal with public transport buildings and infrastructure. Specifically covers: basic human factors information; footways, footpaths and pedestrian areas; tactile paving surfaces; car parking; bus stops; taxi ranks; access to and within transport-related buildings; transport buildings: facilities; signage and information; lighting; access in the countryside; consultation, training and management.

Covers key themes including the need for a robust regime of safety inspection and a planned investment programme based on whole life costs which are fundamental to highway maintenance. Covers asset and risk management and gives advice on the implications of the new Traffic Management Act 2004.

Sets out the rules and guidance applying to the programme in England and Wales for 2006/07.

2006 – Mini Roundabouts – Good Practice Guidance
Explains what a mini-roundabout is and how it should be used. It explains the legislative basis for mini roundabouts and establishes current practice based upon real examples of installation and lessons learned.

2006 – Practical Guide to Street Works
Provides practical advice to assist good workmanship and promote the highest standards of reinstatement by site operatives and supervisors.

2006 – Puffin Good Practice Guide
To provide guidance and examples of good practice for Puffin pedestrian facilities at junction traffic signals and mid block crossings including Toucan and equestrian crossings.

2006 – Setting Local Speed Limits
To be used for setting all local speed limits on single and dual carriageway roads in both urban and rural areas and to guide future assessments of local speed limits.

2006 – Street Lighting Indicator BV215(a) and BV215(b)
Measures the average number of days taken by the highway authority to rectify street light faults.
2007 – Guidance for Claiming Emergency Capital Highway Maintenance Funding From DfT
Aims to assist local authorities in submitting a claim for capital funding for emergency capital works to their local highway network as a result of flooding. Sets out the circumstances under which a claim may be made and how a claim should be submitted.

2007 – Guidance for Local Authorities Seeking Government Funding for Major Transport Schemes
Describes the key operating principles of the Major Schemes funding system; provides guidance for Local Authorities on the development of Major Schemes; describes the process for applying for Major Schemes funding and taking a scheme forward through the necessary approval stages; and defines the required contents of the Major Scheme Business Case that will accompany the funding applications.

Gives the Department for Transport estimates of the values for prevention of road casualties and road accidents for use in the appraisal of road schemes.

2007 – Manual for Streets
Aims to bring about a transformation in the quality of streets. It is expected to be used predominantly for the design, construction, adoption and maintenance of new residential streets, but it is also applicable to existing residential streets subject to re-design. Covers: streets in context; the design process - from policy to implementation; layout and connectivity; quality places; street users' needs; street geometry; parking; traffic signs and markings; street furniture and street lighting; and materials, adoption and maintenance.

2007 – Manual for Streets – A Summary
Summarises the Manual for streets publication, which aims to bring about a transformation in the quality of streets and has the importance of joint working among practitioners as a key feature.


Shares good practice for co-ordinating and managing works on the street. It gives examples of how promoters can carry out works with the least disruption to highway users, frontages, and local communities, to improve and maintain the road network.

2008 – High Street Reaissance – Delivering – Renewing – Improving
Contemplates the issues and problems of improving the streets of towns and cities. The challenges for local authority officers embrace transport, road safety, economical, regeneration, social exclusion and environmental factors. Highlights the benefits of an integrated approach, looks at funding and delivery partners and details exemplary schemes from 10 local authorities.
2008 – Introduction to the Use of Portable Vehicular Signs
Intended for those with specific responsibility for portable vehicular signals at street works and road works. Covers choice of approved equipment, setting up the equipment to maximise safety and minimise delays, and trouble-shooting guidance to keep equipment working correctly.

2008 – Maintaining Pavements in a Changing Climate
Explores climate change and extreme weather patterns and the effects they have upon UK highways, covering changes to wind, water and temperature, structural layers and maintenance on asphalt, rigid, modular, flexible pavements and footways. Gives practical advice on choice of materials and construction techniques to help with mitigation.

2008 – Sustainable Highways – A Short Guide
Advises on choice of materials and use of techniques for local authorities and materials engineers.

Sets out the legislative framework for street works by undertakers and works for road purposes. Balancing the rights of highway authorities with road users to minimise disruption and enable works to be carried out safely and efficiently. This code operates within specific sections of the New roads and street works act 1991 (NRSWA) covering the timing of street works, placing of apparatus, duties of street authorities to co-ordinate works and the duties of undertakers to co-operate with street authorities and other undertakers.

Provides information relating to qualifications required by law to carry out or supervise, works in the street.
Chapter 1 – Introduction 1982
This document provides an introduction to the Traffic Signs Manual and outlines historical, functional and design aspects of signs. It includes sections dealing with the positioning and mounting of signs.

Chapter 2 – Currently Work in Progress 2009

Chapter 3 – Regulatory Signs 2008
This document explains the correct use of regulatory signs prescribed by the Traffic Signs Regulations. These include prohibited turns, waiting and loading restrictions, bus and cycle lanes etc. There is also a comprehensive section dealing with the signing of speed limits.

Chapter 4 – Warning Signs 2004
Warning signs are used to alert drivers to potential danger ahead. They indicate a need for special caution by road users and may require a reduction in speed or some other manoeuvre. This reprinted edition includes four minor amendments and addition of Appendix A, note 7.

Chapter 5 – Road Markings 2003
Road markings serve a very important function in conveying to road users information and requirements which might not be possible using upright signs. They have the advantage that they can often be seen when a verge-mounted sign is obscured, and, unlike such signs, they can provide a continuing message.

Chapter 7 – The Design of Traffic Signs 2003
This chapter of the Traffic Signs Manual describes how sign faces are designed. It does not include the various methods by which signs are constructed and mounted. It supersedes Local Transport Note 2 / 94: Directional Informatory Signs Interim Design Notes, which was withdrawn in 1997.

Chapter 8 – Part 1 – Roadworks & Temporary Situations 2009
This document, Part 1: Design, provides guidance for those responsible for the design of temporary traffic management arrangements which should be implemented to facilitate maintenance activities or in response to temporary situations.

Chapter 8 – Part 2 – Roadworks & Temporary Situations 2009
This document, Part 2: Operations, provides guidance for those responsible for planning, managing, and participating in operations to implement, maintain and remove temporary traffic management arrangements.

Chapter 8 – Summary of Key Changes
1984 – Accidents at 4-arm Roundabouts
Gives the findings of a study of personal injury accidents at a sample of 84 4-arm roundabouts on main roads in the UK. The study included small roundabouts and roundabouts of conventional design, in both 30-40 and 50-70 mile/h speed limit zones.

1984 – Drainage Capacity of BS Road Gullies and a Procedure for Estimating their Spacing
Presents the results of four typical examples of grating designs, and of similar tests on six gratings and one kerb inlet of earlier design. Results of tests have been used in a design procedure, which allows the drainage engineer to estimate the spacing required for each type of grating on a kerbed road with cross-fall to give a selected standard of drainage.

1986 – Accidents at four-arm single carriageway urban traffic signals
Describes a study of personal injury traffic accidents occurring during a four year period (1979-1982) at a sample of 177 four-arm single carriageway signal junctions on 30 mile/h roads in urban areas in the UK.

1989 – Accidents at Mini Roundabouts Frequencies and Rates
Presents the results of a study of the characteristics of mini-roundabouts. The survey included all roundabouts with a central island diameter greater than 4m but which are designed to allow vehicles to run over them and therefore operate in the same way. Accident frequencies and rates were obtained for the former category only.

1989 – Road Safety Issues for the Design of Bus Priority Schemes
The objective of the study was to identify the size and character of accidents in contra flow bus lane schemes, and to propose design or operational recommendations to overcome any particular problems identified.

1991 – Accidents at Pedestrian Crossing Facilities
Attempts to derive models to predict pedestrian flows and accident frequencies at pedestrian crossing facilities

1991 – Pedestrian Delay at Pelican in Areas Operating Under SCOOT
Considers the operation of Pelican crossings as part of a SCOOT coordinated system. Site studies of 15 Pelicans operating under SCOOT control in 5 areas confirmed that pedestrian mean delay is substantially higher when compared with delay at Fixed Time Pelicans operating independently

1991 – Tactile Footway Surfaces for the Blind
Intended to determine how many different textured surfaces could be effectively and reliably distinguished by visually handicapped people. The research identified five surfaces that were distinct from each other and easily detectable underfoot, and generally acceptable to other footway users

1993 – Assessment of Rumble Strips and Rumble Areas
Rumble areas are patches of rough, coarse road surface which are designed to produce aural and tactile stimuli inside the vehicle with the intention of alerting drivers and when desirable, causing them to slow down. This report gives the results of an assessment of the effectiveness of rumble strips/areas used at 35 sites around the UK.
1993 – Revaluation of the Cost of Road Accident Casualties 1992 Revision
Summarises research on casualty-related costs: the distribution of injury severity among casualties with ‘serious’ and ‘slight’ injuries, studies of the value of avoidance of road accident injuries, and estimates of the loss to the economy from injuries. Presents revised estimates of the average cost per casualty. Implications of the revised costs for total accident costs and their application to cost benefit analysis of road schemes and road safety measures are discussed, and compares accident costing to other countries’ data.

1993 – Road Humps for Controlling Vehicle Speeds
Describes some of the types of vertical deflections which can be used, together with an assessment of effectiveness, to help the engineer decide which is the most appropriate measure for a given situation.

1993 – Speed Control Humps a Trial at TRL
Gives the results of a trial of speed humps undertaken in Nov 1992 for the Traffic Policy division of the DoT. In addition to this assessment, the opinions of drivers, passengers and observers were taken into account. The results provide information that may assist highway engineers to design appropriate road engineering measures.

1993 – Toucan Crossings for Cyclists and Pedestrians
Describes the evolution of the TOUCAN crossing - a signal-controlled road crossing at which cyclists and pedestrians cross in the same area at the same time. The practice of sharing of crossings has been well established in recent years by the widespread but illegal use made by cyclists of PELICAN crossings. Following extensive studies showing that this sharing of crossings appears not to pose any safety problems or any other adverse effects, a trial of TOUCAN crossings was begun. Sharing of the crossing space by cyclists and pedestrians has proved satisfactory. The design of the TOUCAN, with push buttons on either side of the waiting area, appears to be working well. Cyclists obviously have no difficulty using the push buttons, and sometimes use the low pole on which the push button plate is mounted for leaning on while waiting. The overall conclusion is that the TOUCAN shared cyclist/pedestrian crossing is a viable alternative to the current design of parallel crossing but that it may operate more safely with a variable crossing time governed by detection of people using the crossing. The one TOUCAN crossing modified with infra-red detection has been found highly successful.

1993 – Value of Preventing Non-fatal Road Injuries Findings of a Willingness-To-Pay National Sample Survey
Relates the findings of a feasibility study intended to develop concise descriptions of a number of typical injuries which adequately represented the very wide spectrum of injuries classified as serious and to devise various questionnaires to explore five different value elicitation procedures. Presents survey’s results. Describes the testing of various elicitation procedures, the development of the national sample survey, questionnaire design and the analysis of the responses. Recommends values to the Department of Transport.

1994 – Contingent Valuation Questions for Placing Money Values on Traffic Nuisance – An Explanatory Study
Discusses issues involved in using the contingent valuation method to determine the subjective nuisance caused by road traffic. Considers appropriate questions. Describes an exploratory study in which respondents were asked their willingness to pay and to accept compensation for changes in the level of traffic or traffic nuisance. Relates the methodology of asking people to value shifts along rating scales and interviews designed to explore whether respondents understood the questions and how they went about answering them.

1994 – Speed, Speed Limits and Accidents
Attempts to review the international evidence to establish the effect of speed and speed limits on road accidents.
1994 – Speed at ‘Thumps’ at Low Height Road Humps
Since July 1992 it has been possible for Local Authorities to apply to DOT for authorisation to use non-standard road humps such as ‘thumps’ and speed cushions in traffic calming schemes. Standard circular profile road humps have been widely used in the UK, but they can be relatively expensive to install. Yellow circular profile thermoplastic humps, (‘thumps’) 37mm high by 900mm in the direction of travel, were first used experimentally as a lower cost alternative by Wakefield MDC on Manygates Lane in 1990. The results were encouraging and therefore TRL included ‘thumps’ in a track trial held at TRL in November 1992 to assess safety and passenger discomfort. Following the track trials, the DOT funded the installation and monitoring of on-road trials of ‘thumps’ in order to further investigate their effectiveness as speed reducing devices and the effect on busses, emergency service vehicles and two-wheeled vehicles. Wakefield Metropolitan District Council assisted with these on-road trials and installed a series of ‘thumps’ along a road in South Elmsall, West Yorkshire. The results of the Wakefield trials are given in this report together with results from a further 4 sites where ‘thumps’ have been installed by the Local Authority. A brief comparison between ‘thumps’ and 50mm high standard circular profile humps is also included.

1995 – Accidents Involving Visually Impaired People Using Public Transport or Walking
The research was intended to establish not only frequency of accidents, but also how accidents had happened, if people were injured, the number of working days lost, and whether accidents could have been avoided. Another major objective of the research was to assess the possible impact tactile warning surfaces might have in improving the safety of visually impaired travellers.

1995 – Environmental Assessment of Traffic Management Schemes a Literature Review
Considers the environmental impact of traffic management schemes with particular regard to vehicle exhaust emissions, traffic noise and safety. It describes the methods used to assess how people perceive each major component of environmental impact, the factors that need to be considered when assessing the environmental consequences of traffic management schemes, and the measurement and prediction procedures that are available to evaluate environmental impacts. It includes a detailed review of some previous case studies of traffic management schemes and gives an appraisal of the likely effects of different traffic management schemes in influencing environmental impacts. It also includes consideration of the gaps in the knowledge that exist and gives ideas that might be used to specify a programme of research designed to gain a more complete understanding of the assessment of the environmental impact of traffic management schemes.

1995 – Experimental Road Crossing Features for Visually Impaired Pedestrians

1995 – Study of Footway Maintenance
Reports on the range of present UK footway maintenance practice, to highlight good practice and identify areas where research may be needed.

1995 – Traffic Calming – Four Schemes on Distributor Roads
Traffic calming measures on urban distributor roads are often required to improve safety and enhance the environment whilst preserving the road capacity. The aim of this study has been to provide information so that Driver Information and Traffic Management Division DOT can provide advice on suitable traffic calming measures for urban distributor roads. This report describes studies of traffic calming measures on distributor roads at four sites. All of the roads at two-way flows of approximately 8,000 to 12,000 vehicles/day after traffic calming. All of the four schemes studied had flat-top humps as the main speed reducing measure which were designed to slow cars and to reduce problems of discomfort and delay for bus passengers and the emergency services. A variety of additional measures were used at the sites which included; new roundabouts, kerb alignments, pedestrian islands, new road markings, humped zebra crossings and chicanes

1995 – Traffic Calming – Vehicle Activated Speed Limit Reminder signs
Reviews the available data on thirteen ‘secret’ speed limit reminder sign sites which include full studies of nine sites from the UK and a further four sites from Europe and the USA.
1995 – Traffic Calming – Vehicle Noise Emissions Alongside Speed Control Cushions and Road Humps
Looks at the results of surveys carried out to study the reduction of noise emission levels on the introduction of speed control measures

1996 – Accidents at 3-arm Traffic Signals on Urban Single-carriageway Roads
Findings of a study of accident risk based on a national stratified sample of 3 arm traffic signal junctions. Accident tabulations are given of frequencies, rates and severity. The objective is to develop relationships between accident frequency and explanatory variables and factors including; vehicle and pedestrian flows, junction features and geometry, land use and signal control characteristics.

1996 – Accidents at Three Urban Priority Crossroads and Staggered junctions
Findings of a study of accident risk based on a national stratified sample of urban priority crossroads and staggered junctions on single carriageway roads. Tabulations are given of frequencies, rates and severity. The objective is to investigate the frequency and character of accidents in relation to traffic flow, road features and geometry, land use and other variables.

1996 – Accidents at Three-arm priority Junctions on Urban Single-carriageway Roads
Findings of a study of accident risk based on a national stratified sample of 3 arm priority junctions on single carriageway roads, including roads with 30 mph or 40 mph speed limits and sites with and without pedestrian crossings. Tabulations are given of frequencies, rates and severity. The objective is to investigate the frequency and character of accidents in relation to traffic flow, road features and geometry, land use and other variables.

1996 – Advanced Stop Lines for Cyclists the Role of Central Cycle Lane Approaches and Signal Timings
Advanced stop lines (ASLs) are cycling facilities which allow cyclists to stop ahead of motor vehicles at signalised junctions. Their function is to aid cyclists through the junctions effectively and safely. First introduced to the UK in 1984, ASLs have since been installed in many built up areas. Research work on ASLs has established that they are operating satisfactorily. This project investigated some new issues. One aim was to investigate the value of a non-nearside approach lane, with reference to the turning movements of left-turning motor vehicles versus 'ahead' cyclists. The other aim was to assess the effect of different signal timings on the value of an advanced stop line. These were explored with reference to the differing turning movements of cyclists and motor vehicles at ASL junctions.

1996 – Review of Traffic Calming Schemes in 20 mph Zones
Assesses the scheme designs and gives more detailed descriptions of 6 schemes. Comparisons of 'before' and 'after' data for injury accidents and speeds are given as well as the relationship between accident reduction and speed reduction. The 20 mph zones have successfully reduced accidents by about 60% and vehicle speeds by over 9 mph.

1996 – Traffic Calming – Road Hump Schemes Using 75mm High Humps
Describes a study of 72 sites in the UK where 75mm high humps have been used and it assesses their effect on vehicle speeds. It gives speed spacing relationships and concludes that 75mm high humps (with ramp gradients 1:10 to 1:15) can be used to reduce speeds to below 20 mph. Shallower ramp gradients or humps lower that 75mm high are not so effective and more suitable for keeping speeds to below 30 mph.
1997 – Delineation for Cyclists and Visually Impaired Pedestrians on Segregated, Share Routes

A segregated, shared route is one of a range of options available for separating cyclists from other road traffic. With this type of facility one side of the route is designated as cycle track, the other as footway. However, although pedestrians retain the right to use the cyclist side of the facility, cyclists can only use their designated part of the route. The two can be separated by a difference in level, by a barrier or a raised white line. One of the surfaces consisted of a bar pattern pavement which is used to inform people that they are entering or leaving the facility, and which tells them that they are walking along the correct side of the route. The second tactile indicator consisted of a profiled white line, generally formed from thermoplastic. This 'central delineator' is installed along the length of the route and helps visually impaired people to remain on the pedestrian side of the route. Recently, visually impaired people have reported that they are again experiencing problems with keeping to their side of the segregated, shared route. The research reported here aimed to determine whether the existing profile is effective when used by people with roller ball canes, whether it is more effective in a different material, and whether a different profile should be recommended.

1997 – Design of Long-life Flexible Pavements for Heavy Traffic

Describes research sponsored by the Highways Agency, British Aggregate Construction Materials Industries and the Refined Bitumen Association. The overall objective was to review current design practice and information on flexible pavement performance that has accrued since the last revision of the design standards and to develop an improved design method for heavily trafficked, flexible pavements.

1997 – Tactile Markings for the Guidance of Visually Handicapped Pedestrians

Research involving subject trials was carried out at TRRL and at Cranfield Institute of Technology, to produce tactile markings for the guidance of visually handicapped pedestrians. Four patterns have been developed and moulded onto the surface of concrete paving.

1997 – Traffic Calming – Vehicle Generated Ground-borne Vibration Alongside Speed Control Cushions & Road Humps

Describes a study to assess the vibration levels generated by a wide range of vehicle types crossing a selection of road humps and cushion designs.

1998 – Accidents at Urban Mini-roundabouts

Describes a study of accidents at 3 and 4 arm mini-roundabouts on two-way 30 mph single carriageway roads, commissioned by the Road Safety Division of the DETR and undertaken by the Transport Research Laboratory (TRL) with the Transportation Research Group at the University of Southampton as a sub-contractor. The main objective of the study was to investigate the frequency and character of the accidents in relation to traffic flow, road features, layout, geometry, land-use and other variables. Accident predictive models have been developed ranging from whole junction total accident models to arm-based full geometric models for individual groups of accidents. The study is one of a series investigating accidents at different junction and link types.

1998 – Achieving the Aims of the National Cycle Strategy – Summary of TRL Research

1998 – Alternative Routes for Cyclists Around Pedestrian Areas
1998 – Further Developments in the Design of Contra-flow Cycling Schemes
The research investigates the safety implications and practical methods of allowing contra-flow cycling in one-way streets in the UK. Five ‘alternative’ contra-flow cycle schemes (i.e. schemes not including a mandatory cycle lane or physical segregation) were examined. Video filming and interviews with cyclists were used to collect data from the sites. The results were supplemented by data supplied by the local authority responsible for the schemes; this data included vehicle speeds and reported accidents. The schemes appeared to operate safely, supporting the wider use of alternative contra-flow cycle schemes in the UK. Design advice is proposed on how this can be best achieved. Important factors to consider when designing contra-flow schemes are motor vehicle flows, motor vehicle speeds, delivery vehicles, parking and side roads.

1998 – Road Layout Design Standards and Driver Behaviour
Describes three experimental studies, undertaken for the Highways Agency, in which the role of driver characteristics in three specific components of the driving task - speed choice, emergency braking and overtaking - have been explored. The purpose of the work was to provide the design engineer with more detailed insights into the types of driver using the roads and their performance in critical situations. A simple stratification of car drivers based on age and annual mileage has been developed from speeds measured at a sample of trunk road sites in Great Britain in combination with the personal characteristics of the drivers obtained by postal questionnaire. The self-reported accident liabilities of these drivers has also been related to their individual characteristics and an association obtained between drivers’ speed choice and their accident liability. The emergency stopping study explored the determinance of emergency stopping performance using a simple simulator. Overtaking behaviour on single carriageway roads was studied both in a simulator and on the road. Logistic modelling showed that the probability of a driver accepting an overtaking opportunity was related to variables such as gap size, overtaken vehicle speed and the personal characteristics of the drivers. The differences in emergency response times and in the overtaking requirements of drivers classified by the age and mileage groupings devised in the stratification study are given in the report.

1998 – Traffic Calming – An Assessment of Selected On-road Chicane Schemes
Various types of horizontal deflections have been used in traffic calming to reduce the speed of traffic. Results in terms of effectiveness and public acceptability have not always been successful. Chicane trials on the TRL test track (1994), confirm the potential of chicanes as traffic calming measures and established relationships between mean speed and chicane dimensions. This Report describes a variety of on-road chicane schemes in terms of design and location, speed reduction and accident reduction. The speed reductions at these schemes were compared with those from the TRL trials and relationships between mean speed and ‘path angle’ have been developed. Local authority experience was used in compiling advice and raising issues relating to good and bad practice in the design and installation of chicanes.

1998 – Traffic Calming – Public Attitude Studies a Literature Review
Reviews the published literature describing 45 studies (40 UK, 5 non-UK) of public attitudes to traffic calming schemes. Outlines the studies covered, together with the survey techniques and the types of questions used in them. Presents the results reported and compares the measured effectiveness of the calming schemes with the public assessments, to determine to what extent there is agreement between them. Issues concerning questionnaire design are discussed.


1998 – Traffic Calming – Speed Cushion Schemes
The most effective forms of traffic calming measure usually involve some degree of vertical deflection. Road humps have proven to be highly effective at reducing vehicle speeds, but discomfort to drivers and passengers is increased, particularly in larger vehicles such as buses, lorries, fire engines and ambulances. Speed cushions are designed to limit the vertical deflection of large vehicles with wide track widths by allowing these vehicles to straddle the cushions. Vertical deflection for smaller vehicles, such as cars, with smaller track widths is maintained as these vehicles are forced to ride over the cushions with at least one set of wheels. This report describes a study of 34 local authority speed cushion schemes. It assesses their effect on vehicle speeds, traffic flows, accidents, driver behaviour and passenger discomfort. It considers public reaction to the schemes and the likely impact of cushions on vehicle generated noise and vibration. The effects of differences in cushion dimensions and cushion spacing on vehicle speed are examined and relationships provided.

1998 – Urban Speed Management Methods
1999 – Safety Aspects of Road Edge Drainage Features
The research described in this report has attempted to assess the relative effects of commonly employed drainage features on vehicle handling and safety.

1999 – Traffic Calming in Historic Core Zones Bury St Edmunds

1999 – Traffic Calming in Historic Core Zones High Street Route, Shrewsbury

1999 – Traffic Calming in Villages on Major Roads Final Report

1999 – Traffic Calming – Passenger and rider Discomfort at Sinusoidal, Round Top and Flat Top Road Humps
Gives details of the track trial at TRL and the results obtained from the measurements of passenger discomfort and peak vertical acceleration.

1999 – Traffic Calming – Vehicle Generated Noise and Ground-borne Vibration Alongside Sinusoidal, Round Top and Flat Top Humps

2000 – Analysis of Pedestrians Accidents, Using Police Fatal Accident Files and SHIPS Data
Intended to support the development of impact procedures and performance limits to test the safety of cars in pedestrian accidents.

2000 – Changes in Accident Frequency Following the Introduction of Traffic Calming in Villages

2000 – Cycle Track Crossings of Minor Roads
Cycle tracks can help cyclists to avoid sharing busy roads with motor vehicles and hence increase cyclists comfort and safety. This report provides an analysis of the interaction rates for cyclists on the different types of crossing.

2000 – Effects of Drivers Speeds on the Frequency of Road Accidents

2001 – Accidents at Junctions on One-way Urban Roads
Describes a study of personal injury accidents at junctions with one or more one-way arms on urban 30mph single carriageway roads. The aim was to determine how these accidents are related to vehicle and pedestrian flows and to the features and layout of the junction. The study is one of a series investigating accidents at different junction and link types, mostly on 30mph single-carriageway roads with two-way traffic. The report was undertaken on behalf of the Road Safety Division (RSD) of the DTLR.
2001 – Analysis of Police Reports of Fatal Accidents Involving Motorcycles
The focus of this report is an analysis of police reports of a sample of accidents in which a motorcyclist was involved and where the motorcyclist or any of the other road users involved were killed. The analysis investigates the pattern of road users involved and the actions of the road users who were considered to be principally responsible for the accident.

2001 – Countryside Traffic Measures Group: A Traffic Calming Scheme at Charlwood, Surrey
Describes a scheme which forms part of the Surrey County Council’s Strategic Traffic Area Reduction (STAR) Initiative. Initial measures included 30 mph gateways and 20 mph speed limit with narrowings and speed tables through the village centre. Monitoring was by automatic speed/flow measurements over seven days before and after scheme installation.

2001 – Countryside Traffic Measures Group: Demolition Schemes
Describes five demonstration schemes in villages in Norfolk, Suffolk and Surrey, aimed at reducing traffic speeds using low visual impact and low cost measures. Monitoring using automatic speed/flow monitoring was carried out on site, and after implementation, as well as public opinion surveys. Schemes covered are: Stiffkey, Blakeney and Wiveton, (Norfolk) and Occold (Suffolk) and Charlwood (Surrey), and were all introduced in 1999.

2001 – Cyclists Assessments of Road and Traffic Conditions: The Development of a Cyclability Index
Attempts to quantify the factors that determine how satisfactory different road types are for cycling.

2001 – Mitigating the Disruption Caused by Utility Street Works
Details of the New Roads and Street Works Act 1991 (NRSWA) are given in the report. A review of its effectiveness in reducing the disruption due to utility street works is also provided through a survey of informed motoring organisations, contractors and highway authorities. The consensus view is that the Act has not led to any noticeable reduction in the disruption due to utility street works. This is supported by changes in the way the Act has been implemented and also by recent Government initiatives. Also discussed are the importance of utility street works, and the various impacts and associated costs of such works.

2001 – Monitoring Local Authority Schemes Using MOLASSES
The MOLASSES (Monitoring Of Local Authority Safety Schemes) database was initiated by the County Surveyors’ Society’s (CSS) Accident Reduction Working Group in 1991, in an attempt to encourage more monitoring of safety engineering work undertaken by highway authorities. In 1996, TRL analysed the data held within the database. This report presents the results of a similar evaluation exercise. The purpose of which is to highlight any trends that have developed and to determine whether there has been any change in the effectiveness of Local Safety Schemes.

2001 – Processing of Contaminated Land in Highway Works

2001 – Recycling in Transport Infrastructure
Sets out the background in terms of definitions, policy and legislation, a description of the works and the quantities of materials involved and a general discussion of the issues and solutions. Provides the perspective of the various stakeholders, identifying the issues and providing guidance relevant to each group of stakeholders. Summarises recommended actions to enable greater recycling and use of alternative materials for each stakeholder. Also contains case studies illustrating the successful use of recycling and alternative materials, and examples of good practice, in boxes, tables, flow charts and figures.
2002 – Development of a Novel Traffic Calming Surface - Rippleprint

Early studies of traffic calming surfaces (TCs) led to the development of rumble areas and strips that were employed by local authorities to alert drivers to hazards ahead and where possible reduce vehicle speeds. Residents reactions were not given high priority in these early trials, and it became clear that there was considerable noise disturbance at some sites. Describes the results of test track measurements of noise and vibration that has led to the identification of potentially suitable designs. It was concluded that a sinusoidal surface (Rippleprint) produces the most desirable effects. Also describes testing, where drivers and riders were recruited to rate the noticeability of a range of traffic calming surfaces (including the Rippleprint surface) using their own vehicles.

2002 – Safety and Effectiveness of the Wider Use of VMS – Final Report

Describes work undertaken as part of project NS16 investigating ‘The Safety and Effectiveness Of Variable Message Signs (VMS)’, commissioned by the Highways Agency. The Highways Agency require information concerning the planning and use of VMS systems so that benefits can be maximised through improved utilisation of the road network. VMS must convey useful information in a form that drivers can understand and assimilate quickly. The sequence of reports that this final report is based upon investigate four main aspects of VMS application: Possible use of VMS to give safety-related or other information at times when there are no important traffic messages to be displayed, Message formats, Information overload, and Sequencing of information.

2003 – Correlation Between the CBR Value and Penetrability of Pavement Construction Materials

Aims to identify construction materials that could support the growth of trees whilst, at the same time, providing sufficient structural support to the pavement. Many of the existing problems relating to tree failure within urban areas lie below ground, and can only be resolved by treatment prior to planting.

2003 – Cycling in Vehicle Restricted Areas

Describes a study into the use of vehicle restricted areas (VRAs) by cyclists, where cycling is permitted but other vehicles are not. Focuses in particular on the sharing of space by pedestrians and cyclists, from both a physical and attitudinal perspective. Aims to provide factual information on behaviour and attitudes that will assist practitioners, designers and planners.

2003 – Drivers Perceptions of Cyclists

Increasing the amount of cycling and improving the safety of cyclists are key aims of the Government’s transport strategy. Previous research has shown that one of the main deterrents to cycling is a fear of traffic, often attributed to the attitudes and behaviour of drivers. This report summarises the methodology and results of a research project that investigated drivers perceptions of cyclists.


Provides a practical field guide for engineers involved in the construction and maintenance of footways and cycle routes. Part 1 covers the structural design and construction of footways, constructed from common materials and subject to a range of pedestrian traffic and varying degrees of overrun by vehicular traffic, Part 2 covers the structural design and construction of cycle routes, Part 3 covers maintenance of footways and Part 4 covers cycle route maintenance. Advice is given on suitable treatment options, depending on the cause of the defect and the urgency of remedial work. Part 5 is an Annex containing acknowledgements, references, a bibliography and appendices, which include specifications and advice on inspection methods. Illustrated case studies are also included.

2003 – Gloucester Safer City Final Report

‘Gloucester Safer City’ is the title given to a major road safety initiative taken in 1996 by the Department for Transport (DfT). The purpose was to demonstrate to highway authorities that road accidents and casualties in urban areas can be substantially reduced if significant funds are made available and towns are treated using safety engineering in a strategic manner, but also with safety integrated into other town policies and activities. This report presents the main evaluation of the project and describes how it developed, how the monitoring was carried out and what the outcomes were. It also describes the management processes involved.
2003 – Passive Safety Tests on Steel Circular Hollow Section Sign Posts
Traditionally roadside signs are supported on tubular steel circular hollow section (CHS) posts. A variety of sizes and configurations are used, dependent on the size of the sign to be supported. The HA have recently updated their documentation and introduced two new documents Interim Requirements for Road Restraint Systems (IRRS) and Non-Proprietary Safety Barrier Systems (NPSBS). To support the new documentation it was decided to conduct a series of impact tests to establish the largest size of unprotected single steel tubular sign support posts that can be allowed on the HA Road Network.

2003 – Pilot Home Zone Schemes Evaluation of The Methleys, Leeds
The Methleys Home Zone, in Leeds, is one of nine home zone schemes in a pilot programme set up by the Department for Transport (DfT). The programme’s aim is to evaluate the potential benefits, particularly in regard to shared road space, of a wide range of home zones in different parts of England and Wales.

2003 – Road Design Measures to Reduce Drivers Speed Via Psychological Proceese a Literature Review
A range of rural road safety engineering measures has been developed to encourage drivers to adopt a safe speed on the approach to hazards such as bends and junctions. Following trials of individual sign installations with promising results, a full-scale study of the effectiveness of over 60 installations has been conducted by TRL for the Department for Transport (DfT). The signs are mainly on rural single carriageway roads, and are situated in Norfolk, Kent, West Sussex and Wiltshire. The main aims of the trial were to assess the effect of the signs on speed and injury accidents, and drivers’ understanding of the signs. This information will be used to develop best practice for sign installation.

2003 – Study of Medium and High Speed Tyre Road Noise
The design of tyre and road surfaces both play a part in the generation of tyre noise. However, design changes can only be made provided that there is full understanding of the wider issues. This report summarises the research carried out on tyre noise and describes the considerations given to the development of the experimental design and details the study plan adopted. It describes the tyres, road surfaces and vehicles that have been selected for inclusion in the project and the various measurement methods used, and examines opportunities for reducing tyre noise in the future through improved design and noise assessment procedures.

Traffic calming measures employed included: speed cushions, road humps, dummy humps, raised junctions, a raised toucan crossing, mini roundabouts, pavement build outs, entry treatments, gateways, advanced stop lines and cycle lanes. The scheme was completed by the summer of 1998.

2004 – Accident Analysis on Rural Roads – A Technical Guide
Developed to address problems local authority engineers have had with addressing accidents on rural roads, namely, how to prioritise between sites with the same (low) accident frequencies, how to justify and go about rural accident analysis and, how best to incorporate non-site specific strategies into remedial programmes.

2004 – Assessment of the Cycle Track in Royal College Street, Camden
In March 2000 the London Borough of Camden opened a new 450 metre section of two way cycle track along royal College Street. TRL carried out a study to determine the attitudes and behaviour of cyclists, motorists and bus passengers who traversed it, which was achieved by carrying out behavioural video studies at key locations to survey the operation of the cycle track.
2004 – Cycle Facilities and Engineering Summary of TRL Research
Describes the results of research into the performance of cycle facilities and engineering features, and is comprised of an overview of reports; TRL 610, 617, 585, 462, 584, 583 and 621

2004 – Cycling in Bus Lanes
Bus lanes are endorsed in the National Cycling Strategy as a particularly useful facility for cyclists and it is recommended that they should be designed for both groups of users. Surveys were carried out, and information gathered from cyclists, at six sites in Edinburgh, Hull, Derby and London. The principal finding was that cycling in bus lanes is very popular, and was related to increases in perceived safety levels and reductions in journey times.

Aims to help in the planning and execution of both classified traffic counts and axel load surveys. Shows how to analyse the data to give current traffic loadings and provides guidance on forecasting future traffic levels to predict the total traffic loading that a pavement will carry during its design life.

2004 – Impact of Road Humps on Vehicles and their Occupants
These study results aim to show objectively the possibility that road humps cause increased wear to vehicle components and injury to vehicle occupants, and gives suggestions on how these potential problems may be ameliorated.

2004 - Impact of Road Humps on Vehicles and their Occupants 2
Aims to show objectively the possibility that road humps cause increased wear to vehicle components and injury to vehicle occupants, and gives suggestions on how these potential problems may be ameliorated.

2004 – Measurement of the Acoustic Performance of Road surfaces
Greater use of noise reduction surfaces on roads could achieve considerable benefits. Provides a critical overview of the two main measurement methods of traffic noise and their interrelationships. Includes the results of an analysis that examines the degree of correlation of noise levels taken using the Close Proximity (CPX) method compared to the statistical Pass By (SFB) method.

2004 – Traffic Calming on Bus Routes – Assessment of Speed Cushions on Moredunvale Road, Edinburgh
Reports on the initial assessment of a recently introduced speed cushion scheme on Moredunvale road, as part of a larger assessment on the appropriateness of using road humps and speed cushions on bus routes.

2004 – Traffic Management and Air Quality Realistic Driving Cycles for Traffic Management Schemes
In most urban areas road traffic contributes significantly to emissions of the pollutants included in legislation, and is likely to be the most important source of air pollution in any designated area. This review and assessment may result in the declaration of an Air Quality Management Area (AQMA) and the need for a Local Air Quality Action Plan, where hotspots of pollution result mainly from traffic emissions. In order to develop action plans local authorities will need to be able to predict the effects of traffic management schemes on vehicle emissions and air quality.

Describes the accident analysis undertaken in order to determine the currency of the Design Manual for Roads and Bridges HD28 standard, concerned with the relationship between accidents and skidding resistance. Describes the results and the recommended revisions to the site categories and corresponding ILs, and an assessment of the potential benefits and costs in terms of accident savings and financial costs of surface treatments.

2005 – Behaviour At Cycle Advanced Stop Lines

Examines the behaviour of road users at cycle advanced stop lines (ASLs), a measure designed to increase cyclists' safety by allowing cycle users to move away from traffic signals in advance of motorised traffic. Presents the methodology used in the study to obtain quantitative data on the conflicts between cyclists and other road users at ASLs. Compares detailed data gained from each of the sites investigated. Discusses apparent behaviour. Draws conclusions and recommendations.

2005 – Effect of Road Narrowings on Cyclists

Describes the results of a study which considered the performance of several types of cycle facility. The study results make recommendations to practitioners to improve conditions for cyclists.


Enables more accurate future budgeting of maintenance funds. Prevents unnecessary strengthening. Enables some robust pavements with a medium risk of structural deterioration to be developed to a long-life pavement with a lower risk of deterioration. Assists maintenance engineers better define the evidence for maintenance decision processes. Presents two novel treatments, trench inlay and partial depth inlay, that offer the possibility to maintain long-life pavements in an efficient and sustainable manner.

2005 – Noise Barrier Review

Provides a brief overview of the theoretical aspect of noise barrier performance and examines different barrier options available, including full and partial covers, claddings, vegetative and median barriers. Considers the potential uses of photovoltaic barriers and the use of recycled materials. Discusses acoustic performance and cost effectiveness, as well as the situations in which they provide optimised noise mitigation.


Aims to evaluate the potential benefits, particularly with regard to shared road space, of a wide range of home zones in different parts of England and Wales.

2005 – Pilot Home Zone Schemes: Evaluation of Morice Town, Plymouth

Describes the development of the home zone concept in the UK and the DfT pilot home zone programme. Gives details of the streets forming the Morice Town Home Zone, the consultation and the implementation timetable. Describes the measures used to create a home zone there and details the data collected. Considers the impact of the zone on residents and traffic. Draws conclusions.

2005 – Pilot Home Zone Schemes: Evaluation of Nobel Road, Nottingham

Describes the development of the home zone concept in the UK and the DfT pilot home zone programme. Gives details of the streets forming the Nobel Road Home Zone, the consultation and the implementation timetable. Describes the measures used to create a home zone there and details the data collected. Considers the impact of the zone on residents and traffic. Discusses issues raised in the design. Draws conclusions.
2005 – Pilot Home Zone Schemes: Evaluation of Northmoor, Manchester
Aims to evaluate the potential benefits, particularly with regard to shared road space, of a wide range of home zones in different parts of England and Wales.

Describes the development of the home zone concept in the UK and the DfT pilot home zone programme. Gives details of the streets forming the Five Roads home zone and the consultation and implementation timetable, and describes the measures used in the Five Roads home zone to create it. Provides details of the data collection. Considers the impact of home zone on residents and traffic, and the issues raised in the home zone design.

2005 – ‘Psychological’ Traffic Calming
Describes the review of psychological principles and outlines the methodology used to develop suitable measures for non-physical traffic calming. Presents the results from focus group discussions and a questionnaire survey respectively, both designed to establish subjects’ opinions of the effect on speed of different road features. Describes a trial using the TRL Driving Simulator to assess the speeds adopted with different measures and the on-road schemes developed. Includes discussion and conclusions of results.

2005 – Traffic Noise Reduction Toolkit
Advises on issues concerning the prioritising and cost-effectiveness of the different measures designed to reduce the noise impact from road traffic. Following an examination of the acoustic performance of each measure the report provides, where possible, the input requirements to the London Road Traffic Noise Map model which would allow the effectiveness of measures to be estimated. Information concerning the overall costs of each measure is included where feasible.

2006 – Effect of Side Raised Entry Treatments on Road Safety in London
Intended to examine collisions at a large number of side raised entry treatments (SREts) on both Transport for London Road Network and London Borough roads to determine whether the expected safety benefits have been achieved. The focus is on SREts as a whole, not the design details. Relates the methodology, results from the preliminary data investigation and the statistical analysis of collision data, and a behavioural study.

2006 – Improved Design of Overlay Treatments to Concrete Pavements
Summarises the performance of several overlaid jointed concrete sites (slab lengths from 5m to 24m), and various sites containing a lean concrete base. The treatments applied included: variations in asphalt thickness; use of polymer modified binders; crack and seat techniques; saw-cut and seal; inter-layers; and concrete joint treatments. Guidance is given in this report for jointed unreinforced and jointed reinforced concrete pavements and flexible composite pavements with a cement bound granular material base.

2006 – Pavement Wear Factors
An examination of factors to be considered in the design of pavements, including effects of heavy vehicles and expected and estimated growth of traffic flow.

2006 – Pedestrian and Vehicular Detectors for Traffic Management and Control
Summarises findings on current capabilities of detectors for traffic control. Identifies where efforts to improve detectors should be concentrated. Considers infra-red pedestrian detectors for kerbside detection, microwave pedestrian detectors for on-crossing detection, image processing pedestrian detectors for kerbside detection, sub-surface pedestrian detection for kerbside detection, spread spectrum radar pedestrian detectors for both on-crossing and kerbside detection, microwave vehicle detectors for use with SCOOT and active infra-red detectors for use with SCOOT.
2006 – Pilot Home Zone Schemes Summary of the Schemes
Describes the development of the home zone concept in the UK and the DfT pilot home zone programme. Gives brief details of the streets forming the home zones and the consultation and implementation timetable. Describes the measures used to create the home zones. Provides details of the data collection. Considers the impact of home zones on residents and traffic. Looks at some of the issues raised in the home zones’ design.

2006 – Review of Road safety Good Practice in English Local Authorities
Looks at various road safety aspects and includes case studies for child safety, driver training and rehabilitation, safer speeds, motorcycling, enforcement, beliefs about risk taking and national targets and local action and acceptance of controversial schemes.

2006 – Study of Water Movement in Road Pavements
Describes the construction of the facilities for the experiment and instrumentation, and the results of a one-year period of observation. Includes a literature review used to identify suitable theoretical methods. The most appropriate of these have been used to estimate the water flows, and compared with the acquired data. The results have been compared with the observed flows to evaluate the accuracy and usefulness of the methods.

2006 – Traffic Signal Controlled Pedestrian Crossings on High-speed Roads
Final report from a project for the Department of Transport which aimed to review the guidelines for installing traffic signal controlled crossings on high-speed roads. The project had three elements: investigation of users’ behaviour at a selection of sites, stand-alone crossings and signal controlled junctions with pedestrian facilities; a driving simulator study of the behaviour of drivers and an investigation of factors affecting the safety record at a selection of sites. The report covers the results from all three phases.

2006 – Whole Life Value of Footways and Cycle Tracks
Presents the concept of whole life costing, its principles and a method of producing qualitative whole life costs. Discusses aspects which affect the choice of footway materials and the wider costs, such as claims, accidents, regeneration schemes and sustainability. Explores the impact of aesthetics. Considers ‘whole life value’ as a compromise between whole life cost and stakeholders’ requirements. Average costs and typical maintenance regimes are used to model the whole life cost of asphalt and flagged footways.

2007 – Child Safety on the Road
Includes over 80 abstracts of reports, conference papers, books and journal articles which focus on road safety training, education and research on accident prevention among children using the road, in many different countries. Specific topics include publicity for parents, methods for teaching school children, improving safety on the journey to school particularly by cycling or walking, encouraging the use of cycle helmets, the study of road traffic accidents involving children, and national accident reduction policies.

2007 – Highway Service Levels
Summarises the results of a study exploring public opinions of paved surfaces on the local authority road network in order to relate their requirements from the highway network to engineering standards currently used to manage the network. The results were gathered through discussion groups and interviews in Newcastle upon Tyne, Northampton and Chichester, and through accompanied journeys with individual users to identify the defects they noticed, their reactions to different levels of conditions and their priorities for maintenance.

2007 – Manual for Streets Evidence and Research
Relates research undertaken to provide the evidence base for the revised geometric guidelines in DCLG’s Manual for Streets, including for link widths, forward visibility, visibility splays and junction spacing. Presents a rationale behind the selection of the research study sites and discusses the variety of methods used to collect and analyse the field data.
2007 – Performance of an Interseasonal Heat Transfer Facility for Collection, Storage, and Re-use of Solar Heat from the Road Surface

Describes the design, construction, operation and performance of the instrumented test facility to recover heat from the road surface. Relates monitoring over a two year period, allowing for full seasonal assessments of the recovery of solar heat from the road surface, its re-use for winter maintenance of the road surface, and protocols simulating the winter heating and summer cooling of a nearby building. Includes numerical modelling and whole life costing for winter maintenance.

2007 – Review of Simplified Streetscape Schemes

Considers the likely safety implications of simplifying the drivers' visual environment by removing or reducing the use of traffic signs and road markings, and the possible consequences for other more vulnerable road users. Reviews the applicability of ideas such as ‘shared space’ and ‘naked streets’, that were originally conceived in a number of other countries to more urban environments in the UK. Uses a range of information sources to reach a conclusion.

2007 – Street Lighting and Vehicle Lighting Update

Contains abstracts of reports, conference papers, books and journal articles which focus on design and maintenance of street lighting, luminance levels, sustainable street lighting systems and the effect of street lighting on road safety. The material has a date range between 2004 and 2007.

2008 – Best Practice Guide for Overlaying Concrete

Identifies the different techniques for overlaying concrete, assists in the choice of treatment for a specific situation, and gives advice on how to maximise the durability of the treatment. Addresses pavements (jointed concrete and continuously reinforced) and bridge decks.

2008 – Early Life Skid Resistance – An assessment of Accident Risk

Presents the findings of a study to investigate if a link could be observed between new asphalt surfacings and accident risk, resulting from the presence of a film of bitumen binder on the new surface that is eventually removed by wear. Analyses accidents before and after resurfacing on the Highways Agency network. Collates and reviews anecdotal comment from the Agency’s area teams and maintaining agents, and from other highway authorities.

2008 – Effects of Climate Change on Highway Pavements and How to Minimize Them

Identifies those climate parameters to which pavements are vulnerable and the effects of these on pavement performance. Considers how the parameters may differ under climate change scenarios predicted for the UK in the 2050s and how this will impact on pavement performance and maintenance requirements. Suggests maintenance treatments and materials that may prove cost-effective. Addresses the roles of extreme weather events and drainage.

2008 – Guidance on the Lighting Requirement for Traffic Signs and Bollards

Provides guidance on current legal requirements for the illumination of traffic signs, luminance levels required for internally and externally lit signs, illumination requirements for trans-illuminated traffic bollards, and the DfT's current position regarding relaxation of requirements. Presents guidance given in the appropriate Traffic Signs Manual on the use of high performance retro-reflective materials for different signs. Identifies factors affecting optical performance, plus preventative and maintenance measures. Advises on the use of various types of sign and bollard.
2008 – Review of the Lighting Requirement for Traffic Signs and Bollards

Relates the results of a technical review into the requirement for local highway authorities to comply with the current statutory requirements for lighting traffic signs and bollards in areas with street lighting. Incorporates a whole-life cost benefit analysis and establishes the costs, life expectancy and maintenance of alternative types of illuminated traffic sign. Works towards determining when it is advisable to relax statutory requirement. Considers practice in other countries and the visual performance of retro-reflective materials.

2008 – Sustainable Choice of Materials for Highway Works a Guide for Local Authority Highway Engineers

Offers detailed practical guidance for local authority highway engineers, their contractors, designers and suppliers on how to choose materials and methods of work for highways taking into account sustainability and environmental factors. Concentrates on maintenance activities for road pavements and footways, but applies to new construction.

2008 – Urban Traffic Control

2009 – Accident Prevention Measures

Compiles abstracts of reports, conference papers, books and journal articles which focus on some of the measures now in use worldwide to protect the safety of road users. These include a range of safety engineering measures such as safety fences, rumble strips, skid resistant surfacing, improved carriageway marking, highway realignment, data analysis to identify hazardous locations, speed limits and collision avoidance systems.

2009 – Causes of Traffic Accidents

Compiles abstracts of reports, conference papers, books and journal articles which focus on road accident causation. Papers are abstracted on the influence of various factors on driving behaviour, such as stress, fatigue, drug and alcohol use, the relationship between road traffic accidents and speeding, driver age and gender, and highway design and environmental conditions.

2009 – Highway Drainage and Construction

Compiles abstracts of reports, conference papers, books and journal articles which focus on the design, construction and performance of highway drainage systems. Citations include papers dealing with culverts, open graded drainage layers, use of geosynthetic materials, filtration and stormwater management. Focuses on flooding, pollution prevention and sustainable drainage systems.

2009 – Impact of Street Lighting on Night-time Road Casualties

Relates research intended to provide robust evidence for the contribution of street lighting to road casualty reduction by statistically investigating the relationship between street lighting level and casualties occurring over a period of four years so as to improve the basis on which the cost-benefit of installing and operating street lighting is calculated. Contextualises results according to category of road.

2009 – Monitoring Progress Towards the 2010 Casualty Reduction Target

Summarises findings concerning the progress that had been made towards the various targets by the end of 2007. Presents analyses of the casualty and exposure data. Re-examines assumptions made in earlier forecasts. Includes a range of analyses of fatality data, with support from police contributory factor data. Compares casualty trends in deprived areas of England amongst other location types. Examines the likely numbers of fatal and serious casualties in 2010.
2009 – Review of the Class and Quality of Street Lighting

Presents the results of research into the class and quality of street lighting on all types of road. The research reviewed standards and guidance documents, costs of lighting equipment and local authorities' policies and specifications. The cost information was used in a whole-life-cost calculation of the hardware and energy costs over a 30-year life, to compare four types of lighting system. Concludes with a set of recommendations which should help local authorities specify optimum lighting for all lighting situations.

2009 – Sustainable Development

Compiles abstracts of reports, conference papers, books and journal articles which focus on the policy of sustainable development both at national and local level. Some address sustainability in engineering, such as the use of recycled materials in concrete, as well as road and structural construction and maintenance.

2009 – Traffic Calming

Compiles abstracts of reports, conference papers, books and journal articles which focus on the design and effectiveness of the various measures in use to calm traffic on residential and other urban roads. Subjects covered include home zones, shared use areas, 20 mph speed limit zones, redesign of busy areas to benefit pedestrians, psychological traffic calming, road narrowing, and assessments of the benefits and adverse effects of existing traffic calming schemes.

2009 – Traffic Signal Control

Compiles abstracts of reports, conference papers, books and journal articles which focus on the design, operation, optimisation, analysis and evaluation of traffic control systems. Covers real-time signal control systems for use with intelligent transport systems, simulation models of these systems, detection of delays, congestion relief, the contribution of traffic signal control to urban traffic management, control of traffic signals at isolated junctions, traffic signal priority systems, and specifications.

2009 – Variable Message Signs

Compiles abstracts of reports, conference papers, books and journal articles which focus on the technology and design of variable message signs and the way in which drivers respond to them. Covers the integration of variable message signs in traffic control systems and case studies of installation.
THE INSTITUTION OF HIGHWAYS & TRANSPORTATION

1990 – Guidelines for Urban Safety Management (USM)
Describes Urban Safety Management and how best to implement this new approach. The guidelines are intended to help Local Authorities to fulfil in urban areas their responsibilities for road safety as set out in the Local Authority Associations Code of Practice.

1991 – Reducing Mobility Handicaps
Common sense and attention to detail remain an important element of good practice while improving infrastructure for those with a mobility handicap will benefit everyone. The Institution commends these guidelines to all local authorities, developers, transport operators and others involved in the provision of transport infrastructure and facilities.

1995 – Aggregate Recycling and Alternative Materials in Highway Construction
The purpose of this paper is to address ways in which the use of primary aggregates within highway construction in the UK can be reduced. The existing situation is reviewed, the options available examined, and recommendations made where possible.

1998 – Camera Enforcement of Traffic Regulations
Divided into the following sections; what is camera enforcement; how does it work; what regulations are currently enforced; how do drivers respond; guidelines for implementation; the need for consultation; what are the funding issues; what other options are available; and what of the future.

1998 – Guidelines for Cycle Audit and Cycle Review (CACR)

1998 – Highway Design Providing for the Older Driver
Discusses how the human processes involved in driving change with advancing age. It gives guidance on the design of new roads and management of existing roads, where particular consideration for older drivers could be needed.

1998 – Urban Safety Management

1999 – Air Quality
Defines the adverse effects of pollutants in vehicle emissions regarding health. It also looks at the standards, legislation and strategies that are in place to limit the risks.

1999 – Bus Priority
Divided into the following sections; why do buses need priority; options for bus priority; enforcement; the role of IT; traffic signal controlled bus priority; vehicle identification; cost profile for satellite and fixed loop/beacon systems; vehicle guidance; and enforcement.

1999 – Guidelines for Rural Safety Management (RSM)
These Guidelines will interest everyone in road safety, particularly highway and traffic engineers, planners and other transport professionals working for local authorities. The Guidelines aim to develop a strategic approach to management of safety on rural roads, defined as roads where the speed limit exceeds 40mph.

1999 – Public Transport Passenger Information
2000 – Conjestion Charging
Divided into the following sections; what is congestion charging; why use congestion charging; levels of charge, exemptions and technology; what are the main objectives; and what is the alternative.

2000 – Providing for Journeys on Foot
Intended to support the UK Government’s recent publication “Encouraging walking: advice to local authorities”. It is aimed at practitioners in local authorities, consultancies and elsewhere who have the task of implementing these measures.

2000 – Special Parking Areas

2001 – Environmental Management of Highways
Describes best practice in managing and maintaining a transport infrastructure, especially highways, in such a way as to minimise potentially harmful environmental impacts and maximise environmental gains. Intended for use by planners, architects, highway engineers, traffic engineers and maintenance engineers, in both the public and private sectors as well as Councillors, voluntary groups and others who wish to pursue improvements to the highway environment. The guidelines cover; policy context, environmental management systems, drainage and runoff, air and noise quality management, landscape, management of ecology and of highways within the built heritage.

2001 – Park and Ride
Looks at ways of introducing and managing a successful park and ride scheme.

2005 – Parking Strategies and Management
Sets parking policies in context by looking at both national and regional issues, parking policies, the powers and processes of the planning system and looks at how to prepare parking strategies. Provides valuable information on how the objectives and measures can be achieved, how to formulate parking interventions, implementation and delivery of schemes, public consultations, compliance and enforcement, funding, marketing and communications.

2005 – Traffic Calming Techniques Experience and Practical Advice With 80 Case Studies
Illustrates changes to traffic calming techniques, looks at design and implementation, highlights lessons learned from practical experience and considers future applications.

2007 – Collision Prevention and Reduction
Illustrates how collision data informs policy-making. Addresses data’s suitability for this and the strengths and weaknesses of various types, as well as evaluating analytical tools. Shows how to achieve a strong structure utilising best existing practice and describes the results of research into the structural characteristics of high-performing local authorities. Outlines road safety engineers’ methods and discusses building these methods into a context-sensitive system. Considers how to achieve road safety in the context of local government finance and monitoring.

Aims to minimise injury to road users, through examination of design and construction practices of new schemes and other improvements to the highways. Details and defines the scale of the problem and works on the premise that prevention is better than cure. Sets out the context and road safety audits in practice and looks at examples from outside the UK. Studies national standards and advice. Looks at road safety audits carried out on local streets and the issues to be considered by Local Authorities. Offers suggestions to development of a local procedure and policy and discusses the legal implications of the road safety audit.
2004 – Home Zone Design Guidelines

"Home Zone" is a term to describe a street that has taken the design considerations of both traffic and people equally, with the emphasis on quality of life being more important than ease of traffic movement. Providing useful advice for planners and designers with examples taken from 11 case studies around the UK. Details cover description of home zones, design guidance for planning, location, sizing, defining space, activity design, people and vehicles, parking, safety, elements and maintenance. Appendices cover legislation, traffic calming, 20 mph zones and limits and a summary of key guidance.
2000 – Crossing High-Speed Roads on Foot During Temporary Traffic – Management Works
Provides advice on health and safety issues where traffic-management workers cross on foot the carriageways of high-speed roads which are open to traffic.

Offers practical guidance to help designers meet their duties under the Construction (Design and Management) Regulations 2007 (CDM2007), also known as the ‘CDM Regulations’. Details legal duties, need for action, types of accidents, health issues relevant to construction, hazards are identified in various sectors and risk mitigation factors are considered.

2007 – CDM2007 – A Summary of Amendments
Provides an overview of the CDM 2007 Regulations in terms of their purpose, the reasons behind the revision, a summary of the major technical changes, implementation dates and transitional arrangements.

2007 – CDM2007 – Questions and Answers
Interprets the Construction (Design and Management) Regulations 2007 from the perspective of queries likely to arise from them. Details solutions to a range of legal compliance issues. Organises information according to the various duty holders, project stages and safety aspects. Intended for any involved in the design and management of commercial construction projects, such as clients, designers and contractors.

2007 – Corporate Responsibility – The Duties and Responsibilities
Summarises the duties and responsibilities of each party involved in a project under the Construction (Design and Management) Regulations 2007: contractor, client, CDM coordinator, designer and the principal contractor.

2007 – Guidance for Principal Contractor
Introduces the new Construction design and management (CDM) regulations 2007 and details who the regulations applies to, summarises the changes, looks at the duties for clients, CDM Co-ordinator, designers, contractors and self-employed and workers. Discusses at length the issues for the Principal Contractor, including client involvement, competence, planning/managing, contractors, information, co-operation and co-ordination, health and safety plan, welfare facilities, control of access, site rules, design changes, health and safety file, training, workforce and legal notices.

2007 – Managing Health & Safety in Construction – Code of Practice
Provides practical guidance on complying with the duties set out in the Regulations. Considers the roles of clients, CDM co-ordinators, designers, the principal contractor, and contractors and the self-employed. Also covers competence and training as well as worker engagement and communications.

Outlines clients’ duties under CDM Regulations for all construction projects and notifiable construction projects specifically. Answers frequently asked questions.
2008 – Client’s Guide to Health & Safety for a Construction Project
Aims to assist construction clients in understanding the health and safety duties enforced under the Construction (Design and Management) Regulations 2007 and to help ensure that a project is safe to build, use and maintain. Distinguishes ‘non-notifiable’ and ‘notifiable’ projects. Addresses the role of the CDM co-ordinator, how to determine the competence of other duty-holders, what may expected from those working within a design team, and any legal liabilities to bear in mind.

2009 – Protecting the Public – Your Next Move
Provides practical advice on how those designing, planning, managing or carrying out construction work can minimise the risks to the public and others not directly involved. Summarises applicable laws. Discusses addressing the site perimeter and other boundaries as well as developing authorisation procedures. Outlines specific hazards, risks and their control. Identifies vulnerable groups and premises which require special attention.
1998 – Disabled People and the National Cycle Network
In partnership with Sustrans, Local Authorities and other organisations all over the UK are developing the National Cycle Network. This document addresses issues relating to its use by disabled people.

1998 – Shared Use Routes
Addresses issues about the shared use of paths by cyclists with other users on the national cycle network.

1999 – Cycle Routes – Their Impact on Neighbours
Discusses the possible impacts on residents, landowners and others by a proposed cycle route. Covers property values, community benefits, visual effects, noise, privacy, trespass and security, livestock and farming, and wildlife.

1999 – Designing for Security on the National Cycle Network
Addresses the security aspects of the design of cycle routes.

1999 – Removing Barriers on the National Cycle Network
Looks at barriers - or access controls - on the National Cycle Network. It gives advice for wheelchair and disabled scooter users, and cyclists with trailers, tricycles and other non-conventional machines wishing to use the network.

2004 – Cycle Parking
Offers guidance on the best solutions to the provision of secure, well located cycle parking. Covers location, design and installation, amount of parking needed, siting details and costs/funding.

2004 – Rural Minor Road Traffic Calming
Discusses traffic calming on rural minor roads, covering types of traffic calming, speed limits, access restrictions, signs, road markings, surface treatment, road narrowings, road humps, speed cushions, speed cameras, changed priorities, reverse measures, monitoring, management and consultation.

2006 – Cycle Parking for Schools
Offers guidance on the best solutions to the provision of secure, well located cycle parking in school grounds. Covers location, design and installation, amount of parking needed and costs/funding.
2004 – Part 1 – Handbook of Road Safety Measures – Contents and Introduction
Describes the method used in surveying and analysing the literature the book is based on, factors contributing to road accidents, basic concepts of road safety research, the quality of road safety evaluation research, and scientific approaches to planning and policy-making.

2004 – Part 2 – Handbook of Road Safety Measures – General-purpose Policy Instruments
Relates current knowledge of how general purpose policy instruments affect traffic safety. Distinguishes fourteen types of measure, including safety community programmes, exposure control, land use plans, road safety audits, and road traffic legislation.

2004 – Part 3 (Chapter 1) – Handbook of Road Safety Measures – Road Design and Road Furniture
Describes the effects on accidents of twenty measures based on road design and road equipment. Examples of measure include motorways, bypasses, urban arterial roads, channelization of junctions and roundabouts.

2004 – Part 3 (Chapter 2) – Handbook of Road Safety Measures – Road Maintenance
Covers nine measures involving road maintenance, including ordinary resurfacing, improving evenness of the surface, landslide protection, measures and winter maintenance. These measures are carried out on existing roads and do not normally involve any long-term alterations to the road.

2004 – Part 3 (Chapter 3) – Handbook of Road Safety Measures – Traffic Control
Covers the effects of twenty-one traffic control measures on accidents, mobility and the environment, including area-wide traffic calming, pedestrian streets, yield signs at intersections, speed limits and road markings.

2004 – Part 3 (Chapter 4) – Handbook of Road Safety Measures – Vehicle Design and Protective Measures
Describes twenty-eight measures influencing safety which involve vehicle design and personal safety equipment, including tyre tread depth, studded tyres, ABS and disc brakes, and extra high-mounted stop lamps.

2004 – Part 3 (Chapter 5) – Handbook of Road Safety Measures – Vehicle and Garage Inspection
Describes four measures concerning motor vehicle inspection which influence accidents, mobility and the environment: compliance control for vehicle safety standards, periodic motor vehicle inspection, roadside inspections of vehicles, and garage regulation and inspection.
2004 – Part 3 (Chapter 6) – Handbook of Road Safety Measures – Driver training and Regulation of Professional Drivers
Describes thirteen measures which cover requirements for drivers, basic driver training and professional driver training, including driving emergency service vehicles and transporting school children, which affect mobility and the environment. Examples of measures defined are: licence age limits, health requirements for drivers, and driver performance standards. Also addresses costs and cost-benefit assessment.

2004 – Part 3 (Chapter 7) – Handbook of Road Safety Measures – Public Education and Information
Deals with the effects of four measures in the field of road safety education and information on accidents, mobility and the environment together with costs and cost-benefit evaluations: variable feedback signs, education of pre-school children, education in schools, and road user information and campaigns.

2004 – Part 3 (Chapter 8) – Handbook of Road Safety Measures – Police Enforcement and Sanctions
Describes eleven measures in the area of enforcement and sanctions which influence safety, mobility and the environment, as well as costs and benefits, including stationary speed enforcement, patrolling, blood-alcohol concentration legislation, and seat belt enforcement.

2004 – Part 4 – Handbook of Road Safety Measures – Vocabulary and Index
Defines technical terms used throughout the document. Lists abbreviations and provides an author index.

Gives the practical information needed by every roadworker, highway technician, incorporated, graduate or chartered engineer concerned with the construction and maintenance of roads and highways. It explains the basic theory of road construction and its associated activities, together with practical working methods and the newer developments in techniques, plant and materials. Revised to reflect changes in EU standards and highway terminology.

Describes survey methods and techniques for predicting traffic flow. Considers the concepts of traffic capacity and flow. Relates techniques for estimating the effects of flow on highway performance. Addresses the fundamentals of traffic management and control. Discusses allocating priority to different types of traveller and vehicle, vehicle parking, road safety engineering and concepts of designing in safety measures to deal with pre-existing problems. Covers traffic calming and priority measures for public transport, sustainable transport, new technology, enforcement, and legislative framework.
Design Manual for Roads and Bridges

Manual of Contract Documents for Highway Works
1974 – Guide To Good Practice For Road Edge Details
Describes and classifies the various types of road edge detail in use, comments on materials, design, construction methods and maintenance, and makes recommendations for preferred practice in the UK.

1983 – Special Report - Residential Roads Researched
Presents the results of a study by Oxford Polytechnic's Buildings Research Team into how shared road surfaces between cars and pedestrians in housing estates has worked in practice.

1985 – Joints In Concrete Roads Aspects Of Construction And Performance
The report deals with the main types of joint in concrete roads and the problems associated with them, including the junction between rigid and flexible pavements. It also includes discussion of joint sealants, joint movement, continuously reinforced concrete pavements, remedial work at joints and information storage. Alternative load transfer systems to dowels are discussed.

1988 – Flexible Paving With Clay Pavers
Provides design specification and detailed construction guidance for flexible paving.

1990 – Design Of Flexible Pavements Surfaced With Clay Pavers
Describes the criteria to be applied to the design and structure of flexible pavements surfaced with clay pavers.

Addresses major issues identified in the Horne Report associated with circumstances when major highway bridge or transport improvement works affect undertakers apparatus, or when highways or bridges are made redundant.

1993 – Whitetop – concrete Overlays and Inlays
Updates engineers, consultants, clients and students on the techniques of concrete overlay construction ('whitetopping') to rehabilitate roads reaching the end of their service lives. Whitetop options of bonded and unbonded overlays, and inlay into bituminous surfacing, are examined together with assessment of old pavements, preparation, concrete mix design and motorway widening opportunities.

1993 – Foamed Concrete - Reinstatement Of Openings In Highways
Covers strength requirements, ingredients, production, general information, and safety.

1994 – Concrete Pavements for Highways
Looks at four basic options for constructing roads with a concrete surface; CRCP, URC, JRC and CRCR.
1995 – Fast-track Concrete Paving (FTCP)
Fast-track concrete paving (FTCP) is a procedure which uses a selection of simple, reliable, proven techniques to enable concrete paving to be opened to traffic at a very early age - after only a few hours if necessary. The techniques can be selected to match the construction needs of each contract.

1996 – Car Parking
Reviews the issues surrounding the optimum provision of car parking facilities for healthcare premises, offers a loose framework for appraising the options, and enables healthcare managers to effectively brief designers by providing them with an overview of the issues to be addressed. The case study highlights the complex issues involved through a detailed analysis of the car parking at Guy’s and St Thomas’s Hospital Trust.

1996 – Car Park Lighting – Dilemma Solved
Relates the findings of 3 years of study by a working group who visited 90 multi-storey car parks and 30 surface car parks across the UK.

1997 – Energy Minimisation In Road Construction And Maintenance
Describes the significant energy and cost savings that can be achieved by using alternative materials and techniques for road pavement construction and maintenance. In particular, the report describes the importance of ensuring pavements are designed to take full advantage of the properties of the alternative materials/techniques being used.

1997 – Road Recycling Using Cement
Looks at the environmental pressures to recycle roads, and highlights the suitability of cement as a binder in recycling.

1998 – Environmental Handbook
Examines the environmental impact of roads with advice on minimising or control. Subjects covered include new or maintenance work, rural and urban roads, verges and boundaries, weed control, trees and shrubs, fauna and flora, pollution, important conservation areas, bridges, lighting and re-cycling.

1999 – Car Park And Landscape Design
Prepared to give information on the planning, design and management of sports facilities.

1999 – Tactile And Guard Surfaces
Tactile paving surfaces can be used to convey important information to visually impaired pedestrians about their environment, for example, hazard warning, directional guidance, or the presence of an amenity. Guidance is given on the use of a number of different types of tactile surfaces to give warning of potential hazards and for amenity purposes to give guidance and information.

2000 – Traffic Claming Trials
Examines a range of traffic calming techniques to improve road safety on our trunk road network.

2001 – 20 mph Speed Limits
Provides information on the background to changes in legislation for 20mph zones. Details are given for signing and consultation, monitoring and evaluation of mandatory and advisory 20mph speed limits and variable speed limits.

2001 – Best Practice in Street Works and Highway Works
Gives examples of best practice in street works and highway works. It aims to help utility companies, highway authorities and other organisations carrying out works in the street to build on these principles to avoid unnecessary disruption and inconvenience to the public.
2002 – Main Elements in Designing and Construction a Path
Presents a checklist for designing and constructing a path

2004 – Installation and reinstatement of Concrete Kerbs, Channels and Similar Products
Looks at the installation of concrete kerbs, channels, edgings, linear drainage, combined kerb and drainage units and other similar products.

2004 – 20 mph Speed Limits Around Schools
Provides guidance on the introduction of 20mph speed limits outside schools on roads with speed limits higher than 30mph. Covers signing, publicity and resource implication.

2004 – Construction Of Concrete Block Pavements
Construction guidance based upon information from various guides and hands-on best practice experience.

2004 – Design and Detailing Concrete Block Pavements
Covers areas such as block laying patterns, coloured blocks, proprietary shapes or systems and other design considerations. Also looks at fallen, edge details, manhole details and drainage channels.

2004 – Design and Detailing With Concrete Kerbs, Channels and Similar Products
Covers areas such as sizes and shapes of the products, profiles and applications, tolerances, bending strength and detailing.

2005 – Chuck Out The Chintz
Looks at the cleaning up of the streets of Kensington; the Royal Borough of Kensington and Chelsea has removed much of the street furniture, road markings, railings and signage to reduce the amount of clutter on the street.

2005 – Accesibility and Safe Street Works
Presents guidance for making work areas safe for older people and people with disabilities, particularly on pedestrian routes.

2005 – Bus Stop Design Guide
For use by all types of professionals involved in the planning, design and provision of bus stop infrastructure so that good practice can be applied consistently across Northern Ireland.

2005 – Concrete Kerbs
Kerbs and edgings provide edge restraint for all types of external surfaces, including concrete block and flag paving. They mark the differentiation between road and footway, giving a visual warning to pedestrians and vehicles with a change of level. Channels are used to intercept and transport surface water but can also be used for edge restraint. Precast concrete kerbs, channels and edgings are used wherever a pavement edge restraint or drainage channel is required.

2005 – Handling Kerbs
Produced to help with the reduction of risk resulting from the installation of highway kerbs

2005 – Permeable Paving Projects
Three case studies form the focus of this report: a park and ride facility, a secondary school, and an environmental enterprise initiative.
2006 – Designing For Cyclists A Guide To Good Practice
Summarises current design advice and highlights key points for improving cycle facilities. Outlines the legal processes necessary to introduce cycling facilities.

2006 – Designing For Pedestrians A Guide To Good Practice
Sets out technical guidance for designers and engineers on a range of facilities to provide for an enhanced walking environment for all. Focuses particularly on improving the walking environment to give greater access to persons with mobility impairment.

2006 – Transforming Our Streets
Sets out what is being done to tackle the problems with the design, regulation, management and maintenance of our streets.

2007 – Cutting Paving
Suggests alternative layouts for block paving to minimise health risks associated with cutting block paving.

2007 – Which Contract

Establishes inclusive design practice for road infrastructure covering construction, operation and maintenance, to ensure environments are created that can be used by all, regardless of age or disability.

2009 – Sustainable Drainage Systems
Traditionally surface water has been removed from built up sites using underground pipe systems, preventing localised flooding. This article looks at sustainable drainage systems (SUDS), also called sustainable urban drainage systems, which are made up of one or more structures built to manage surface water runoff, used in conjunction with good management of the site.

2009 – Highway Code