Streetscapes Design Guide

July 2022

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Contents

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1. Introduction

1.1 Purpose

In this Streetscape Design Guide, Worcestershire County Council sets out guidance for homeowners, developers and their consultants, in formulating designs and making applications for planning permission. The principles and requirements are founded upon providing safe and free flowing movement for all categories of road users.

This Guide reflects the design philosophy of the 'Manual for Streets' 1 and 2 documents, recognising that streets have a wider role to play in creating a sense of place and community, as opposed to simply having a functional transport role.

The criteria in this Guide is to act as the main point of reference and the requirements we expect to be applied. The Guide includes:

- Requirements and guidance on access, layout and connectivity;
- Standards on parking provision;
- Advice to facilitate planning for passenger transport; and
- Requirements and processes for creating an adoptable streetscape.

The Guide complements the policies set out in the Development Plan Documents (DPD) and Frameworks of the Local Planning Authorities.

1.2 Aims

The challenge for all developers is to create attractive, accessible communities which deliver a high quality of life; places where people want to live, work and invest. To achieve this, the following aims should be considered when providing transport infrastructure and services in new development:

- Ensure that new development relates to its context, with transport links integrating seamlessly within the built and natural environment to the benefit of new residents, adjacent occupiers and existing communities alike;
- Ensure that transport infrastructure is designed to encourage alternatives to the private car, by providing convenient, safe and attractive provision for pedestrians, cyclists and passenger transport users to key trip attractors, permeating both new developments and existing communities;
- Ensure the design of streets within new developments continues to accommodate necessary vehicle movements, and facilitate car parking, but seeks to encourage traffic speeds of 20mph or less;
- Ensure new development is intuitive in its approach, providing easy and safe access between highways, car parking areas and dwellings for everyone, including those with visual and mobility impairment;
- Ensure that new developments are designed to provide a safe, secure and sustainable environment, including embracing sustainable green infrastructure throughout the design process, recognising the central role that such infrastructure plays in delivering liveable, attractive communities and improving public health;
- Secure a movement network which is adoptable, with an extensive design life and easily maintained.

Design Guide Context

The Streetscape Design Guide is written to provide necessary local detail on highway design and wider transport issues, and should be considered in conjunction with other national guidance and best practice documents.

The National Design Guide: Planning practice for beautiful and enduring and successful places (2019), as prepared by the Ministry of Housing, Communities & Local Government, (Part 1 Para 1) states that:

"Places affect us all – they are where we live, work and spend our leisure time. Well-designed places influence the quality of our experience as we spend time in them and move around them. We enjoy them, as occupants or users but also as passers-by and visitors. They can lift our spirits by making us feel at home, giving us a buzz of excitement or creating a sense of delight. They have been shown to affect our health and well-being, our feelings of safety, security, inclusion and belonging, and our sense of community cohesion"

Paragraph 9 of the National Design Guide acknowledges that "specific, detailed and measurable criteria for good design are most appropriately set out at the local level. They may take the form of local authority design guides, or design guidance or design codes prepared by applicants to accompany planning applications".

This Streetscape Design Guide sets out good practice design guidance for Worcestershire.

1.3 Management of the Transport Network

Worcestershire County Council is the Local Highway Authority for Worcestershire . It is responsible for managing the following aspects of the transport network:

- All public highways with the exception of the Strategic Road Network (M5 and A46(T)), which is managed by National Highways;
- Public Rights of Way;
- On-street car parking;
- Some public off-street car parking (where associated with Council-run facilities such as Country Parks);
- Some bus services;
- Community transport schemes.

Worcestershire County Council's Development Management Team is responsible for coordinating the Local Highway Authority's response to consultations received for new development proposals, in respect of highways and transport issues. The Development Management Team are able to advise designers on a variety of matters, including responsibilities for transport infrastructure.

Worcestershire County Council strongly advocates the message that a coordinated design process is essential for successful development. The Local Highway Authority reinforces this approach and supports the early establishment of development teams to promote proactive joint working, and encourages the Local Planning Authority's Development Management team to engage at an early stage, ensuring a holistic approach to development is provided.

Worcestershire County Council's Section 38/278 Development Control Team are responsible for managing the delivery of developer led schemes, overseeing the creation of new highways and improvements to the existing highway network. This also includes technical checking, the approval of submissions and the inspection of site works. The Section 38/278 Team can advise designers on a variety of detailed highway design matters.

1.4 Useful Contacts

Planning decisions are made by the Local Planning Authority. To contact the Local Planning Authorities, or to contact other useful / related authorities and organisations, a Useful Contacts list is provided in **Appendix A**.

1.5 Philosophy

Innovative designs which challenge the status quo (whilst meeting the requirements set out in relevant statutory legislation and non-statutory guidance), will be considered on a case by case basis.

However, it is strongly advised that any proposals are discussed at an early stage with the County Council's Development Management Team as part of best practice.

Any such designs will need to include supporting evidence, to show how the designs meet relevant guidance and consider the safety of users, and any maintenance implications.

New highway and modifications to existing infrastructure can result in major impacts to protected and declining species, via severance and destruction of valuable habitats. Early engagement with an Ecological Consultant is key to reducing costly delays, by incorporating mitigation into highway design and ensuring developments comply with the necessary legislation and best practice. See details in **Appendix B**.

National policy requires that all proposals should aim to achieve a "net gain" in biodiversity and be integral to the scheme. Schemes that cannot achieve this will need to demonstrate why this has not been possible.

In addition to allowing people and goods to travel from one location to another, the transport network caters for a much wider range of activities, particularly in urban areas. At any one time in a typical urban street, it is possible to see a mixture of people using a single route, travelling on foot, cycling, driving a mobility scooter, a car, a van, and a lorry. All such users are using the street as a link; a means of getting from one place to another.

Similarly, wildlife may use the hedgerows, trees and grassland in verges along the carriageway as undisturbed means of dispersing to larger areas of natural habitat, forming important wildlife corridors or stepping stones.

Additionally, these road verges may have intrinsic value for wildlife by providing opportunities for overwintering, breeding, foraging and taking refuge.

Many of which are designated as Roadside Verge Nature Reserves

(www.worcestershire.gov.uk).Wildflower verges currently provide invaluable stepping stones for declining pollinators, so the permeability of the landscape should be maintained and enhanced by new development, and act to support national initiatives such as the National Pollinators Strategy.

Streets are also seen to accommodate a number of other functions. For example, the street may be used by people to host events, markets, demonstrations, social gatherings, somewhere to eat and drink and for sightseeing; these functions are all uses of the street as a place.

Consideration of a route's link and place function is an essential part of the development process. This directly contributes towards creating successful and attractive spaces, which can also be seen to benefit wildlife.

Worcestershire County Council suggest that developers consider this in the context of statutory legislation and non-statutory guidance (**Appendix B**), and agree proposals with the Development Management Team.

1.6 Guide Review

The Streetscape Design Guide will be reviewed annually, to ensure that it remains current to changes in national and local policy, and is seen to reflect emerging design / travel evidence and trends. The document may be reviewed sooner should more fundamental changes be required.

2. The Design Process

2.1 Related Design Guidance

Designing highways has changed. It is no longer common practice to make vehicles the dominant feature of a street. This message is echoed throughout Central Government design guidance and policy.

The design guide 'Manual for Streets' notes significant flaws in past road hierarchies stating that:

"In the past, road design hierarchies have been based almost exclusively on the importance attributed to vehicular movement. This has led to the marginalisation of pedestrians and cyclists in the upper tiers where vehicular capacity requirements predominate. The principle that a road was primarily for motor traffic has tended to filter down into the design of streets in the bottom tiers of the hierarchy… Streets should no longer be designed by assuming 'place' to be automatically subservient to 'movement'."

Manual for Streets

Manual for Streets 1 and 2 aims to transform the quality of road design, breaking away from the standardised, risk-averse approaches. It provides designers with advice on how carriageway widths, alignments and cross-sectional details can be designed in a way that better respects local context and the needs of users other than motor traffic.

Manual for Streets goes on to state that the design of any new road or improvements to an existing road, should follow a user hierarchy as set out below:

Consider:	Description:
First	Pedestrians
	Cyclists
	Public Transport Users
	Specialist Service Vehicles i.e. emergency services, waste etc.
Last	Other Motor Traffic

Manual for Streets forms the basis of the Streetscape Design Guide, for the design of low speed residential roads.

Similar to Manual for Streets, the Streetscape Design Guide seeks to strike the right balance between allowing designers the flexibility to create distinctive high quality streets within developments, whilst also ensuring that planned transport infrastructure is resilient, stands the test of time and is cost-effective to maintain.

It provides guidance for practitioners involved in the planning, design, provision and approval of new, and for the modification of existing streets. It is suitable for low trafficked residential streets and other Local Highway Authority roads.

Where the application of MfS1 and 2 is not appropriate, the standards set out in DMRB should be considered.

Design Manual for Roads & Bridges (DMRB)

Design standards set out in DMRB relate to the Strategic Road Network managed and maintained by National Highways. DMRB can be applicable to the Local Highway Authority managed roads such as high speed roads, large roundabouts and signalised junctions

2.2 Application of Design Standards

The Streetscape Design Guide, also referencing Manual for Streets and DMRB (including possible Interim Advice Notes), provides a framework for the design of new transport infrastructure.

In the event of confusion, developers are encouraged to make contact with Worcestershire County Council, as the Local Highway Authority, to obtain clarification in writing. The application of appropriate standards is paramount for road safety.

2.3 Design Process Stages

As an overview to the role of the Local Highway Authority, a flow chart setting out the various stages of the planning application and design process is provided in **Appendix C**.

2.4 Integrating Infrastructure and Environmental Context

Consideration of the environmental context of the site will provide many opportunities for enriching the streetscape experience.

Green Infrastructure

Integration of green infrastructure has proven health, environmental and economic benefits. Worcestershire County Council published its Green Infrastructure Strategy and its vision is that:

Worcestershire's high quality natural and historic environment will fulfil a multi-functional role. It will enable sustainable growth of the economy, improve the community's experience of natural and historic places, deliver benefits to health and well-being and underpin the county's resilience to climate change.

It is expected that proposals for investment in infrastructure will actively incorporate green infrastructure as an integral part of the development or to replace traditional infrastructure approaches with green solutions, where retro-fit improvements to highways are planned.

Trees In the Streetscape Environment

Trees found within the urban environment can make a significant contribution to promoting economic value, a sustainable integrated infrastructure approach, climate change adaptation and human health and well-being.

The increasing spatial flexibility of streetscape design context should prompt a design approach that explores greater diversity in the tree assemblage.

There is a logic (not least visual) to planting single species street trees in Avenues and Boulevards. By contrast, with the street there is an opportunity to introduce a range of species of different structural characteristics and heights, to further soften the overall character and create temporal view points for people walking along the street.

Varying height, structure and the appearance of trees (leaf colour, bark texture and flowering season) can create a greater sense of depth and filtered views, therefore, adding to the experience of these particular places, that sets them apart from more formal streetscapes.

It is commonly perceived by Local Authorities and developers that the installation and maintenance of trees requires high capital investment and high maintenance costs.

Trees in Hard Landscape, A Guide for Delivery by the Design Action Group (TDAG) is a publication commended by the Minister of State for Transport. It explains the collaborative process to be adopted in designing with trees, providing technical design solutions and species selection criteria. The aim of the guidance is to ensure the right tree and right technical design solution is included in street design. The process and installation and maintenance need not be costly, if integration and adequate provision for trees in the planning and adoption processes is secured from the outset.

Worcestershire attaches great importance to the contribution that a diverse mixture of tree planting can make to our environment. Where possible, existing trees must be integrated within new development proposals. It is important to engage an arboriculturist to carry out a tree survey in accordance with the British Standard BS: 5837 2012 'Trees in relation to design, demolition and construction – Recommendations'.

Early recommendations in the development of new highway infrastructure, will help to establish the health, longevity, root zone and tree works required, and will aid in the decision making of any road alignment. The removal of trees should be a last resort and should only occur following a collaborative process, determining that a tree's retention is impossible.

Trees And Sustainable Drainage Solutions (SuDS)

The development of the design details for the street should incorporate water-sensitive design where appropriate. The design needs to ensure:

- There is allowance for some precipitation to reach the tree-rooting environment,
- Full advantage of the capacity of the trees rooting environment is taken into account to help manage stormwater runoff, and
- Trees are explicitly integrated in the surface water drainage plan for the site in accordance with SuDS best practice.

Further guidance on the delivery of SuDS can be found in The SuDS Manual (C753).

The updated SuDS Manual incorporates the very latest research, industry practice and guidance. In delivering SuDS there is a requirement to meet the framework set out by the Government's 'non statutory technical standards' and the revised SuDS Manual compliments these, but goes further to support the cost-effective delivery of multiple benefits.

Environmental and Ecological Impact Assessments

Some of Worcester's scarcest species have populations reliant on the careful management of the county's highway networks. Appropriate levels of ecological assessment should be carried out to work as an iterative process with the development, as part of the wider ecological assessment.

In England and Wales, the requirements of the Environmental Impact Assessment (EIA) Directive (with regard to road projects), has been transposed into UK statute by Section 105 of the Highways Act 1980, as amended by the Highways Regulations 2007.

Developments classified as relevant under the EIA Directive Annex II, will therefore need further assessment in accordance with the DMRB standards concerning Sustainability and Environment, to establish whether significant environmental impacts are likely to arise during construction and operation.

To inform the baseline of these assessments, reference should be given to Worcestershire County Council resources and datasets, with specific focus to the Green Infrastructure Framework 2 report which will assist in establishing baseline conditions at a sub-regional context, and provide guidance on the process of carrying out an Ecological Impact Assessment (EcIA).

Worcestershire County Council provides and maintains a mapping data resource at an overall spatial level, which can be accessed at: **gis.worcestershire.gov.uk.**

New development and highway infrastructure often impacts upon the existing landscape. To avoid detrimental effects on the landscape character, a full assessment of the existing character and its ability to accept change needs to be established.

Worcestershire's Landscape Character Assessment provides guidelines for the protection and enhancement of the rich and varied landscape character types. It indicates where pressures for change are occurring and what future planning and management needs to be incorporated into development plans.

Similarly, Worcestershire's Historic Landscape Characterisation provides a framework for informing landscape strategies, spatial planning and development control. It is being used by the County Council or District Council strategic planning or conservation staff, especially those with responsibility for setting frameworks for change, or making decisions that might affect the County's historic landscape character.

Streetscape Design and Wildlife Mitigation Measures

Where new or altered roads risk fragmenting contiguous natural habitats and all options to avoid this have been exhausted (and there is evidence to demonstrate this process), Worcestershire County Council require that best practice mitigation measures, such as mammal passes, inset kerbs, tunnels, drains with wildlife exit routes, and arboreal hop-overs are incorporated along known wildlife corridors. Highway design is expected to take the mitigation hierarchy into account.

2.5 Principles of New Development

Accessibility and sustainability are key factors for the Local Highway Authority in determining if the principle of development in a certain location is accepted.

> Sites which have a poor relationship to key local amenities by sustainable modes, including food retail, health, education and employment, are unlikely to receive a positive recommendation from the Local Highway Authority.

Within the NPPF, Chapter 9 'Promoting Sustainable Transport', paragraph 103 states that:

'The planning system should actively manage patterns of growth in support of these objectives.

Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a ***genuine choice of transport modes.*** *This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making'.*

NPPF is further supported by local policy, included in the South Worcestershire Development Plan (SWDP), the Local Development Frameworks and the Local Transport Plan 4. These echo the requirements for sustainable developments and the siting of development in a location that *'is offering a genuine choice of transport modes'*.

As such, new developments must ensure they comply with national and local policy regarding sustainable development and accessibility, and to this end, new developments must ensure they offer a choice of access modes and are not solely reliant on car use.

Local Highway Authority Criteria Guide

The Local Highway Authority provides the following criteria as a guide to determine if the developments location meets with accessibility / sustainability requirements:

- The site should offer a genuine choice of transport modes for access. This might include the provision of footways for pedestrians, lit routes, adequate surfaces, the ability to cross at junctions, access to frequent public transport, or routes suitable for cycling, etc
- The site should have access to a basic level of amenities; including education, employment, health and retail. These should be accessible by modes other than the private car;
- Supported by National Travel Statistics and the CIHT, walking is generally considered a viable travel choice up to 2000 metres (25 mins), where short journeys are required. Cycling has the potential to substitute for short car trips, particularly those under 5km (25 mins) and to form part of a longer journey by public transport. The condition of the route is however an important consideration.

Development locations which fall short of the above guidance, are likely to be deemed contrary to policy requirements and are unlikely to receive a favourable planning response from the Local Highway Authority.

Development that leads to an intensification of use (more vehicle trips), but which is isolated in the countryside, would not be supported by the Local Highway Authority based on the above criteria.

2.6 Pre-Application Advice

Prior to the preparation of technical documents accompanying a future planning application submission, the Development Management Team recommend that scoping or pre-application discussions be held with the Highway Authority. Failure to engage could result in unnecessary or abortive work being undertaken.

This is not mandatory but recommended, particularly where there is likely to be significant public interest, or the proposal is expected to result in a traffic impact on the highway network.

Discussions are often accompanied by the submission of a Scoping Note or initial details of the proposals.

As a minimum, the Local Highway Authority would expect to see details pertaining to the sites geographical location, existing conditions, development proposals and access arrangements.

It should be noted that the more information submitted in relation to the proposals, the better the Local Highway Authority can respond and identify concerns and/or opportunities. Any agreements or comments received will aid the applicant in the preparation of a future Transport Assessment / Statement.

Worcestershire County Council is able to offer pre-application advice using the online system available here: **www.worcestershire.gov.uk/info/20806/highways_pre-application_advice/2172/request_for_highways_pre-application_advice_page**

Worcestershire County Council will endeavour to provide comments within 20 working days of receiving a pre-application submission.

A charging regime is in affect for the Development Management Team to provide pre-application advice as a clear and time-bound process for both applicants and planning officers, adding certainty to the procedure and improving the accountability of the advice.

The advice given does not bind the council's decision making or constitute a formal representation by the Local Highway Authority, and any views or opinions expressed are given in good faith and to the best of our ability without prejudice to the formal consideration of any future planning application. However, the written advice provided will be taken into consideration (time limited) by the council, in the representation to any future related planning application.

This is however subject to the provision that circumstances and/or information may change, that may alter that position.

Applicants are also advised to engage with the Local Planning Authority to ensure they are fully aware of the local policy context.

2.7 Transport Assessments and Statements

National Planning Policy Framework (NPPF) states that ***'All developments that will generate significant amounts of movements should be required to provide a Travel Plan and the application should be supported by a Transport Statement or Transport Assessment so that the likely impacts of the proposal can be assessed.'***

Transport Assessments are detailed studies that focus on the design, accessibility and transport implications of a new development on the highway network; including, but not limited to, network capacity, highway safety and sustainable travel.

A Transport Statement is used for smaller scale proposals or where traffic impacts are considered proportionate.

A Transport Assessment (or Statement) is used to establish whether the residual transport impacts of a development are likely to be significant or "severe". This may be used as a reason for refusal, in accordance with the NPPF.

The general Transport Assessment methodology adopted by the County Council is one in line with the NPPF and the Ministry of Housing, Communities and Local Government - Planning Practice Guidance *'Travel Plans, Transport Assessments and Statements in Decision-Taking'* updated in March 2014.

The content of a Transport Assessment and Statement suitable to the Local Highway Authority, is detailed at the link below:

https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

The thresholds for requirement of a Travel Plan and Transport Assessment / Statement are set out overleaf.

These thresholds are for guidance purposes only and should not be read as absolutes.

Worcestershire County Council may also interpret the need for an assessment in light of local circumstances, site-specific issues and qualitative factors, that are not captured by this document.

2.8 Householder Applications

For minor applications (i.e. household extensions and new or altered access arrangements), a guide detailing the Local Highway Authority requirements, in relation to a planning application submission is presented in **Appendix D**.

This information does not fit every circumstance. Discussion with the Local Highway Authority is advised, if the requirements for a particular site are unclear.

2.9 Travel Plans

A Travel Plan is a long-term management strategy that seeks to deliver sustainable transport objectives for an organisation or site. It is a living document that is implemented, regularly monitored and reviewed, Each document should have an identified owner, who is responsible for the management and implementation of the Travel Plan.

Travel Plans include a package of practical measures to encourage residents, employees, students and visitors to consider their travel options or reduce the need to travel by car.

Land Use	Size	No Assessment Required	Transport Statement Required	Transport Assessment Required
B2– General Industrial	GFA*	< 2500 sqm	>2500 <4000 sqm	> 4000 sqm
B8– Storage or Distribution	GFA*	< 3000 sqm	>3000 <5000 sqm	>5000 sqm
C1– Hotels	Bedroom	< 75 bedrooms	>75 <100 bedrooms	>100 bedrooms
C2– Res. Institutions— Hospitals and Nursing Homes	Beds	< 30 beds	>30 <50 beds	>50 beds
C2– Res. Institutions— Residential Education	Student	< 50 students	>50 <150 students	>150 students
C2– Res. Institutions— Institutional Hostels	Resident	< 250 residents	>250 <400 residents	>400 residents
C3– Dwelling Houses	Dwelling	< 50 units	>50 <80 units	>80 units
E – Business	GFA*	< 1500 sqm	>1500 <2500 sqm	>2500 sqm
E – Food Retail	GFA*	< 250 sqm	>250 <800 sqm	>800 sqm
E– Non-Food Retail	GFA*	< 800 sqm	>800 <1500 sqm	>1500 sqm
E – Financial and Professional Services	GFA*	< 1000 sqm	>1000 <2500 sqm	>2500 sqm
E – Restaurants and Cafes	GFA*	< 300 sqm	>300 <2500 sqm	>2500 sqm
Sui Generis – Drinking Establishments	GFA*	< 300 sqm	>300 <600 sqm	>600 sqm
Sui Generis – Hot Food Takeaway	GFA*	< 250 sqm	>250 <500 sqm	>500 sqm
Non-Residential Institutions	GFA*	< 500 sqm	>500 <1000 sqm	>1000 sqm
Assembly and Leisure	GFA*	< 500 sqm	>500 <1500 sqm	>1500 sqm

*GFA = Gross Floor Area

The above thresholds should be considered as indicative only, as there may be specific circumstances which require some form of highway assessment. In addition to the above development thresholds, other considerations for when a Transport Assessment is required are set out below.

Other Considerations

- Any development that is not in conformity with the adopted development plan.
- Any development generating 30 or more two-way vehicle movements in any hour.
- Any development generating 100 or more two-way vehicle movements per day.
- Any development proposing 100 or more parking spaces.
- Any development that is likely to increase accidents or conflicts among motorised users and non-motorised users, particularly vulnerable road users such as children, disabled and elderly people.
- Any development generating significant freight or HGV movements per day, or significant abnormal loads per year.
- Any development proposed in a location where the local transport infrastructure is inadequate. – for example, substandard roads, poor pedestrian/cycle facilities and inadequate public transport provisions.
- Any development proposed in a location within or adjacent to an Air Quality Management Area (AQMA).

Typical examples of measures include: personalised travel plans and welcome packs for residential use. For commercial uses, the provision of showers, lockers and changing facilities, car sharing schemes, flexible working, and cycle to work schemes.

Every Transport Assessment must be accompanied by a Travel Plan, which is compliant with Worcestershire County Council's guidelines.

Residential Travel Planning

The provision of a Travel Plan, including Personalised Travel Planning is mandatory for all residential developments of 50 dwellings or more. Developments under 50 dwellings must instead produce a 'Welcome Pack', in accordance with Worcestershire County Council guidelines.

There are no Travel Planning requirements from the Local Highway Authority for residential sites of 5 or less dwellings, but this does not mean that sustainable transport should not be encouraged where possible.

Worcestershire County Council offer a Personalised Travel Planning Service which can be procured through a Section 106 Agreement. This removes the need for the applicant to implement their own scheme and places the ownership of the Travel Plan in the hands of the Local Highway Authority.

Further information and advice regarding Personalised Travel Planning is available from Worcestershire County Council's Travel Plan Officer: **travelplans@worcestershire.gov.uk**

Business and Schools Travel Planning

All businesses and schools are required to register at **www.modeshiftstars.org** to create a suitable Travel Plan using the online tool available.

Each Travel Plan must be compliant with Worcestershire County Council guidelines.

2.10 Equalities Act

The Equality Act 2010 places councils under the 'public sector equality duty'. Worcestershire County Council takes its responsibilities to equality very seriously and is obliged through the Equalities Act to have due regards to the access needs of all persons.

It requires equal treatment in access to employment, as well as private and public services, regardless of protected characteristics including age, disability, gender, race, religion or belief and sexual orientation.

The Local Highway Authority will take accord with this duty in planning and reviewing services, and in the consideration of planning application submissions.

Applications should ensure they have considered the needs of all users having had regards to the protected characteristic of the area. This approach should be clearly demonstrated within the Transport Assessment / Statement accompanying the planning application.

For further information regarding the Equalities Act (2010):

https://www.legislation.gov.uk/ukpga/2010/15/contents

2.11 Construction Environmental Management Plans (CEMP)

The purpose of a CEMP or Construction Traffic Management Plan (CTMP) is primarily to ensure that construction related vehicles and pedestrians using the site, can move around safely. It needs to take account of a limited compound and work area, its surroundings and the type of vehicles generated i.e. vans, lorries, excavators, site dumpers etc.

It is accepted that there will always be some disruption during construction, however this needs to be minimised to protect the local community and the highway network.

It is unlikely that a principle contractor will have been appointed at the point of a planning application submission, although depending on the scale of the proposals, there may be a requirement to provide an initial framework plan based on the applicants industry experience. The detail would later be expanded upon post permission through the discharge of conditions.

Local site conditions will dictate the range of considerations for inclusion in a CEMP, but a non-exhaustive list includes:

- Duration of build;
- Hours of operation;
- Number and size of delivery vehicles (average day);
- Location of the site compound for storage and parking;
- A condition survey of surrounding roads;
- Wheel washing facilities;
- A strategy to inform the local community of activities, including the provision of complaints procedures;
- Any temporary access arrangements;
- Likely temporary traffic management arrangements; and
- HGV routing.

Contractors should be registered with the Considerate Constructors scheme and comply with the code of conduct in full.

3. Access, Layout & Connectivity

3.1 Establishing Access

Traditional Junction Design

The developer must demonstrate that the junction arrangement proposed, represents an appropriate design, ensuring the safety of all users and that minimises queues / delays.

When proposals provide for a new footway crossover, or priority junction, design guidance should reflect Manual for Streets. For more complex junction arrangements involving signal control, large roundabouts or right turning lanes, DMRB is considered to be appropriate.

For cycle provision, the standards set out in DfT's 'Cycle Infrastructure Design', Local Transport Note LTN 1/20 should be applied.

The identification of an appropriate design guide should be discussed and agreed with the Development Management team. In some cases, it may be appropriate to deviate from these standards, should the Development Management team approve this approach in writing. Any departures from standards should follow the standard procedure (Page 10). The Highway Authority may require a Road Safety Audit in this circumstance.

Innovative Junction Design

Innovation in junction and street design is welcomed and it can be appropriate to extend these principles on to the existing highway network, either as part of an access scheme or as highway mitigation.

Where innovative schemes are to be promoted, early discussions are essential with the Local Highway Authority and some specific issues will need to be explicitly considered. A non-exhaustive list include:

- The design should reflect the needs of the surrounding environment;
- The needs of visually or physically impaired users should be considered and user groups involved from an early stage;
- Design speeds should be low and appropriate to the location;
- Proposed construction materials should be suitable and readily available; and
- Consideration must be given to junction efficiency, minimising delay to all users.

The developer will need to demonstrate that any highway design offered for adoption to the Local Highway Authority, enables the County Council to discharge responsibilities placed upon it by Section 149 of the Equalities Act, 2010. In order to achieve this, early involvement with local and national disability access groups should be undertaken and the needs of these groups incorporated into the design.

Section 149 of the Equalities Act, 2010 requires Local Authorities to have 'due regard' when making any decisions to the needs to eliminate discrimination, which includes the duty to make reasonable adjustments for disabled people and the "*need to promote equality of opportunity between disabled persons and other persons*", which includes *"the need to take steps to take account of disabled person's disabilities"* even where that involves *"treating disabled persons more favourably than other persons"*.

The application of contemporary junctions should not be considered to be an easy solution or a fall-back position, where traditional junction types are difficult to achieve.

3.2 Junction Spacing

In accordance with Manual for Streets, for a 20mph design speed residential road, minimum junction spacing includes 30.0 metres for opposite junctions and 60.0 metres for adjacent junctions.

No accesses / driveways are to be positioned within 20.0 metres of a junction bellmouth

The Local Highway Authority adopts these standards in principle as a starting point, but would consider alternative distances subject to the local context and supporting evidence. Where necessary, this will be informed by a Road Safety Audit. These standards apply to both newly designed carriageways and new access points / junctions incorporated into existing layouts.

Due to the geometric requirements for industrial or high speed roads, junction spacing may require a greater spacing distance.

Supporting evidence is required as justification for the provision of reduced junction spacing.

3.3 Vertical Alignment

For new carriageways, generally the maximum and minimum gradients allowable are detailed as follows:

Category	Maximum Longitudinal Gradient	Minimum Longitudinal Gradient
All road categories	1:20 (5%) desirable but consideration may be given to gradients up a maximum to 1:12 (8%)	1:100 (1%)
Side roads approach to a junction	1:20 (5%) maximum for 10 metres from the giveway line	1:100 (1%)
Cycle tracks and footways	1:20 (5%) over a distance of 10 metres	1:100 (1%)

Where a 1:12 gradient is proposed, no length shall exceed 30 metres. These standards apply to both private driveways and proposed streets.

For cycle tracks and footways refer to LTN 1/20 for maximum lengths of gradients flatter than 1:20.

Transitions between sections of constant gradient shall be by means of vertical curves defined by the appropriate K value shown in the table below:

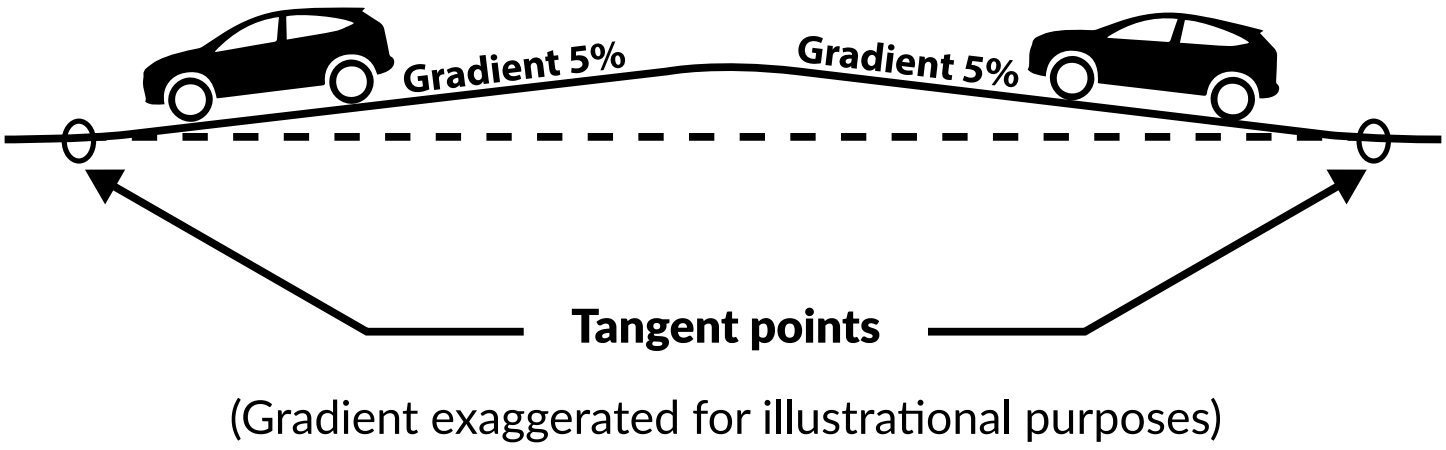
Category	Minimum 'K' value
Major access and above	6
Minor access and below	2
Cycle track	6

Additionally the minimum curve length shall not be less than 20 metres.

Example Alignment:

The example below has been included to assist developers in designing vertical curves.

The example shows a 20 metre curve length between sections of the alignment with gradients of +5% and -5%.



(Gradient exaggerated for illustrational purposes)

The K value is given by Length of Curve / Change in Gradient

= 20 / 10

= 2

The calculated K value is acceptable for a minor access road and falls within the design criteria and would therefore be acceptable.

The developer should note that where gradients exceed 5%, there may be a requirement for a grit bin. In such instances the developer will need to ensure the design provides an adequate location and that a suitable grit bin is provided.

3.4 Vehicle Headroom

A developer must note the minimum allowable headroom for all new highways intended for adoption.

Minimum headroom for the various category routes includes:

- **All Roads:** 5.3 metres
- **Cycleway:** 2.7 metres
- **Footway:** 2.7 metres

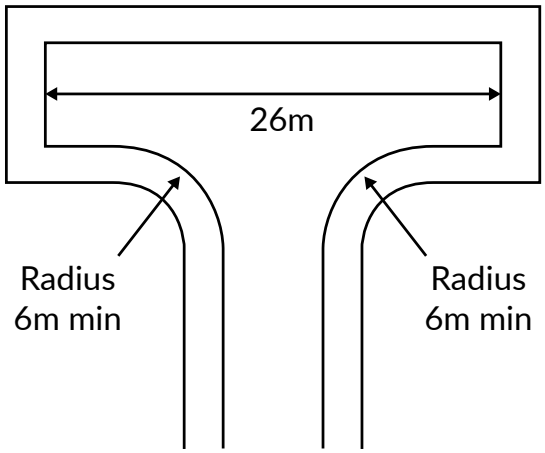
3.5 Vehicle Turning Heads

Residential cul-de-sacs require a turning area where its length is greater than 25 metres. To be effective and usable, the turning heads must be kept clear of parked vehicles.

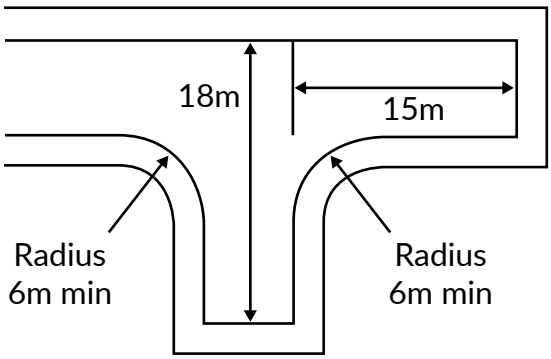
Turning areas in residential streets should be designed to allow turning for refuse vehicles, whereas in industrial and retail developments, turning areas should allow for articulated or pantechnicon vehicles to turn, subject to what is relevant to the proposals.

Tracking of the relevant vehicle swept paths must be presented using CAD software.

T-form' turning facilities (below) should maintain a distance of 26 metres across the 'T' to facilitate manoeuvres by pantechnicon (HGV) sized vehicles. The carriageway widths, radii and footway widths should comply with the design specification for the road which they serve.

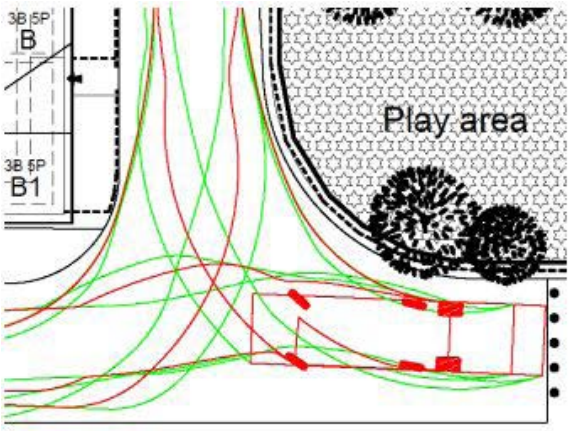


'Side T-form' turning facilities (below) should maintain a width of 18 metres and a distance of 15 metres from the termination of the carriageway and the start of the spur. The carriageway widths, radii and footway widths should comply with the design specification for the road which they serve.



Variation from these dimensions are acceptable subject to successful tracking of the Local Authority's refuse collection vehicle.

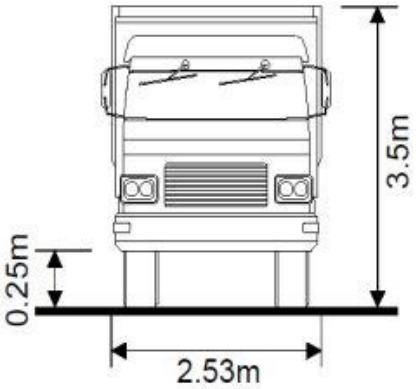
The refuse vehicle should stay within the kerblines, but the isolated vehicle (body) overhang of the footway may be accepted, if the streets on which they occur have low pedestrian volumes and the driver is given the required visibility to observe them. This is not a constraint where a verge is provided.



3.6 Refuse Collection

Within Worcestershire a range of refuse vehicle sizes are in operation. A new or amended development site should be designed to accommodate such vehicles, especially in terms of junction radii and turning.

Refuse vehicles typically have a height of 3.5 metres, which rises to 5.1 metres with the tailgate raised and a width of 2.53 metres.



However, the length of a refuse vehicle does differ throughout the County. In Malvern Hills a vehicle has a total length of 11.3 metres with the tailgate raised, whereas other Districts utilise a vehicle of 10.3 metres in length (assuming the tailgate is raised).

In providing a suitable design layout, applicants should contact the Local Highway Authority regarding the size and length of a refuse vehicle serving a specific area.

Refuse vehicles should be able to get to within 25.0 metres of a refuse storage point. Residents must not be required to carry waste more than 30.0 metres to a refuse collection / storage point.

3.7 Access Visibility Splays

Vehicle visibility splays at junctions are to be provided, as set out within Manual for Streets or DMRB depending on the nature of the access proposed.

The horizontal visibility from an access (Y distance) must be informed from 85th percentile speeds, surveyed in free-flow conditions. Speed surveys should be undertaken in both directions and at an appropriate location, close to the proposed access junction.

Appropriate to Manual for Streets, Y distance visibility splays are required from a point of 1.05 metres (typical car driver eye height) or 2.0 metres for HGVs, above the carriageway, taken at the centre of the access and 2.4 metres back from the near side edge of the adjoining carriageway (X distance). The splay is then provided to the left and right, a distance of Y metres in each direction.

The visibility is required to be uninterrupted to a vertical distance of 0.6 metres.

Y distances must not cross the centre line.

Nothing shall be planted, erected and/or allowed to grow within the visibility splay that exceeds 0.6 metres in height. The full extent of the splay should remain within highway or occupant owned land. Visibility into third party land is not accepted, nor is an X distance less than 2.4 metres

Where physical features in the middle of the carriageway prevent vehicles from crossing the centre of the carriageway, a Y distance can be taken from the centre of the carriageway.

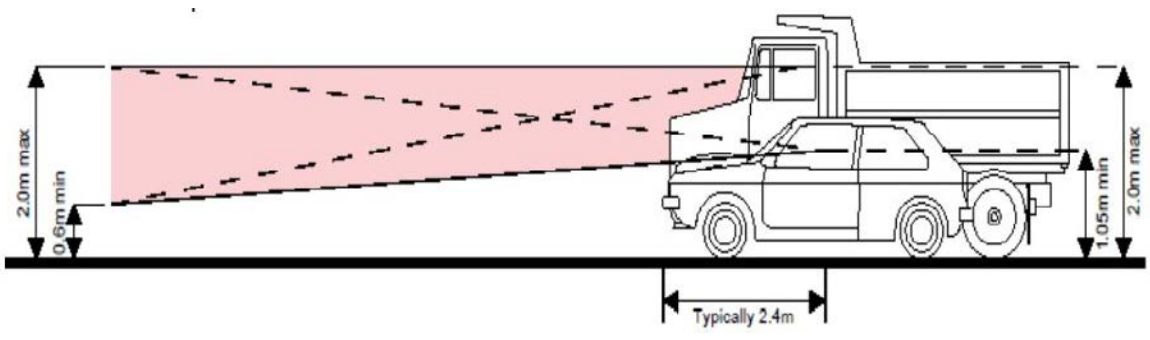
Y distance carriageway offset relaxations can only apply where carriageways are a single width i.e. rural lanes, although these form an exception and its acceptance is subject to a range of conditions. Such relaxations would require agreement from the Local Highway Authority.

The table and figures below are taken from Manual for Streets V1 and show access visibility for recorded (85th Percentile) speeds and various road types.

Derived Stopping Sight Distance (SSDs) required for visibility

Speed Mph	10	15	20	25	30	40	50	60
Kph	16	24	32	40	48	64	80	97
SSD (m) 'Y' distance visibility splay	9	15	22	31	40	79	113	151
SSD (m) adjusted for bonnet length (forward visibility)	11	17	25	33	43	82	115	154

Source: Extrapolated from Table 7.1 Manual for Streets 1

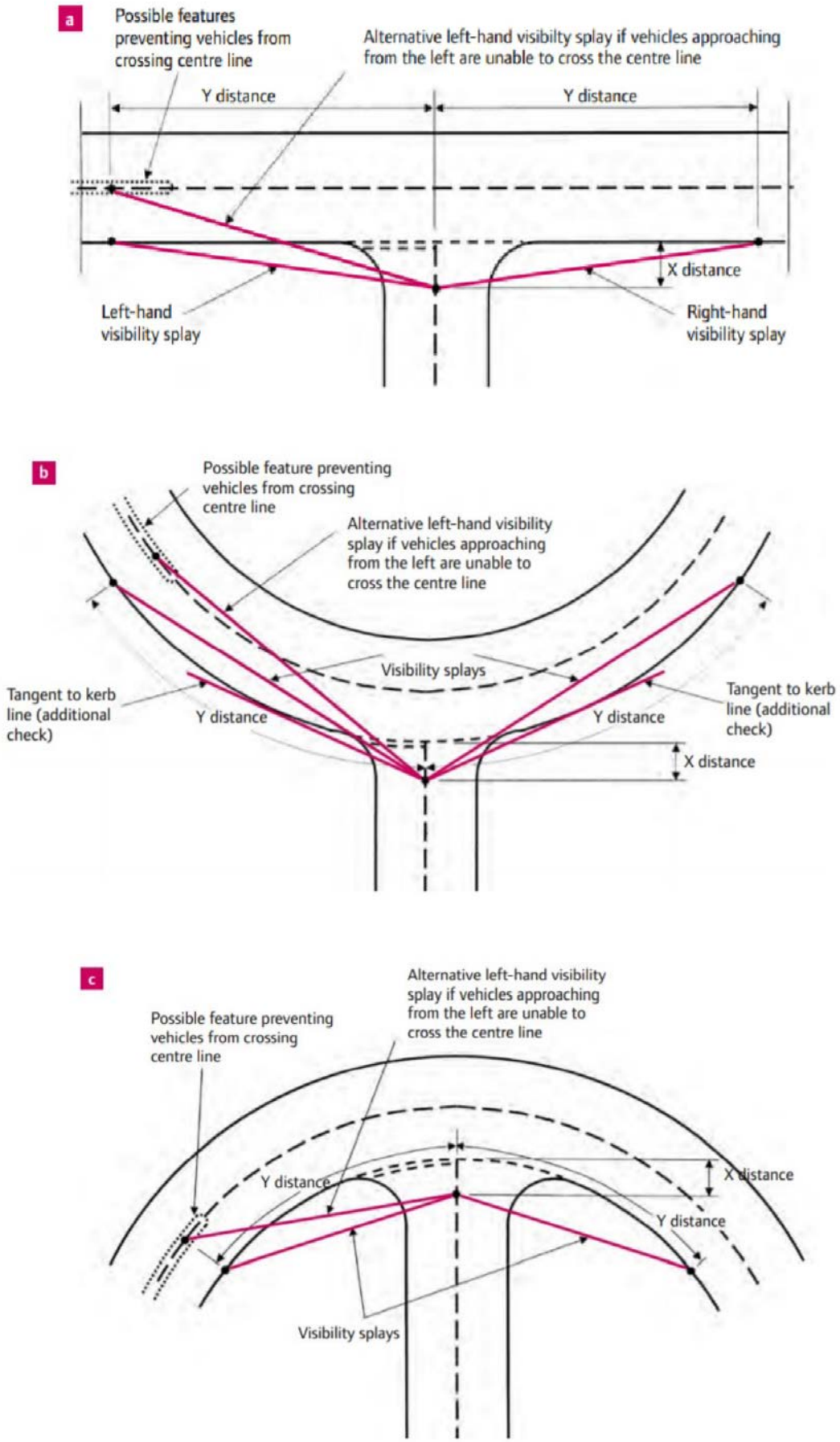


Note: Typical values are shown above, but should speeds fall between these values, then the closest higher speed should be used.

Values shown on the right of the diagram indicate the driver height positions.

Source: Figure 7.18: Manual for Streets

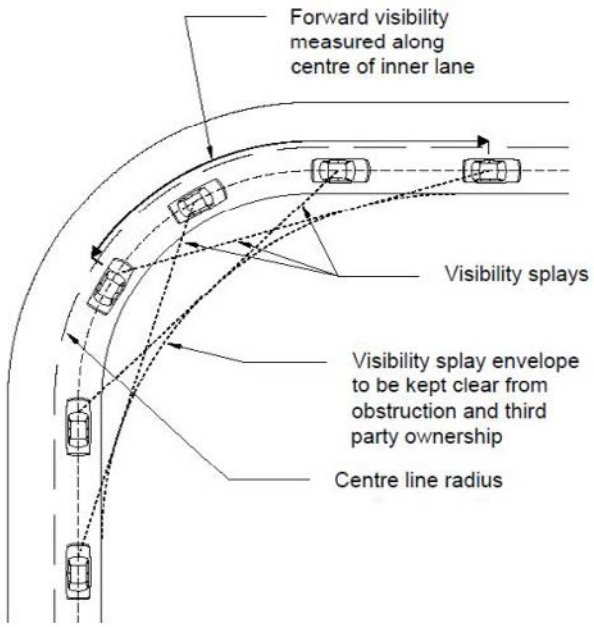
Source: Figure 7.18: Manual for Streets



3.8 Forward Visibility

Unobstructed forward visibility is required to enable drivers to slow their speed comfortably to avoid any potential hazard. The minimum forward visibility is derived from the minimum Stopping Sight Distance (SSD) based on the design speed that has been adopted, or the 85th percentile speed recorded.

On a curve, it is the measurement between two points at the centre of the inner lane as shown below. For example, on a 20 mph road, the SSD is 25 metres (as per Manual for Streets 1) after adjusting for bonnet length. For roads with a speed limit in excess of 37 mph, forward visibility should be derived in accordance with the SSD's set out in Manual for Streets 2 or DMRB. The appropriateness of using either standard is site specific and dependant on other factors, including traffic flows, the surrounding built environment and design speeds within the locality.

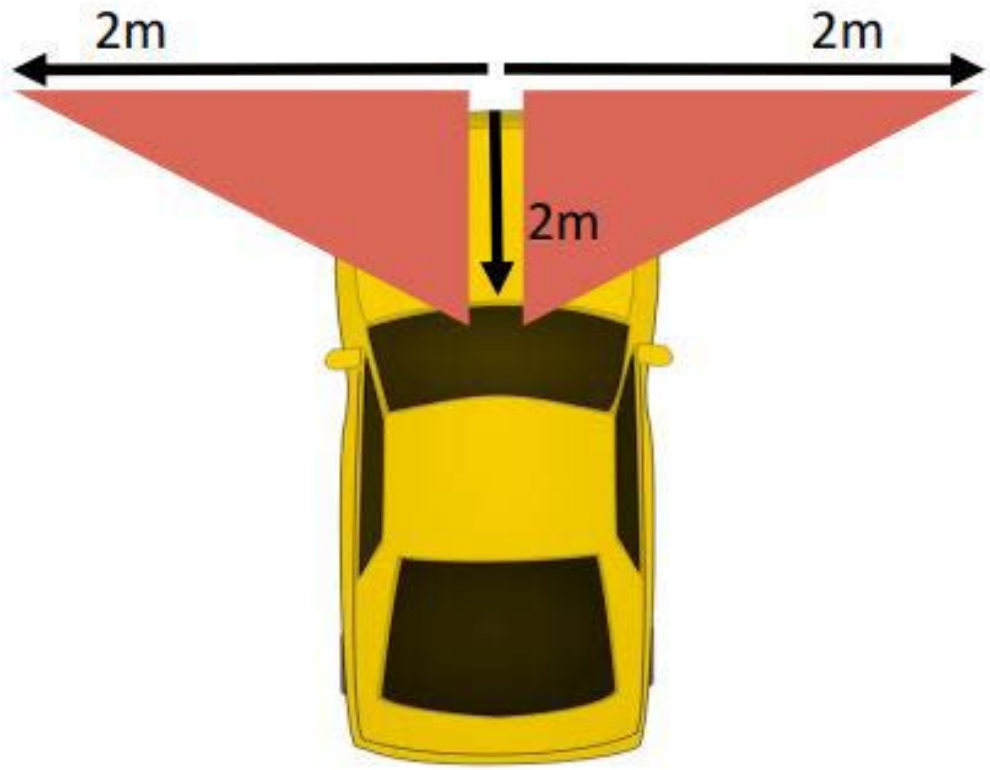


The absence of wide visibility splays at single access driveways will encourage drivers to emerge more cautiously. Consideration should be given to whether this will be appropriate, taking into account the following:

- the frequency of vehicle movements;
- the amount of pedestrian activity; and
- the width of the footway.

3.9 Pedestrian Visibility

Where an emerging vehicle needs to cross a footway or service margin from a shared or individual private access/ driveway, pedestrians and cyclists must be given sufficient warning of the vehicle's approach, and the exiting vehicle must have sufficient visibility to see pedestrians and cyclists approaching. In such situations, a visibility splay of 2.0 metre x 2.0 metre is required from the back edge of the highway limit (footway) from a point each side of the vehicle.



Nothing should exceed 0.6 metres in height (taken from driver eye height) within this space and the design should maintain this position.

3.10 Landscaping

The retention of existing landscape features of value must be taken into account and therefore the preliminary design of residential access roads, cycleways and footpaths to serve the development should (as far as possible), be sympathetic to the Local Authority's wishes. So, for example, if a tree of value was situated within the visibility splay, all attempts should be made to reposition the access if this can be done safely.

In residential areas the Local Highway Authority will normally only adopt the paved surfaces and verges which are critical to the functioning of the highway.

Small areas of grass should only be permitted where adequate maintenance arrangements can be guaranteed for the foreseeable future.

Appropriate root protection systems will be provided for all trees. These must not be planted near structures or services.

Existing trees, which will become maintainable at public expense, shall be the subject of a condition survey to ascertain their health and may be subject to commuted sum payments to cover their future maintenance costs. Highway trees should be of slender girth and modest canopy. The trunk should be maintained free of side shoots and branches to a height of 2.1 metres. The developer may be required to pay commuted sums for the future maintenance of highway trees. The Local Authority will work closely with the local Arboricultural officer to agree the most suitable species and ensure it is compatible with the site wide approach to green infrastructure.

Highway landscape features should be maintained by the developer for a period of 5 years.

Thorny species are not acceptable immediately adjacent to footways and cycle tracks. It is expected that non-highway hedges adjacent to the prospective highway will be transferred to frontages or the site wide management company, to ensure future maintenance is addressed.

Any new carriageway should be provided outside the canopy (or reduced canopy if reduction is deemed suitable) of any existing tree to prevent damage to the new construction by the tree roots. Any work under the canopy of deciduous trees or within a radius of half of the height of coniferous species, shall comply with BS 5837: 2012.

3.11 Street Lighting

The aim of the Worcestershire Street Lighting service is to create a safer and more secure night time environment, by providing an energy efficient and cost effective system of street lighting and illuminated signs.

The objectives for street lighting in new developments include:

- Reducing crime and the fear of crime;
- Minimising environmental impact;
- Implementing Best Practice in systems and operations

All highway lighting, illuminated signs and illuminated bollards must be designed, specified and installed to Worcestershire County Council requirements.

There are two methods for developers to achieve the above requirements, which are provided in Worcestershire's Highway's Specification for New Developments. However, developers need to also take account of local attitudes relating to the provision of street lighting, so that they might be relieved of the duty of providing such where it is not needed.

There is no legal requirement to light new streets, however the provision of lighting should be scoped and agreed based on the local environment, ecology, footfall, Section 17 issues, promotion of active travel, Parish Council engagement and protected characteristics as defined in the Equalities Act.

New streets should be designed to reduce the need to include street lighting through natural surveillance and slow design speeds.

3.12 Drainage

General Requirements

In general, drainage systems shall be designed in accordance with the current edition of Sewers for Adoption and with the Specification accompanying this Design Guide.

Worcestershire County Council welcomes the use of Sustainable Urban Drainage Systems (SuDS) but does not currently adopt SuDS systems. The Local Highway Authority only accepts adoptable highway drainage that connects directly into systems that are maintained by a statutory body (e.g. Severn Trent). Where a dedicated highway surface water system is proposed, a SuDS system can be considered based on the design proposals and geotechnical considerations.

All pipes that only carry surface water from the adoptable highway are prospectively maintainable by the Local Highway Authority. Pipes that carry surface water from the adoptable highway as well as other areas such as roofs, private drives etc must be adopted by the water authority and must comply with their requirements.

Lateral connections into public sewers will remain private, but shall be designed and constructed to adoptable standards. All such connections shall run approximately at right angles to the centreline of the road to minimise their length.

Sustainable Urban Drainage Solutions

While issues exist as to the acceptance of (SuDS) by various bodies, Worcestershire County Council expects developers to incorporate storage, attenuation and filtration measures in accordance with 'SuDS A Guide for Developers' by the Environment Agency and 'SuDS - A Design Manual for England and Wales' by CIRIA.

Worcestershire County Council will examine all proposals for SuDS and judge them on their merits. Permeability tests and hydrology surveys will be required to verify the suitability of the designs and commuted sums will be required for ongoing maintenance of the systems. The amount of the commuted sums will be calculated by the Council and will reflect the special maintenance requirements of the proposed system.

The SuDS proposals for a development shall be submitted along with geology and hydrology information, at planning application stage. Any proposals for outfalls into existing watercourses or ponds shall be accompanied by an environmental impact report and obviously such outfalls will need Consent to Discharge from the Environment Agency.

Private SuDS drainage shall drain into the water authority surface water sewers and any infiltration will be into private land. SuDS for the highway shall drain into the highway drain network and any infiltration will be within highway/public areas.

Adoption Requirements

Where foul or surface water sewers are to be laid under the adoptable highway, or where the highway drainage is to be connected into a surface water sewer, written assurance must be obtained beforehand that the water authority will adopt the sewers, subject to compliance with their adoption procedure.

The Local Highway Authority will normally decline to adopt any highway covered by a Section 38 agreement until the water authority has confirmed the adoption of all sewers within the highway. This also includes any other sewers not within the adoptable highway but which carry water from it.

All drains that are intended to be adopted as highway drains shall discharge to a pipe or watercourse at a point approved by the Local Highway Authority. Evidence will be required that the developer has the right to discharge, free of any liability which may be binding upon the Local Highway Authority when the drain is adopted.

Private drains will not normally be permitted within the adoptable highway.

All prospectively maintainable highway drains shall be located within land that is to be adopted by the Local Highway Authority. Only in exceptional circumstances will they be permitted in land that is to remain private.

Where such circumstances do arise the land owner at the time of completing a Section 38 Agreement will be required to give a grant of easement keeping 3 metres each side of the pipe clear of all obstructions, which will be binding on successors in title. The developer is strongly advised not to sell any land that will contain a highway drain before completion of such an Agreement. The Local Highway Authority will not accept any different form of undertaking, which dilutes the rights conferred on it.

Outfalls And Watercourses

Where the outfall is into a ditch or watercourse the approval of the Environment Agency must be obtained in writing.

Where the outfall is proposed to be through an existing highway drain the developer will be required to prove its capacity and condition before approval for the connection can be given. This will include a CCTV survey of the drain and the carrying out of any improvement works found to be necessary.

Where the highway drain discharges into a watercourse, calculations shall take into account the possibility that the watercourse may be flooded.

Worcestershire County Council may consider the use of combined kerb and drainage systems depending on the situation and design submitted for approval.

In certain cases, Worcestershire County Council may require the provision of a larger capacity drain than would normally be needed in order to accommodate the drainage of adjoining land and/or future development.

Soakaways

Where soakaways are to be considered it will be at the discretion and approval of the Director of Economy and Infrastructure Services and will be considered as a last resort only (refer to Specification, Section 13). The developer is to note that a commuted sum may be charged for each soakaway installed.

The minimum diameter shall be 1500mm.

If more than one soakaway is planned, they are to be linked by a 225mm diameter pipe.

The soakaways are to be surrounded by Terram or similar, laid between the chamber and the filter material. The appropriate filter material to be used will vary according to prevalent ground conditions. Where possible, the soakaway is to incorporate an overflow link (minimum diameter 225mm) to an existing highway drain/outfall system.

Drainage Design

Gully spacing shall be determined using the recommendations of DMRB: CD 526. Gullies will be required immediately upstream of block paviours, pedestrian crossing points and road junctions but shall never be located on a crossing point. It is the developer's responsibility to demonstrate and ensure that the number and positioning of gullies is adequate to drain the highway. The parameters include:

Description	Value
Rainfall average return period	2 Years
Rainfall average return period (risk of flooding)	120 Years
Time of entry	4 Minutes
Design flow velocities	0.75m/s (Min), 7.5m/s (Max)
Minimum gradient	1:225
Design maximum rainfall	50mm/hour
Minimum pipe diameter	225mm

Structures

Structures that are considered to 'potentially affect' the safety of the highway, whether to be adopted or not and permanent or temporary, where Worcestershire County Council are the Local Highway Authority are to follow technical approval procedures as set out in the 'Technical Approval of Highway Structures' CG 300 (formally BD2) of the DMRB (Highway Structures and Bridges).

Unless agreed with the Technical Approval Authority (TAA), Eurocodes must be used for the design and modification of existing highway structures (including geotechnical works).

Where Worcestershire County Council is the Local Highway Authority for the purposes of this guide references to the TAA in CG 300 means Worcestershire County Council.

All structures shall be designed in accordance with the DMRB, and constructed in accordance with the Specification for Highway Works.

Where there is conflict between standards within the DMRB, including CG 300, the Eurocodes take precedence. The Local Highway Authority should be contacted for clarification where necessary.

The Director of Economy and Infrastructure Services, or their appointed representative will advise developers of the determined category for any proposed structures. All structures except for category 0 will require an Agreement in Principle (AIP) to be submitted and accepted prior to any design work [only completed versions

of the forms will be accepted – word versions available on request]. Currently there is no guidance within the public domain covering the required changes to either the AIP or design and check certificates. Until the DMRB is updated for the application of Eurocodes guidance should be sought from the TAA on this matter Any design work completed prior to the acceptance of the AIP will be at the developers' risk, whether or not the work completed is compliant with the DMRB.

The Local Highway Authority reserves the right to alter the design standards as it considers necessary and this will be communicated before and where necessary during the submission of the AIP. Early consultation for structural requirements is strongly advised.

All structures covered by CG 300 will require Design and Check Certificates, and Construction Compliance Certificates [only completed versions of the forms will be accepted – word versions available on request].

The AIP, or in the case of category 0 structures submitted with the Design and Check certificate, must contain evidence of consultation and discussions with statutory undertakers, planning authorities, the Environment Agency and any other relevant body statutory or otherwise.

The AIP must contain relevant extracts from the geotechnical ground investigation including all relevant testing for the proposed design.

A list of structures to be subject of technical approval is as follows:

- All bridges over or under the highway
- All culverts pipes crossing under the highway greater than 0.9 metres span
- Pipes or culverted streams or other structures greater than 0.9 metres span or diameter along the highway either maintained privately or by statutory undertakers.
- Any structures which are not pipes less than 0.9m span/diameter
- Retaining walls greater than 4 feet in height and within 4 yards of the highway boundary as described in Section 167 of The Highways Act 1980.
- Any retaining wall within 4 yards of the highway retaining sloping ground.
- Any retaining wall supporting the highway regardless of height.
- Any private cellar or basement under or adjacent to the highway
- Reinforced earth structures with or without hard facings, includes gabion and crib lock walls.
- High masts and lighting columns compliant with the standard for the design of minor structures CD 354 will be category 0 unless notified otherwise.
- High masts and lighting columns not compliant with the standard for the design of minor structures CD 354 will be category 1 unless notified otherwise.
- Any part of a building structure overhanging the highway
- Highway sign posts greater than 7 metres in height.
- Any temporary works which are described as above.
- Structures required to be assessed by the Local Highway Authority whether or not maintained by them.

NOTE: This list may not be exhaustive and developers are urged to consult with the Local Highway Authority at the earliest possible stage.

Where developers combine various structural components, each with different designers, to be incorporated into one structure they will undertake to provide one Design and Check Certificate[s] from the principal designer that takes responsibility for the whole structure [and includes reference to and copies of the design and check certificates of the component parts]. Examples of this might include:

- a bridge that comprises of insitu cast abutments with pre-cast concrete deck beams, or
- cast insitu or driven piles on which insitu abutments / piers are constructed, and
- temporary works Adoption Of Structures By The Council. The Council may adopt certain structures adjacent to, under or over the highway. In normal circumstances, the only structures that will be considered for adoption are those upon which the Highway relies for support and are constructed on Highway land.

All structures to be adopted should have received structural approval in accordance with the procedures / scenarios included in **Appendix E**.

The above requirements shall be included in property deed transfers to ensure future owners of the land are kept aware of their liabilities. The Local Highway Authority shall be provided with a copy of the deeds after each transfer of the land.

Assessment Of Existing Structures

Eurocodes are not to be used for the assessment of existing structures.

Assessments will be undertaken in accordance with CS 454 and the associated standards within DMRB. Where structures are modified using Eurocodes, as stated above, there is the potential for a conflict due to differences in the effect of actions. In these cases the TAA is to be consulted for guidance.

Any existing structure which may be considered to potentially affect highway safety may be required to be assessed in accordance with CG 300. All structures that are to be modified for the purposes of the development or to be subjected to increased magnitude or frequency of loading shall be assessed according to CS 454. This will be undertaken as part of the Design and Check Process in CG 300.

Approval Submissions

The Technical Approval Process shall consist for all structures whether adoptable or not an AIP where appropriate, Design and Check Certificates and Construction Compliance certificates.

The AIP will include the following:

- General arrangement drawing showing location and extent of all structures and in the case of walls detailing lengths to be adopted and/or over 1.20m high if applicable;
- Sufficient to determine wall heights, giving ground levels, behind and in front of wall and any features affecting loadings such as cover to culverts;
- Clearances to deck soffit and piers/abutments shall be submitted for bridges;
- Cross section drawings for retaining walls annotated with proposed and existing ground levels;
- Designers Risk Assessment; This is to include risks for design, construction, maintenance and operation, and demolition;
- Site investigation details and geotechnical assumptions on which the design has been based.

Appropriate sections of the geotechnical report should be included. This must be given in sufficient detail on the drawing to allow the designers assumptions to be compared with the conditions actually found on site by those responsible for construction:

- Construction details and material specifications;
- Agreed departures from standard.

For Category 0 structures the design and check certificate must be accompanied by the design calculations with full reference to the design standards used. For structures that are to be adopted or for structures upon which the Highway relies for support: Design and Construction Certificates will be required and it will be a condition of the approval that developers submit As-Built drawings for the CDM Health and Safety File.

For reference to the required standards, Developers are requested to review the Technical Approval Schedule as listed in the current version of CG 300. In addition to the standards in the Design manual for Roads and Bridges developers may be required to comply with interim advice notes published by National Highways. Worcestershire County Council will advise developers on a scheme basis during the technical approval process.

Departures From Standard

Departures from standards applicable to Eurocodes will only be accepted where the principle or concept is not

covered therein or is a proposed alteration to the national annex which does not conflict with the Eurocode. If it is a requirement that designers comply with the principles of the Eurocodes these clauses are denoted with a letter P.

It is permissible to use alternative design rules different from the Application Rules, given in EN 1990 for works, provided that it is shown that the alternative rules accord with the relevant Principles and are at least equivalent with regard to the structural safety, serviceability and durability which would be expected when using the Eurocodes.

There may be instances where due to site constraints or nature of the development that it is not possible to design works in accordance with the appropriate highway standard. In these cases the developer can apply for a departure from the standards.

Departures will only be granted when the site constraints prevent the implementation of the standard. A request for a departure should contain the following:

- Proposed departure
- Reasons for departure
- Consequences of the departure, particularly any increases in risks or hazards
- A risk assessment for complying with the standard and one for the departure.

Normally all departures are to be agreed prior to the acceptance of the AIP and shall be included in the AIP and the Bridge Maintenance Manual/Health And Safety File.

On completion of the work the Developer must provide a Bridge Maintenance Manual containing:

- Details of the materials used in construction and the supplier;
- Requirements for future maintenance;
- Any survey and geotechnical details undertaken on the site of the Structure;
- Details of problems encountered during construction that may have a long-term effect on the structure;
- Any access arrangements for future maintenance;
- As built drawings as electronic TIF, DXF or AutoCAD files;
- Design calculations; and Special arrangements required for demolition.

The above information will comprise the documentation you have to legally provide under the CDM Regulations. In addition to contents listed, the following must be included

- All relevant documentation from the technical approval process
- Approval in Principle
- Design and Check certificates
- Construction Compliance Certificate.

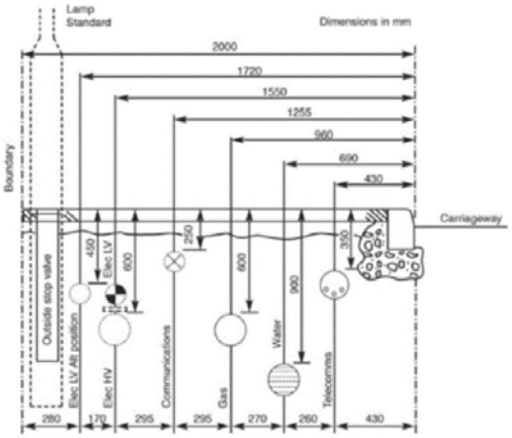
These are to be copies of the accepted certificate by the TAA:

- Appropriate certification of components, VRS systems, quality assurance certification for reinforcement and concrete suppliers, waterproofing and other materials.
- Certificates for any material or integrity testing undertaken, i.e. concrete cube results or integrity testing of piles.
- Any residual risks or hazards within the structure, similar confined space, hazardous materials used in construction or hazards found within the original ground.

Worcestershire County Council has a standard format for Health and Safety Files, a copy of which is available on request.

3.13 Statutory or other services

New estate roads should be designed to accommodate services and liaison with all statutory undertakers and communications providers should be done at the earliest stage possible to ensure that their equipment is installed in an efficient manner and as much as possible to comply with the recommendations of the National Joint Utilities Group.



Although this idea is not always possible it is important to ensure that services do not conflict.

All categories of estate road should have either footways or service strips in which services will be located. The Local Highway Authority will not adopt land the sole purpose of which is to contain services. Any land must have a justifiable connection with the highway and be clearly adoptable as highway.

The laying of apparatus within the carriageway will not generally be permitted although at junctions and in the case of public sewers exceptions are clearly unavoidable.

The developer shall ensure that service strips are clear of permanent obstructions. Any trees shall be located so that their root systems when mature will neither damage apparatus, nor be damaged during the laying and maintenance of apparatus. Root protection barriers should be used. An approach of integration with suitable protection should be adopted rather than the separation of landscaping and services. Developers should consult the Local Planning Authority regarding any Tree Preservation Orders and should act in accordance with BS 5837:2005 during construction works.

Service strips shall be delineated from private property by Highway Boundary concrete marker blocks.

When selecting routes for services, dual mains installations should be the norm to prevent carriageway crossings weakening the road structure and preventing the need to dig up the carriageway.

Where services are to be laid within the extent of the highway, ideally, the appropriate utility company should lay the required service. Where services are not laid or subsequently adopted by the appropriate utility company, they should not be laid within the extent of the highway.

In exceptional circumstances, where unadopted services cannot be avoided within the limit of the highway, a section 50 license will be required before the highway can be adopted.

3.14 The Street Hierarchy

As stated previously, the design of new streets should take into account the intended link and place functions of the street, as well as the type, density and character of the development.

Developing a streetscape environment should also, where appropriate, be accessible, comfortable and safe for pedestrians.

Furthermore integration of the surrounding landscape and ecological context of the site must be integral to any design development.

Carriageway widths should be appropriate for the particular context and use of the street.

Key factors to take into account include:

- The volume of vehicular traffic and pedestrian activity;
- The traffic composition;
- The requirements for clear demarcation between carriageway and footways;
- If on street parking is to be provided, its distribution, arrangement, the frequency of occupation and any need for enforcement;
- Design speeds;
- Curvature of the street, including increased width for bends to accommodate swept paths of larger vehicles; and any intention to include single lane working in two way streets.

The following street definitions (overleaf) provide a design character for a typical street.

Variation from these definitions is possible, although these should be supported with clear justification of how these variations will continue to meet the requirements set out in relevant statutory legislation and non-statutory guidance. An example street design, highlighting key features is presented in **Appendix F**.

3.15 Innovative Street Design

Worcestershire County Council welcomes innovative design proposals. Where innovative designs are proposed for adoption as public highway, the following guidelines should be followed:

- As with standard street designs, the designer must ensure that an Equality Impact Assessment, as established by Section 149 of the Equality Act, 2010 is undertaken;
- Design should be bespoke to the road and the development;
- Design speeds should be a maximum of 10 mph on all prospective highways and street furniture and landscaping should be used to achieve this;
- Materials should help legibility and create a sense of place where the car is a guest, they should also be readily sourced;
- Green Infrastructure should be provided in accordance with the County Councils GI Strategy;
- Drainage is a key consideration in Innovative design and should be considered at an early stage.

Private Access

Providing access to a single residential dwelling. These form a vehicle cross-over from a carriageway and remain within the ownership of the dwellings owner. Accesses should be built to an adoptable standard, however the Local Highway Authority will not adopt an access, nor will they be responsible for maintaining it.

Dimensions and Character

The connection to the priority road shall be laid out as a dropped kerb (crossover) in accordance with Section 184 of The Highways Act 1980, where applicable

To be set out at 90 degrees to the adjoining carriageway

Will not be adopted as public highway

Minimum access / driveway length of 6.0 metres

Minimum access / driveway width of 3.2 metres

Longitudinal fall to driveway: Max 1:12 towards the carriageway, 1:8 in exceptional circumstances. Max 1:15 away from the carriageway

Vehicular visibility splays to reflect the 85th percentile speed of the main carriageway or reflect the design speed of the road.

Where an emerging vehicle needs to cross a footway or service margin, pedestrian visibility to the back edge of the highway limit (footway) to be 2.0 metres x 2.0 metres from each side of the vehicle

Design Details

No accesses / driveways are to be positioned within 20 metres of a junction bellmouth

Installed gates must be set back a minimum distance of 5.0 metres from the back of the highway and gates must open inwards only. The set back distance of 5.0 metres also applies to sliding gates

Two points of access to a single dwelling frontage are generally not supported. Under certain circumstances these can be allowed, but full visibility must be achievable from both access points (irrespective of 'in' and 'out' only signage) and vehicles must be able to enter, turn and exit the site in a forward gear at both accesses, or have the potential to route through the site, not utilising space allocated for vehicle parking

Water from accesses / driveways must not be allowed to discharge onto the public highway

On 'high speed' roads or roads that might include bus routes, or be positioned close to schools, include high pedestrian activity, or high vehicle volumes, provision must be provided to enable a vehicle to enter, park / turn and exit in a forward gear. The acceptability of no turning area being provided maybe suitable on some residential, low trafficked, low speed roads, but this will be at the discretion of the Local Highway Authority

An access / driveway must be surfaced in a bound material i.e. tarmac, paving, grasscrete, etc for the first 5.0 metres from the back of highway (loose stones are not accepted) to prevent spillage onto the public highway.

Low rise kerbs must be provided, either as kerb sets or concrete edge strips to indicate the boundary between the adopted public highway and the private access / driveway. Level surfaces will be considered

Shared Surface Streets, Courtyards & Mews

A shared surface driveway, street, courtyard or mews can serve 2 or more dwellings, but not serve in excess of 6 dwellings, after which traffic volumes are unsuitable for this carriageway form.

Shared surface streets are road layouts for the joint use of pedestrians, cyclists and vehicles, but with pedestrians having priority and visibility within the street. Pedestrian safety is of primary concern. They are areas suitable for high levels of pedestrian and cyclist activity, particularly from small children. Vehicle speeds must be very low and be self-enforcing through good design and appearance. Such carriageways will not be adopted by the Local Highway Authority.

Street Dimensions and Character

A shared surface cul-de-sac or courtyard serving a maximum of 6 dwellings, typically forming an extension of a Local Residential Street

To be set out at 90 degrees to the adjoining carriageway

Will not be adopted as public highway

Longitudinal fall to driveway: Max gradient 1:12 towards the carriageway, (1:8 in exceptional circumstances) and Max 1:15 away from the carriageway

Vehicular visibility splays to reflect the 85th percentile speed of the main carriageway or reflect the design speed of the road.

A shared surface serving more than two properties can be of varying width, but must include a minimum of 4.1 metres for the first 15.0 metres to allow the minimum width for two vehicles to enter and leave simultaneously

Street Design Details

Design speed: 10mph

The connection to the priority road shall be laid out as per a footway crossing, in accordance with Section 184 of the Highways Act, 1980, where applicable. Shared surface streets must connect to footways at the point where the shared surface area ends and the Local Residential Street begins

A separate footway is not required, as this becomes a shared surface with the driveway

It is required that shared surface streets are recognised as visually and functionally distinct from other streets. This can be achieved by featuring gateways, changes in highway widths, changes in direction, suitable surfacing materials and landscape features. A change in surface materials or colour is encouraged, although a shared drive or courtyard must not include vertical alignment i.e. raised tables, etc.

A turning area is to be provided for cars where cul-de-sacs are longer than 25 metres

Vertical alignment speed measures must not be included and the Local Highway Authority will not adopt a carriageway including such features.

Careful consideration must be given to how refuse is to be collected. Layouts must be provided which do not require refuse vehicles to reverse. The design must allow refuse vehicles to be able to get to within 25.0 metres of a refuse storage point. Residents must not be required to carry waste more than 30.0 metres to a refuse collection point or storage point

In terms of surface materials, macadam and/or concrete block paving laid in a herringbone or regular pattern should be used. A stretcher course of blocks should be used to identify the edge of a parking area, junction, slow points and traffic management features as appropriate

A landscape scheme should be integral to the design of the space using trees and shrubs. Native species of Hedgerow and trees, and vegetated ditches should be incorporated wherever possible

Any street lighting provision will remain in private ownership

Local Residential Streets

Roads suitable for serving up to approximately 50 dwellings.

Local Residential Streets provide a balance in use between vehicles and pedestrians and cyclists. They can provide direct access to residential properties, and resemble a typical residential carriageway or shared surface street. These streets are not designed to cope with large traffic volumes and there geometry and design should reflect low vehicle speeds.

Street Dimensions and Character

To be provided at a minimum carriageway width of 4.5 metres and maximum of 5.5 metres.

A 2.0 metre wide footway or verge must be provided on one or more sides of the carriageway. A 1.0 metre service strip / footway is possible where no development fronts the carriageway or is present.

Where appropriate, a 1.0 metre service margin or verge to facilitate the provision of street lighting and/or statutory undertaker's equipment should be provided. This facility must be defined within the extent of the highway by the introduction of physical demarcation, such as a low level kerb

Direct vehicle access to dwellings and their driveways and parking areas is permitted, subject to suitable vehicle and pedestrian visibility being demonstrated

Street Design Details

Design speed: 15mph

Achieved through measures such as surface changes, visual narrowing, central reservations, sensitive parking provision and green infrastructure

To include a 6.0 metre or sufficient junction radii, and able to accommodate a suitable refuse vehicle within the full width of the carriageway. A minimum centre-line carriageway radius of 15.0 metres must be provided. Forward visibility must remain within public highway land and free from obstruction

Vertical alignment speed measures must not be included and the Local Highway Authority will not adopt a carriageway including such features. Horizontal alignment should be used to control speeds.

Local Residential Streets can be put forward for adoption, should they meet with the Streetscape Design Guide requirements and be acceptable to the Local Highway Authority

On street parking is possible and designers should use local carriageway widening to accommodate this

Green infrastructure should be used extensively to soften highway infrastructure and add to the visual appeal of the street. The landscaping should consider the Green Infrastructure strategy for the character area of the site. Existing trees should be accommodated within the design and removal of them should be the last resort. New Green Infrastructure should be incorporated as part of the service margin using an appropriate design solution

A combination of concrete block paving with macadam would be considered suitable. Parking areas, junctions, slow points and traffic management features will need to be highlighted, using different materials

Low rise kerbs should be provided, either as kerb setts or concrete edge strips, to indicate the boundary between adopted highway and private property

Primary Residential Streets

Primary Residential Streets or Residential Spine Roads act as a connection for Local Residential Streets to higher order roads. They act as the primary vehicular access to a development and form the spine for which a wider network of streets take access. The Primary Streets can also be considered to accommodate bus routes through the development and cater for higher traffic flows.

Street Dimensions and Character

To include a carriageway width of 5.5 metres. Although, if the street is required to accommodate a bus route, then a minimum 6.1 metre carriageway width is required

To include a minimum footway of 2.0 metres on both sides of the carriageway. This could include a shared 3.5 metre cycle / footway. Where it is necessary to accommodate street furniture in the footway (such as street

lighting columns, cycle parking stands, planters, bins and benches) a wider footway must be specified

Direct vehicular access to parking area is permitted, subject to suitable vehicular and pedestrian visibility being demonstrated, although access to individual driveways is not encouraged.

Junction Radii to include a minimum of 6.0 metres or sufficient to accommodate a refuse vehicle, although where the carriageway meets a higher category road, junction radii should include a minimum 10 metre radii or radii sufficient to accommodate a refuse vehicle

A minimum centre-line radius of 20 metres should be provided

Street Design Details

Design Speed: 20mph

Achieved through measures such as surface changes, visual narrowing, central reservations, sensitive parking provision and green infrastructure

Where identified as a bus route, some discretely positioned on-street unallocated parallel parking bays for visitor use will be permitted, at agreed locations, to preserve bus journey time reliability and punctuality. Parallel bays should be 2 metres x 6 metres with a 1 metre 'pull out' strip. A maximum of 3 contiguous bays will be permitted

Footways and the carriageway should be predominantly macadam. For footways, the use of pavers or fine textured pre-cast flags in small appropriate locations may be considered. Alternative surfacing materials must be suitable to withstand accidental mounting by all types of vehicles

Low rise kerbs should be provided, either as kerb setts or concrete edge strips to indicate the boundary between adopted highway and private property

Industrial Road

These road types, by their very nature are more focused towards vehicular traffic. It is however still a requirement to consider the interaction of HGV's with other non motorised users and public transport.

Access roads serving industrial, commercial and office developments should connect directly to a distributor road and must not be served through residential estates.

Street Dimensions and Character

Carriageway widths to be provided at a minimum of 6.7 metres and up to a maximum of 7.3 metres, if required to accommodate larger vehicles. For roads identified to experience significant HGV turning movements per day, further carriageway widening could be considered, to enable ghost islands and turning lane facilities to be provided

A minimum of 2.0 metre width footways or wider shared footway/cycleways should be provided. A footway / cycleway can deviate away from the carriageway if required, in providing a direct access to development plots or if it follows a pedestrian / cycle desire line. These should be separated from the highway by a minimum 1 metre green infrastructure strip

Direct vehicular access to parking will be permitted, subject to suitable visibility being demonstrated in the design process. The Local Highway Authority would not adopt this parking area.

Street Design Details

On street parking on the highway will not be permitted. This will necessitate the implementation of a Traffic Regulation Order if the road is to be adopted by the Local Highway Authority

Junction Radii should include a minimum of 10 metres or determined by tracking for the largest permitted vehicle

Green infrastructure has a strong role in mitigating the impacts of major industrial/employment uses on biodiversity. Wherever possible, these should be accommodated outside the limits of the adopted highway

Landscaping can be integrated within SuDS drainage, using swales and tree planting to provide additional GI benefits as part of a site wide SuDS and GI strategy. Wherever possible, this should be accommodated outside the limits of the adopted highway

Main carriageway materials should be Macadam. For kerbing, pre-cast concrete kerbs should be used. Larger, more robust kerbing may be required to prevent overrunning and damage to green infrastructure

Active Travel Routes

In all cases, routes through new developments should be designed to ensure they provide a direct and convenient means of accessing services and facilities

These must be clearly marked to provide adequate separation of pedestrians and cyclists/scooters, recognising the accessibility and safety benefits of this approach. They should be designed to minimise the need for cyclists/scooters to stop and to allow users to maintain a speed of approximately 12mph whilst using the route.

Street Dimensions and Character

Routes should be a minimum of 3.5 metres wide to allow for two cycles/scooters to pass each other comfortably, with an associated 1.0 metre service margin/verge to accommodate street lighting / signing where appropriate

Street Design Details

Designed for a 15mph design speed

Secure cycle and scooter parking should be provided in the vicinity of all trip attractors, positioned to ensure maximum visibility, but not in locations where it would become an obstacle to pedestrians or public transport users

Where an emerging cyclist /scooter needs to cross a footway or service margin, pedestrian visibility to the back edge of the highway limit (footway) to be 2.0 metres x 2.0 metres from each side of the vehicle

Bollards should be used to prevent use of footways and cycleway/scooter routes by motorised vehicles. Guard railing must not be used

Measures to incorporate enhancements for wildlife should be included in any streetscape design, in a way that engages the public and is tamper proof. Hedges, trees and wildflower verges should be incorporated to enhance permeability of the landscape, and allow for species to connect with other habitat types such as woodlands and grasslands. This will also enhance the user experience along the route

Routes should be made exclusively of macadam (Hot Rolled Asphalt is preferred to minimise rolling resistance). More porous materials will be considered for leisure routes

Flush kerbing or green infrastructure should be used to demarcate cycleways and footways, as required

4. Planning for Parking

4.1 Introduction

This chapter provides an approach as to how parking in Worcestershire must be provided to support new and expanding business and residential development, in a manner that embraces National Planning Policy Framework (NPPF).

NPPF allows local authorities to choose their own policies on some matters such as parking standards, however this needs to be balanced against the need to promote "sustainable development".

With this criteria in mind, Worcestershire County Council identify 'minimum' car parking standards suitable for the transport characteristics of the County. These are provided for both residential and non-residential development, and act as a means of ensuring that an under provision of parking spaces does not lead to road safety issues. At the same time, not seeking to undermine the County's objectives to promote and encourage sustainable journeys i.e. pedestrian, cyclist and public transport trips.

There is clear evidence locally that the under provision of car parking can contribute to road safety and congestion issues, with unacceptable levels of on-street parking in some locations, causing obstructions to refuse, access and emergency vehicles. The provision of minimum car parking standards are set as a minimum benchmark to address these issues.

This document should be read alongside the Local Transport Plan 4, which contains policies to promote sustainable travel through the provision of physical infrastructure and travel planning initiatives.

Where a development seeks to differ from this guidance, justification should be provided. It will be for the Local Highway Authority to decide if this can be accepted.

A list of minimum car and cycle parking standards adopted by the Local Highway Authority are set out in **Appendix G.**

4.2 Car Parking Standards and Dimensions

Houses and Apartments

For residential proposals (including houses, flats, holiday accommodation, yurts, camping and apartments) car parking spaces are identified in relation to bedrooms.

Garages are excluded from the car parking calculations due to the ability of residents to convert these into habitable accommodation, without the requirement for planning permission.

Minimum required residential car parking spaces within the curtilage include:

Bedrooms	Minimum Required Car Spaces
1	1
2-3	2
4-5	3*
6+	4 or other value to be agreed based on evidence

**In the rural parishes of Redditch, this should be increased to 4 spaces.*

A reduced parking standard may only be accepted for sites in 'highly sustainable' locations deemed suitable by the Local Highway Authority and based on evidence presented by the applicant.

New car parking spaces should be a minimum of 2.4 metres x 4.8 metres in size, however additional circulation space may be required for individual residential plots.

For residential courtyard or bay parking, circulation space around the vehicle is also required beyond the minimum parking space requirements, although overlapping circulation space is also accepted.

The minimum space for manoeuvring between opposing parking bays is 6.0 metres.

For residential driveways that include car ports, additional width should be given to a vehicle space to allow for the positioning of posts. The Local Highway Authority will require evidence to support such provision.

If a parking space is located against a wall or other boundary structure, additional parking width should be provided.

A minimum of 6.0 metres is required in front of a garage door (driveway) to ensure that when the garage is being opened, a vehicle does not require overhang into the carriageway / footway.

Parking requirements and geometric standards apply to all C3 Use Classes, including houses, flats, holiday accommodation, yurts, camping and apartments.

Tandem parking spaces for an individual residential dwelling is also permitted.

Car Visitor Spaces

Visitor spaces are not a requirement for residential sites. In appropriate locations, these are permitted to be counted within the street due to their short term duration and infrequent occurrence. Where existing on street demand or parking restrictions prevent this, or for communal parking areas, off road provision should be made at a ratio of 1 space per 5 residential units.

Kerbside parking on-street should be a provided at a minimum of 2.0 metres x 6.0 metres.

Houses of Multiple Occupancy

Houses of Multiple Occupancy (HMO's) have their own separate use class and as such require a separate parking standard from other residential dwellings. Typically HMO's in Worcestershire are located near to academic establishments and are in existing residential communities, and as such are attractive to students. However, this is not exclusively the case. HMO's which have 3 bedrooms or less do not require planning permission, therefore no standards are indicated for sub 4 bedrooms.

Minimum parking standards for HMO's include:

HMO Bedrooms	Minimum Required Car Spaces
4	3
5	3
6	3
7	4
8	4
9+	Demonstrate provision, but a minimum of 4

HMO's are expected to provide full, in curtilage, parking provision in line with the above table.

Exceptions will only be considered where the applicant can demonstrate that there is adequate parking capacity on the local road, up to 150 metres from the application site, or the existence of appropriate parking restrictions within 150 metres of the application site to prevent on carriageway parking. This will only be accepted in exceptional circumstances.

A departure from the parking provision will not be accepted where HMO's are located on classified roads, bus routes or roads with a width of less than 5.5 metres.

HMO Visitor Spaces

These are permitted to be counted within the street due to their short term duration and infrequent occurrence. Where existing on street demand or parking restriction prevents this or for communal parking areas, off road provision should be made at a ratio of 1 space per 5 bedrooms. For clarity HMO parking provisions include

allowances for visitors. Provision should also be made for cyclists where spaces should be shared and the number proportionate to the scale of the development.

Non-Residential Parking

Whilst an end user of a new non-residential proposal may be best able to identify the operational parking needs at their site, car parking must still reflect the land use class and floor area proposed. If the end user were to relocate, the site could be re-occupied by a similar development, but which has different parking requirements. It is on this basis that the Local Highway Authority identifies minimum car parking standards by land uses, that must be applied to new developments (Appendix G).

Should a development be sufficiently bespoke or fall outside this list, the Local Highway Authority will need to determine parking suitability on a site specific basis, taking account of evidence provided by the applicant.

Adequate space for delivery and public service vehicles must also be made within the boundary of a site, which should not conflict with the proposed parking arrangements.

Car Free Development

It is accepted that residents of such developments still have the potential to own a vehicle(s), and require suitable parking. Unfortunately, this often takes place on the public highway. This additional demand for parking often leads to increased congestion and delay on the transport network. Therefore, care must be taken to ensure that car / parking free sites are located in areas where appropriate infrastructure and services are available to ensure travel to / from the site can be achieved by modes other than the private car. This will ensure the development does not impact negatively on congestion.

Applicants will be required to submit the following information to the Local Highway Authority in support of their application for car parking free development:

- Existing and proposed alternative travel modes to and from the development including active travel routes (walking and cycling). This should include both destination and journey times.
- Existing and proposed public transport routes (bus and rail) and frequency. This must be of sufficient frequency to enable residents/ employees to access services such as work/ leisure/ retail.
- An assessment of car parking opportunities within 300m of the proposed development. Including car parks and on street parking, availability, capacity and existing parking restrictions.
- A Travel Plan for the proposed development.
- Information on the provision for servicing and deliveries which must be made within the site.

It will be for the Local Highway Authority to determine if a development would be suitable as a car free site.

Car Clubs

In areas where housing density is greater and there is a wider range of transport choices, car free development will be encouraged. However residents should still be given the ability to travel by car should they choose.

Where there is sufficient critical mass, in terms of development or existing population to support a scheme, the provision of a car club can provide a valuable service.

Where these are proposed, early discussions with the Local Highway Authority and club operators is needed to ensure long term viability and area wide take up.

4.3 Electric Vehicle Parking

For residential developments, Worcestershire County Council recommends that all residential dwellings include Electric Vehicle (EV) charging parking provision. Static holiday units are also included under this requirement.

For non-residential developments, EV parking should include 10% of the sites total car parking requirement, although different requirements may also be identified and requested by District Councils.

Where EV charging is provided, these should be fitted with EV charging infrastructure to BS En 62196 Mode 3 or 4 charging and BS EN 61851. This position is supported by NPPF.

EV charging systems should include a minimum of:

- Residential 7kW charging points.
- Non-Residential 22kW charging points in visitor areas, 7Kw charging point in staff areas.

A minimum of 1 space EV charging should be provided for non-residential site visitors.

Section 110 of the NPPF states applications for development should be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

4.4 Motorcycle Parking

For non-residential developments, provision for motorcycle parking should include 1 space per 10 car spaces, with a minimum provision of 1 space.

4.5 Blue Badge Holder Parking

For non-residential development, consideration and provision must be made for blue badge holders. The following ratios are required:

Size of Car Park (no of spaces)	Designated Blue Badge Bay Provision
1-50	2 + 3% of total car park
51-200	3 + 3% of total car park
201-500	4 + 3% of total car park
501-1000	5 + 3% of total car park
1000 +	6 + 3% of total car park

For these users, car spaces should be 4.8 metres in length and 3.6 metres in width. However, spaces of 2.4 metres in width can be used where a shared space of 1.2 metres is demarked between the spaces.

Designers should look to minimise the distance from blue badge spaces to a buildings entrance.

4.6 Cycle Parking Standards

Worcestershire County Council has adopted cycle standards presented by other similar rural Midlands districts, which seek to ensure that adequate levels of high-quality cycle parking are provided.

In all cases, cycle parking must be sheltered, secure and easily accessible.

Consideration for parking e-bikes (a connection to a charging point) may also be required in appropriate locations.

Garages can be used to provide bicycle storage where they have a minimum internal dimension of 6 metres x 3 metres.

For residential development, cycle parking requirements include:

Bedrooms	Cycle Spaces Required
1	1
2	2
3	3
4	3
5	4
6+	5

Cycle parking within an appropriate rear garden building can be accepted, as long as the route is direct and as short as possible. It is not acceptable to negotiate 90 degree bends via a narrow alley or include the need to go through several gates. Access through the house to the rear garden is not acceptable.

For non-residential or communal cycle parking, Sheffield styled stands are preferred, but lockers, double racks and hanging spaces can be accepted, depending on the design and local context. e-bike charging connections are also possible.

A minimum width of 1.0 metre must be provided between cycle stands. Stands for non-standard cycles should be allocated at the end of a standard provision, with a minimum width of 1.5 metres provided to allow for dismounting.

Designers should in the first instance look to place cycle parking close to the primary access points to buildings and no further away than the car parking space is to the front door. This will require careful design to present an attractive facility.

Primary, infant and junior schools should provide both cycle and scooter parking. The quantum and type should be agreed through the delivery of a Travel Plan.

5. Planning for Passenger Transport

5.1 Philosophy

Worcestershire County Council requires developers to ensure access to high quality passenger transport facilities and services is available, to optimise travel choice and ensure sustainable development, regardless of whether a residential, commercial or industrial development.

It is critically important that development seeks to strengthen the commerciality of the passenger transport network. To do this, it must actively contribute towards ensuring passenger transport is an attractive travel choice, which assumes that developments will be designed to benefit from:

- Quality infrastructure and information – to limit wait times, ensure passenger comfort and enable intuitive journey planning;
- Quality passenger transport services – to support passenger transport companies to offer direct, fast, punctual and reliable services using appropriate vehicles, which are affordable and attractive to use;

In practice, developers will be expected to consider passenger transport access at a very early stage in the development process, and where relevant, set out a costed passenger transport access strategy for their development.

5.2 Bus Routes

Worcestershire County Council recognises that ensuring direct, fast, reliable and punctual bus services is critically important, if passenger transport is to offer a credible travel choice option.

Wherever possible, bus routes should not be required to make circuitous detours into residential areas, as this increases travel time and reduces the attractiveness of bus routes.

With this in mind, Worcestershire County Council proposes a mean average walk distance for all properties within a development to scheduled bus stops of 400 metres.

Distances of up to 800 metres will be considered where a high quality, direct and level route is provided.

This is to be measured accurately from front door to bus stop, and not by drawing a radius on a map (i.e. as the crow flies). Measurements should assume that residents will make use of planned walking routes within the development.

Large phased developments should make provision for the earliest phases to be served by bus services. The provision and phasing will require detailed consideration at the planning application stage and will need to be incorporated into any legal agreement tied to the planning consent.

Where bus routes are proposed to operate through developments, these should be agreed in advance with the bus operating company, and should offer direct, unimpeded access through the site to minimise any impacts on journey times. On-street parking provision must be designed so as not to cause detriment to bus service operational efficiency. Bus priority measures may be required to support this, and these should be specifically designed and discussed with the Development Management team in advance of application submission.

5.3 Bus Stops

The provision and location of bus stops should be planned at an early stage and made the subject of a safety auditing process to ensure stops are not placed in hazardous areas on the network.

The stop must be clearly marked on all plans, well in advance of construction and brought to the attention of potential house buyers, to avoid any problems when a service starts later than intended occupation dates.

The provision of bus stops should be minimised within developments, to preserve operational reliability. A minimum distance of 400 metres between bus stops is recommended.

Stops should be located to give the best penetration into the development site by means of associated footpaths and they need to serve the greatest catchment area possible in terms of convenience.

Bus routes within new developments should be designed to be continuous (i.e. they pass directly through the development, or operate in a loop. Developments must not require bus services to make any unnecessary manoeuvres, so turning facilities should never be required.

Bus stops provided on, or adjacent to existing highway networks should be placed as close as possible to existing footpaths which provide access into the development.

Arising from planning application submissions, developers may be requested to provide relevant bus infrastructure to offer travel choice to the sites occupants. This would likely form a Section 106 contribution request.

In locations where Worcestershire County Council is the bus shelter provider, a commuted sum may be sought from developers to support ongoing maintenance of this infrastructure. Full details of the shelter maintenance policy can be found in the Transport Asset Management Plan.

5.4 Home to School Transport

Provisions are contained within the Education Act (1996) relating to the provision of Home to School transport services. These provisions confer a duty upon the Highway Authority to provide Home to School transport. In cases where there is such a duty to provide transport, the County Council will provide this free of charge.

Pupils can also be awarded transport assistance, as appropriate, for the needs identified within their Statement of Special Educational Needs.

For students with a personalised educational healthcare plan, this may identify the need for free transport or funded assistance to access their nearest suitable place of education.

It is appropriate for those pupils beyond a walking distance defined by S 444(5) of the Education Act 2006, which includes two miles for under-eights and three miles for those of eight years and over. Should a new residential development qualify under this Act, Section 106 contributions will be calculated and requested at a planning application stage.

5.5 Community Transport

Worcestershire benefits from a comprehensive network of Community Transport schemes, which provide passenger transport services to those who are unable to access scheduled passenger transport services, for a variety of reasons.

Supported by the Transport Act (1985), Worcestershire County Council will consider the requirements for new Community Transport services to meet the transport needs of the elderly and disabled, especially if anticipated site gradients in the area impact on their ability to access bus stops. This will consider the distance of residents from hospitals and the policy of the local Health Trust.

Using data available from the Worcestershire Community Transport Partnership, the Worcestershire Concessionary Travel Scheme and HMRC, Section 106 contributions from applicants may be requested where appropriate.

5.6 Rail

Where a development is adjacent to a railway line or other rail infrastructure (stations, sidings, freight facilities), the developer should consult with Network Rail at an early stage. Contact details and procedures for such consultation can be obtained from the Network Rail website (www.networkrail.co.uk).

The Council's policies for rail are included in its Local Transport Plan. Where development is expected to generate additional demand for rail travel, and improvement schemes are identified, financial contributions may be sought to support bringing forward their delivery.

Where a development is adjacent to a railway station, developers should contact the relevant Train Operating Company responsible for managing that station. If in doubt, developers are advised to contact the Development Management team for advice.

6. Planning for an Adoptable Streetscape

6.1 Introduction

This section covers works on the public highway instigated by developers and the creation of new highway maintainable at public expense, commonly referred to as Section 38 and Section 278 Highways Agreements.

6.2 Definitions and Interpretations

The following definitions and interpretations apply within this section:

- Adopted Highway – Highway maintainable at public expense.
- Adopt (Adoption) – The process by which future maintenance of a highway at the public expense is accepted by Worcestershire County Council
- CDM Regulations – Construction (Design & Management) Regulations 2015
- Consultant – An organisation employed by the Developer to design the works.
- Contractor – An organisation employed by the Developer to carry out construction works.
- Dedicate (Dedication) – The freehold legal owner of a piece of land dedicates the top soil of that land for use as Highway, surrendering all rights to the top soil, whilst retaining legal ownership of the subsoil.
- DMRB - Design Manual for Roads and Bridges.
- Developer – An individual or organisation promoting a development.
- Development Control Engineer - Officers responsible for the technical approval, site inspection and management of the works on pursuant to a Section 38 and/or Section 278 Agreement.
- Easement – The right (secured by a legal agreement) to use or cross someone else's land for a specified purpose, for example to carry out work on subterranean ducts.
- Highway – A way over which the public have right to pass and re-pass unhindered.
- Highway Agreement – a legal agreement between Worcestershire County Council and the developer.

Worcestershire County Council will enter the agreement where it is satisfied that the works to the adopted highway will be of benefit to the public. The developer (or their contractor) will be responsible for executing the works on the Adopted highway in accordance with the terms of the agreement.

- Minor Works – minor work is limited to works of this description only: lowered kerbs for a single vehicular access; a simple bellmouth serving a private development that requires no amendment to the street lighting, highway drainage system or horizontal and vertical alignment of the Adopted Highway.
- Section 38 Agreement – A legal agreement made pursuant to Section 38 of the Highways Act (1980) that provides for dedication of a road or other way as a Highway, and an agreement to Adopt the Highway at a specified point in time.
- Section 278 Agreement – A legal agreement made pursuant to Section 278 of the Highways Act (1980_, which enables a Local Highway Authority, where it is satisfied that it will be of benefit to the public, to execute works on the adopted highway, in accordance with the terms of the agreement entered into with the developer.
- Surety – A third party approved by Worcestershire County Council becomes a party to the Section 38 and/or 278 agreement and guarantees to pay the sum specified in the said agreement for the completing of the works in certain circumstances.
- Worcestershire County Council – Worcestershire County Council is the Local Highway Authority responsible for the construction, maintenance, operation, use and control of the Adopted Highway.

Section 38 of the Highways Act (1980) allows Worcestershire County Council as Local Highway Authority to enter into a legal agreement with a Developer to adopt highways for future maintenance at the public expense, provided that they are constructed to Worcestershire County Council's approved conditions and specifications. The agreement may also contain further necessary provisions for the construction and dedication of the road as Worcestershire County Council considers appropriate.

Where schemes require alterations or improvements to the existing public highway, Section 278 of the Highways Act 1980 allows for Worcestershire County Council to enter into a legal agreement with a Developer in order to enable the Developer to make alterations or improvements to the public highway.

Section 38 Agreements will often be combined with a Section 278 Agreement if works in the existing highway are involved and Section 278 Agreements may also include a 'Section 38 Agreement element' if land is required to be adopted.

Submissions will not be registered until all of the information required, as specified in the relevant Application Form has been submitted in an acceptable format. Worcestershire County Council doesn't have the resources to undertake technical assessment of schemes that can't gain technical approval due to missing information.

Section 38 of the Highways Act 1980 allows Worcestershire County Council as Local Highway Authority to enter into a legal agreement with a Developer to adopt highways for future maintenance at the public expense, provided that they are constructed to Worcestershire County Council approved conditions and specifications.

The agreement may also contain further necessary provisions for the construction and dedication of the road as Worcestershire County Council considers appropriate.

Where schemes require alterations or improvements to the existing public highway, Section 278 of the Highways Act 1980 allows for Worcestershire County Council to enter into a legal agreement with a Developer in order to enable the Developer to make alterations or improvements to the public highway.

Section 38 Agreements will often be combined with a Section 278 Agreement if works in the existing highway are involved and Section 278 Agreements may also include a 'Section 38 Agreement element' if land is required to be adopted.

The Early Technical Assessment (ETA) of offsite highway works, during the lifetime of the planning application is a precursor to the Section 278 process and is not an iterative process.

This facility is offered, primarily to highlight issues which may arise during the detailed design process of the proposed off-site highway works but which wouldn't necessarily come to light during the assessment of the preliminary designs submitted as part of the planning application submission.

The ETA process will enable a more rigorous assessment of the off-site highway improvements submitted as part of the planning application and should give developers greater confidence that their proposals are deliverable in compliance with both National and Worcestershire County Council design specifications.

In order to produce an assessment of the off-site highway works within the timescales allotted to the planning process (8 to 12 weeks) the level of information required is reduced from that normally needed to initiate a Section 278 submission.

Please see the Early Technical Assessment, Section 38 Application Form & Section 278 Application Forms, which are available at **www.worcestershire.gov.uk/SDG** for a breakdown of the information required to commence the respective submission.

Electronic submissions and general enquiries should be should be sent to:
HighwayTechSub@worcestershire.gov.uk

Submissions will not be registered until all of the information required, as specified in the relevant Application Form has been submitted in an acceptable format. Worcestershire County Council doesn't have the resources to undertake technical assessment of schemes that can't gain technical approval due to missing information.

All drawings and plans must be drafted by a competent highway consultant appointed by the developer who must have experience in highway design and construction.

The initial technical submission will need to be supported by a Design Report which discusses all of the design elements of the scheme from horizontal & vertical alignment, drainage and junction control etc. their relevant merits and justifies their use within the submitted design.

This document will need to be refreshed with each subsequent technical submission, to take account of any amendments made to address issues highlighted in the technical assessment.

Each technical assessment carried out by Worcestershire County Council or its consultants and returned to the developer will be accompanied by a Comment Summary that will establish the headline issues which need to be resolved prior to Technical Approval being issued. The developer will need to complete the Designer Response section for each of the comments, as well as the revised Departure from Standard Report and resubmit this form with their subsequent submission. Failure to address each of the comments will result in the submission being returned, without registration.

It is strongly recommended that the developer or their agents undertake detailed discussions with Worcestershire County Council prior to each submission being made, to ensure that their submission addresses the outstanding issues and new departures from standard which occur as a result of addressing those comments.

Meetings between the developer, their agents and Worcestershire County Council are the best way to resolve the issues affecting the award of Technical Approval and would recommend that a meeting is held to discuss the content of each technical assessment. However, after the issue of every second technical assessment, a progress meeting will have to take place and failure to attend will prevent the registration of any further submissions?

The developer will be required to enter into a formal agreement with the Local Water Authority in respect of sewers and pumping stations in accordance with Section 104 Water Industry Act 1991 and provide written assurance that the Water Authority will adopt sewers within the Section 38 Works.

Private sewers within the Section 38 Works are not accepted by Worcestershire County Council and will not be adopted. Adoption of the Section 38 Works will not be take place until proof of the adoption of the private sewers etc. by the Local Water Authority has been provided to Worcestershire County Council .

Worcestershire County Council require the inclusion of the Traffic Management works required to deliver the Section 278 works within the technical submissions. The traffic management proposals will need to be certified by an accredited TM Practitioner (Sector 12d). The traffic management plans, will be assessed to ensure it enables Worcestershire County Council to manage the highway network to secure the expeditious movement of traffic on the network. The traffic management plan will also be used to schedule Streetwork permits, temporary traffic regulation orders etc. within the works programme and form part of the Section 278 agreement.

A Comment Summary will accompany each assessment returned to the developer. This form will need to be completed by the developer or their agent and submitted alongside their next technical submission.

This document will evolve alongside the scheme through each subsequent technical submission and provide ongoing record of the schemes progress through the technical assessment process. Worcestershire County Council reserves the right to withhold registration and return the submission should any of the comments remain unaddressed.

6.3 Fees

Worcestershire County Council requires an up-front non-refundable fee of £2,000 for all initial technical submissions. This is to safeguard against developments that use our resources but fail to complete the agreement and we therefore can't recoup our costs. The up-front fee will be deducted from our design check, management and inspection fee.

Worcestershire County Council will charge a Design Check, Management and Inspection Fee, based upon a percentage of the County Council's estimate of the total cost of the works, as set out in the table below:

Cost:	Sec. 278	Sec. 38
First £500,000 of the scheme cost =	9.50%	9.50%
Remaining cost of the works over £500,000 =	7.00%	9.50%

This fee will cover the following in respect of the proposed Section 38/ Section 278 Works:

- Basic technical approval;
- Assessment of Traffic Management proposals and Programme of Works (Section 278 only)
- Calculation of Bond Fees:
- Administration;
- Site inspections during construction inspections of Traffic Management works (Section 278 only) and for provisional and final certificates (see below); and
- Inspections of highways, adoptable highway drainage and street lighting inspections

The developer will also be responsible for payment of all additional fees incurred by Worcestershire County Council for = consultancy design checks and audits as considered appropriate for each Section 38/278 proposal which may include:

- Street lighting design;
- Major junction design;
- Structures design and inspection

All fees are payable before the Agreement is signed.

6.4 Site Inspections

The developer is responsible for the day to-day supervision and setting out of the Section 38/Section 278 Works up to the date of issue of the Final Certificate of Completion for the works (see below). A Worcestershire County Council Inspector will be responsible for ensuring the works comply with Worcestershire County Council's Specification and the agreed Traffic Management proposals (Section 278 only).

The developer must allow Worcestershire County Council's representative access to every part of the Section 38/Section 278 Works at all times for the purpose of inspecting the Section 38/ 278 Works and all materials used or intended to be used therein. It is the responsibility of the developer to ensure the works are constructed in accordance with the approved drawings/specification submitted to and approved by Worcestershire County Council and delivered in accordance with the agreed Traffic Management scheme (Section 278 only). The developer is responsible for the testing of materials using an approved laboratory as specified and/or requested by Worcestershire County Council.

Non-compliance with the approved drawings/specification will result in the Developer being required to reconstruct defective area(s) of the Section 38/278 Works (a Defective Works Requirement). Each and every additional inspection to check compliance with a Defective Works Requirement will be charged at £250 per visit.

6.5 Completing the legal requirements

Once technical approval has been granted, the Developer must provide 13 coloured copies of the Section 38/278 layout drawing to be included in the agreement.

Please see Section 38 Application Form & Section 278 Application Form, available at: **www.worcestershire.gov.uk/SDG** for details regarding the colour of highway features.

6.6 Surety

The Developer will be required to provide a financial security in order to ensure that there is adequate provision to allow the Section 38/278 Works to be completed in default of the Developer's obligations under the Section 38/278 Agreement. This may include unfinished or defective works. The amount to be secured must be equal to the total cost of the Section 38/Section 278 Works as determined by Worcestershire County Council. The security may be in the form of:

a. A bond in Worcestershire County Council agreed format with a reputable financial institution (Bank/ Insurance company) approved by the County Council.
b. a deposit of the equivalent sum deposited with Worcestershire County Council until issue of the final certificate of completion of the Section 38/Section 278 works
c. NB in the case of a Section 278 Agreement where a bond is provided, the surety may be a party to the Agreement

6.7 Constructing the Works

Where works are being carried out under a Section 38/278 Agreement, the Developer must not commence any works on the site until:

a. The Section 38/ 278 Agreement has been completed;
b. An acceptable form of the financial security has been provided;
c. All fees have been paid;
d. Written notification has been provided of the Developer's intention to commence construction giving at least 3 months notice (to comply with the requirements of the Traffic Management Act 2004;
e. Details of the appointed contractor in order for Worcestershire County Council to validate its suitability to carry out the Section 38/ 278 Works

NB: Any anomalies/amendments encountered whilst construction is ongoing and before the issue of the Provisional Certificate/Final Certificate of Completion will require a formal amendment to the plans appended to the Section 38/Section 278 Agreement, which will require the completion of a supplemental agreement. The Developer will be responsible for any costs associated with the drafting and completion of the supplemental agreement and any additional supervision fees that may be required.

6.8 Timescale for completing the works

All Section 278 schemes must be completed in compliance with the agreed Programme of Works. Once works have commenced on site they must be completed to Worcestershire County Council's satisfaction within a reasonable time period, either within 3 months of all buildings on site being completed, or within 3 years of the date of signing the Section 38/ 278 Agreement. If this timescale is not adhered to Worcestershire County Council may refer the matter to their Legal Services and take action as set out in 'Defects and Default Lists' below.

6.9 Issuing a Provisional Certificate

A Provisional Certificate of Completion (The Provisional Certificate) will only be issued and the 12-month maintenance period commence, once the Section 38/278 Works have been completed in accordance with the approved drawings (including compliance with any Defective Works Requirements) and to the satisfaction of

Worcestershire County Council's Engineer.

The Provisional Certificate must be formally requested in writing by the Developer from Worcestershire County Council's Engineer.

6.10 Inspection Process following request for Provisional Certificate

a. As soon as is reasonably practicable Worcestershire County Council's Engineer will undertake an inspection of the Section 38/278 Works and produce and supply a defects list (Defects List) to the Developer.

b. The Developer will within 3 months from the date of receipt (or such other period of time as notified in writing by the Engineer) complete the works as identified on the Defects List (The Defect Works).

c. When Worcestershire County Council's Engineer is satisfied all works identified have been carried out in accordance with the Section 38/278 Agreement and Worcestershire County Council's specification or as otherwise directed by the Engineer above, Worcestershire County Council's Engineer will then issue the Provisional Certificate in order to commence the 12 month maintenance period. The bond supporting the Agreement will then normally be reduced to 50% of its original value. The Developer will remain fully responsible for maintaining the works for a minimum period of 12 months until a Final Certificate of Completion is issued.

NB: The issue of the Provisional Certificate of Completion will constitute the road being 'first open' to the public traffic for the purposes of Section 1(9) of the Land Compensation Act 1973. The Section 38/278 Agreement will make provision for the Developer to indemnify Worcestershire County Council from any claims relating to the works including those made under the Land Compensation Act 1973.

NB: Where a developer has commenced work on highways to be included within the Section 38 agreement, Worcestershire County Council will considered the imposition of a 36 month maintenance period. Even though a road is 'open to public traffic' it will not, in respect of the Section 38 Works, constitute the road(s) becoming highway maintainable at the public expense until the Final Certificate of Completion is issued.

Similarly, in respect of any Section 278 Works carried out, the works will not be deemed to form part of the publicly maintainable highway until the issue of the Final Certificate of Completion.

6.11 Defects, Default Works and Notice to Surety If the Defect Works or Defective Works

Requirements (the Default Works') have not been completed as set out above, the Engineer will consider, with advice from Worcestershire County Councils Legal Services, the legal options for ensuring the works are completed.

Worcestershire CC may without prejudice to any other right claim or remedy under the Section 38/Section 278 Agreement:

In respect of an Agreement supported by a Bond or Surety, send to the Surety a Notice in writing ("the Default Notice") specifying the works required to be carried out, containing an estimate by Worcestershire County Council's Engineer or Agent of the cost of carrying out the outstanding works and of the cost of administration, supervision, execution, completion and maintenance of the works for a period of 12 months prior to the street(s) and way(s) becoming (or in the case of existing highway maintainable at the public expense forming part of) a highway maintainable at the public expense (the Default Costs')); [the Surety or the County Council to apply the sum to carry out the work as appropriate]; or In the case of the financial security being in the form of a cash deposit lodged with Worcestershire County Council, send to the Developer Notice in writing ("the Default Notice") specifying the work to be carried out, containing an estimate by Worcestershire County Council's Engineer or Agent of the cost of carrying out the outstanding works and of the cost of administration, supervision, execution, completion and maintenance of the works for a period of 12 months prior to the street(s) and way(s) becoming (or in the case of existing highway maintainable at the public expense forming part of) a highway maintainable at the public expense, (the Default Costs)) and without further notice to the Developer apply the sum held upon deposit in the execution of carrying out the Default Works.

6.12 Issuing a Final Certificate of Completion

At the end of the 12 month maintenance period the Developer must request the Final Certificate of Completion, (the Final Certificate) from the Worcestershire County Council's Engineer in writing. Copies of as built drawings will also need to be supplied at the time the request is made.

6.13 Inspection Process following a request for a Final Certificate

The inspection process for the issuing of the Final Certificate will follow that of Paragraphs A and B of the Provisional Certificate inspection process above.

If Worcestershire County Councils Engineer is satisfied that all works identified have been carried out in accordance with the Section 38/278 Agreement and Worcestershire County Council's specification or as otherwise directed by the Engineer, then Worcestershire County Councils Engineer will issue the Final Certificate.

The issuing of the Final Certificate signifies (amongst other things) Worcestershire County Councils adoption of the Section 38/ 278 Works. Any roads open to public traffic forming part of the Section 38 Works will at this point become highway(s) maintainable at the public expense.

The Bond or deposit provided in support of the Agreement may now be cancelled/refunded. Should the Developer not have carried out the Default Works, nor requested the Final Certificate of Completion within 18 months of the date of issue of the Provisional Certificate, Worcestershire County Council will apply the remedies set out in the section entitled 'Defects, Default Works and Notice to Surety' above.

6.14 Health and Safety

Prior to formal adoption, the developer will be required to submit a copy of the completed Health and Safety File in accordance with the Construction, Design and Management 2015 Regulations.

7. Appendices

Appendix A: Useful Contacts

Organisation	Contact Details
Worcester County Council	County Hall, Spetchley Road, Worcester Worcestershire, WR5 2NP www.worcestershire.gov.uk 01905 763763
Redditch Borough Council	Town Hall, Walter Stranz Square, Redditch, B98 8AH www.redditchbc.gov.uk 01527 64252
Bromsgrove District Council	Parkside Market Street Bromsgrove Worcestershire, B61 8DA www.bromsgrove.gov.uk 01527 881288
Wyre Forest District Council	Wyre Forest House, Fine Point Way Kidderminster, DY11 7WF www.wyreforestdc.gov.uk 01562 732928
Worcester City Council	The Guildhall, High Street, Worcester Worcestershire, WR1 2EY www.worcester.gov.uk 01905 722233
Wychavon District Council	Civic Centre, Queen Elizabeth Drive Pershore, Worcestershire, WR10 1PT www.wychavon.gov.uk 01386 565000
Malvern Hills District Council	Council House, Avenue Road, Malvern Worcestershire, WR14 3AF www.malvernhills.gov.uk 01684 862151
National Highways (Midlands)	The Cube, 199 Wharfside Street, Birmingham, B1 1RN planningM@highwaysengland.co.uk
West Mercia Road Safety Partnership	cms.westmercia.police.uk/roadsafety
West Mercia Police	PO Box 55, Worcester Worcestershire, WR3 8SP www.westmercia.police.uk contactus@westmercia.police.uk

Appendix B: Biodiversity Legislative Framework And Best Practice Guidance

The Wildlife And Countryside Act 1981 (As Amended)

The WCA is the major legal instrument for wildlife protection in the UK. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention'), the Convention on the Conservation of Migratory Species of Wild Animals (the 'Bonn Convention') and the European Union Directive on the Conservation of Wild Birds (79/409/EEC) (EC Birds Directive) are implemented in Great Britain (see below). The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5 or wild bird not listed in Schedule 2; and prohibits interference with places used for shelter or protection and intentionally disturbing animals occupying such places. The Act makes it an offence (subject to exceptions) to intentionally pick, uproot or destroy any wild plant listed in Schedule 8.

Birds Directive 2009/147/Ec (Codified Version Of Directive 79/409/Eec As Amended)

The Directive provides for the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for endangered and migratory species. Since 1994 all SPAs form an integral part of the Natura 2000 ecological network. The Birds Directive also bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds (with some exceptions).

Habitats Directive

The aim of the Habitats Directive is to 'maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest' (Habitats Directive, Article 2(2)).

The provisions of the Directive require Member States to introduce a range of measures, including:

- Maintain or restore European protected habitats and species listed in the Annexes at a favourable conservation status as defined in Articles 1 and 2;
- Contribute to a coherent European ecological network of protected sites by designating Special Areas of Conservation (SACs) for habitats listed on Annex I and for species listed on Annex II. These measures are also to be applied to Special Protection Areas (SPAs) classified under Article 4 of the Birds Directive. Together SACs and SPAs make up the Natura 2000 network (Article 3);
- Ensure conservation measures are in place to appropriately manage SACs and ensure appropriate assessment of plans and projects likely to have a significant effect on the integrity of an SAC. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest. In such cases compensatory measures are necessary to ensure the overall coherence of the Natura 2000 network (Article 6);
- Member States shall also endeavour to encourage the management of features of the landscape that support the Natura 2000 network (Articles 3 and 10);
- Undertake surveillance of habitats and species (Article 11),
- Ensure strict protection of species listed on Annex IV (Article 12 for animals and Article 13 for plants).
- Report on the implementation of the Directive every six years (Article 17), including assessment of the conservation status of species and habitats listed on the Annexes to the Directive.

Protection Of Badgers Act 1992

The Protection of Badgers Act 1992 protects badgers and their setts. Offences under the act include killing, injuring or taking a badger, or to damage or interfere with a sett unless a licence is obtained from the relevant statutory authority.

Countryside And Rights Of Way Act 2000 (Crow Act 2000)

The CRoW Act provides for public access on foot to certain types of land, amends the law relating to public rights of way, increases measures for the management and protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation, and provides for better management of Areas of Outstanding Natural Beauty (AONB).

The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

Schedule 9 of the Act amends SSSI provisions of the Wildlife and Countryside Act 1981, including provisions to change SSSIs and providing increased powers for their protection and management.

Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', create a new offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and obtaining wildlife tissue samples for DNA analysis, and enable heavier penalties on conviction of wildlife offences.

Natural Environment And Rural Communities (Nerc) Act 2006

The NERC Act makes provision in respect of biodiversity, pesticides harmful to wildlife and the protection of birds, and in respect of invasive non-native species. It alters enforcement powers in connection with wildlife protection, and extends time limits for prosecuting certain wildlife offences.

Section 40(1) imposes a duty to conserve biodiversity:

"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity."

Section 40(3) of the Act explains that:

"Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat".

The duty applies to all local authorities and extends beyond just conserving what is already there to carrying out, supporting and requiring actions that may also restore or enhance biodiversity.

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK BAP List of Priority Species and Habitats. The S41 list should be used to guide decision-makers such as local and regional authorities when implementing their duty: to have regard to the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Conservation Of Habitats And Species Regulations 2010 (As Amended)

The Habitats and Species Regulations are the principal means by which the European Union Directive on the Natural Habitats and Wild Fauna and Flora (92/43/EEC) (EC Habitats Directive) is transposed in UK law. They also consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales.

The Regulations provide for the designation and protection of 'European sites (paragraph 8)', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. In addition, the need for an assessment of impacts on Natura 2000 sites is set out within Article 6 of the EC Habitats Directive 1992, and interpreted into British law by the Conservation of Habitats and Species Regulations 2010.

Hedgerow Regulations 1997

The Hedgerows Regulations 1997 protect most countryside hedgerows from being removed (including being uprooted or otherwise destroyed) without prior permission from the local planning authority. The Regulations set out criteria for identifying important hedgerows, for which greater protection is conferred.

Biodiversity 2020: A Strategy For England's Wildlife And Ecosystem Services (2012)

This is a biodiversity strategy for England's wildlife and ecosystem services which builds on the Natural Environment White Paper and provides a comprehensive picture of how England is implementing its international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea, building on the work that has gone before, but also seeking to deliver a step change. One of the Priority actions is that DEFRA "will work with transport agencies and key delivery partners to create coherent and resilient ecological networks in the natural areas at the edges of our strategic roads and railways, which cover approximately 60,000 hectares. The Government will host a forum with environmental stakeholders to inform future priorities for the enhancement of these green corridors". DEFRA state that they will "through reforms of the planning system, take a strategic approach to planning for nature within and across local areas. This approach will guide development to the best locations, encourage greener design and enable development to enhance natural networks. We will retain the protection and improvement of the natural environment as core objectives of the planning system."

Infrastructure Act 2015

An Act to make provision for strategic highways companies and the funding of transport services by land; control of invasive non-native species; and nationally significant infrastructure projects.

National Planning Policy Framework (2012)

The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. This includes a number of environmental policies: "Paragraph 117 states: To minimise impacts on biodiversity and geodiversity, planning policies should: plan for biodiversity at a landscape-scale across local authority boundaries; identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;

promote the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan;

Paragraph 118 states;

if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;

opportunities to incorporate biodiversity in and around developments should be encouraged;

planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and

the following wildlife sites should be given the same protection as European sites: – potential Special Protection Areas and possible Special Areas of Conservation; – listed or proposed Ramsar sites; and – sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."

Defra (2011). Biodiversity 2020: A Strategy For England's Wildlife And Ecosystem Services

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

Department For Communities And Local Government (2012). National Planning Policy Framework

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

Chartered Institute Of Ecology And Environmental Management (2016). Guidelines For Ecological Impact Assessment In The Uk And Ireland. Terrestrial, Freshwater And Coastal

https://cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf

British Standard 42020:2013 Biodiversity. Code Of Practice For Planning And Development

https://www.bsigroup.com/LocalFiles/en-GB/biodiversity/BS-42020-Smart-Guide.pdf

**Joint Nature Conservation Committee (2010). Handbook For Phase 1 Habitat Survey.
A Technique For Environmental Audit. Jncc, Peterborough.**

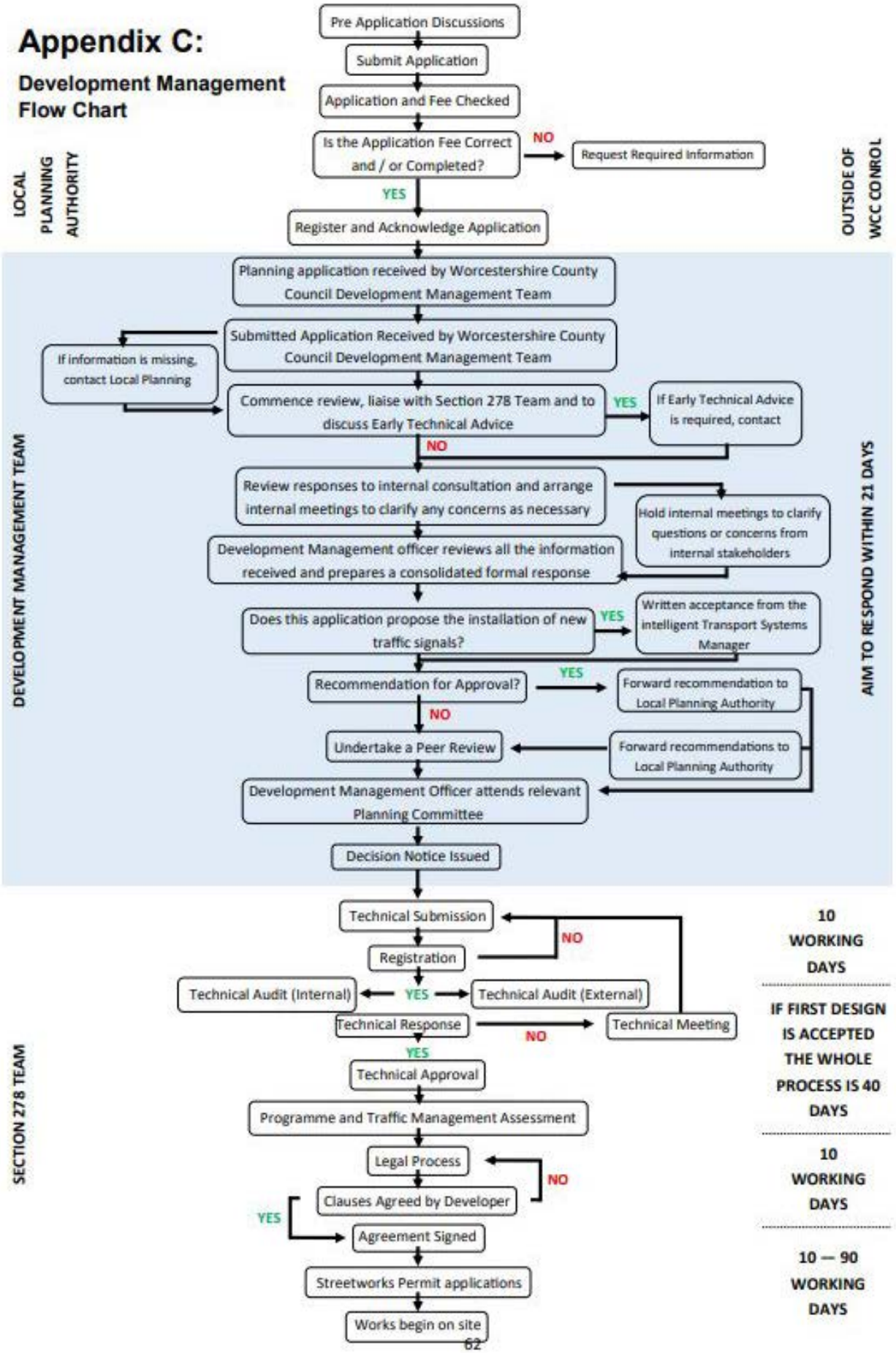
http://archive.jncc.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf

Highways Agency (1993). Design Manual For Roads And Bridges, Volume 11 Section 3 Part 4 Ecology And Nature Conservation

http://bailey.persona-pi.com/Public-Inquiries/M4-Newport/C%20-%20Core%20Documents/6.%20Transport%20and%20Engineering/DMRB/vol11/section3/11s3p04.pdf

Highways Agency (2008). Design Manual For Roads And Bridges Volume 11 Section 2 Part 5 Assessment And Management Of Environmental Effects

Appendix C: Development Management – Flow Chart



Appendix D: Householder Planning Application Information sheet

This Information Sheet has been prepared to act as a checklist guide for minor applications related to a household. It presents a summary of information that should be presented to the Local Planning Authority and Local Highway Authority in support of household and access changes i.e. household extensions, new or altered accesses, etc. This information does not fit every circumstance, and should be treated as a guide only. The Local Highway Authority may require additional information, and this will be known when the Local Planning Authority consults the Local Highway Authority on the submission of the planning application.

This guidance is based on the principles and standards set out within the Worcestershire County Council Streetscape Design Guide, the South Worcestershire Development Plan and Manual for Streets 1 and 2.

Checklist

In all cases, the Local Highway Authority will require the following:

- A site location plan, so that the site and its surrounding highway network can be identified.
- A redline boundary plan. This provides the Local Highway Authority with details of land within your owner-ship i.e. the area in which you can amend a house or access. Anything outside this boundary will be third party land (someone else owns it) or highway land.
- A description of the existing situation i.e. site or house and details of what the proposals include. These de-tails should also be included on the planning application form and be a precise as possible.
- A drawing or plan showing the existing situation compared to the proposed situation. Pre and Post house extension or access, driveway changes, etc. Geometric dimensions should be specified.

Important Note: If a house extension does not increase the number of bedrooms, nor identify changes to parking, access, the adjoining highway or access visibility, then the Local Highway Authority are unlikely to require consultation by the Local Planning Authority.

Highway Requirements (subject to the proposals)

Access Dimensions

- To be set out at 90 degrees to the adjoining carriageway or footway
- Provided in a bound material i.e. tarmac, paving, grasscrete, etc for a distance of 5.0 metres;
- Minimum access /driveway width of 3.2 metres;
- Minimum access / driveway length of 6.0 metres;
- Longitudinal fall to driveway: Max 1:12 towards the carriageway, 1:8 in exceptional circumstances. Max 1:15 away from the carriageway;
- The connection to the priority road shall be laid out as a dropped crossing in accordance with Section 184 of The Highways Act 1980, where applicable;
- Will not be adopted as public highway;
- No access / driveways to be positioned within 20 metres to a junction bellmouth and
- Water from driveways must not be allowed to discharge onto the highway.
- Two points of access to a single dwelling frontage are generally not supported. Under certain circumstances these can be allowed, but full visibility must be achievable from both access points (irrespective of 'in' and 'out' only signage) and vehicles must be able to enter, turn and exit the site in a forward gear at both accesses, or be able to route through the site, not utilising space allocated for vehicle parking.

Vehicular Visibility

In the interest of highway safety, all new accesses (and alterations to existing accesses) must by accompanied by a visibility splay. Appropriate to Manual for Streets, Y distance visibility splays are required from a point of 1.05 metres (typical car driver eye height) or 2.0 metres for HGVs, above the carriageway, taken at the centre of the access and 2.4 metres back from the near side edge of the adjoining carriageway (X distance). The splay is then provided for a distance of Y metres in each direction. This X distance is measured along the nearside edge of the adjoining carriageway with a vertical offset distance of 0.6 metres.

The Y distance is measured along the nearside edge of the adjoining carriageway with an vertical offset distance of 0.6 metres. Access visibility Y distances must be informed from 85th percentile speeds surveyed in free-flow conditions, undertaken in an appropriate place, close to the location of the access junction.

Nothing shall be planted, erected and/or allowed to grow on the triangular area of land so formed which would obstruct the visibility described above.

Pedestrian Visibility

Where an emerging vehicle needs to cross a footway or service margin from a shared or individual private access /driveway, pedestrians and cyclists must be given sufficient warning of the vehicle's approach, and the exiting vehicle must have sufficient visibility to see pedestrians and cyclists approaching. In such circumstances a visibility splay of 2.0 metres x 2.0 metres is required from the back edge of the highway limit.

Access Gates

Installed gates must be set back a minimum distance of 5.0 metres from the back of the highway and gates must open inwards only. The set back distance of 5.0 metres also applies to sliding gates.

Access / Driveway Materials

A driveway must be surfaced in a bound material for the first 5.0 metres from the back of highway (loose stones are not accepted) to prevent spillage onto the public highway.

Turning and Movement

On 'high speed' roads or roads that might include bus routes, or be positioned close to schools, include high pedestrian activity, or high vehicle volumes, provision must be provided to enable a vehicle to enter, park / turn and exit in a forward gear. The acceptability of no turning area being provided maybe suitable on some residential, low trafficked, low speed roads, but this will be at the discretion of the Highway Authority

Parking

New houses or additional bedrooms to an existing household requires additional off-street parking to be provided in accordance to standards. The minimum standards for car and cycle parking include.

Car and Cycle Parking:

1 Bedroom Unit	**1 car space / 1 cycle space**
2 to 3 Bedroom Units 2 car spaces	**2 car spaces / 1 cycle space per bedroom**
4 to 5 Bedroom Units 3 car spaces*	**3 car spaces* / 3 cycle spaces for 4 bedroom dwelling, 4 spaces for 5 bedroom dwelling**
6+ Bedroom Units	**4 car spaces, or other value to be agreed based on evidence / 5 cycle spaces**

*** In Rural parishes of Redditch this should be increased to 4 spaces.**

Please note that Houses of Multiple Occupancy have different parking standards to these presented above.

Car parking spaces should be a minimum 2.4 metres x 4.8 metres in size, however circulation space may be required for individual residential plots (see main Guide text). Overlapping circulation space is also accepted, as too are tandem parking bays.

For residential driveways that include car ports, additional width should be given to a vehicle space to allow access given the positioning of posts. The Local Highway Authority will require evidence to support such provision.

It is recommended that all residential households include electric charging provision. Specific details included in the Streetscape Design Guide.

Appendix E: Structure Scenarios

Scenario 1

All new structures under an existing highway, or prospectively adoptable highway:

- These will be subject to the requirements of DMRB CG 300
- Where any part of the structure [including approach embankments, etc] extends beyond the limits of the current highway the land not currently designated as public highway shall be dedicated to public highway so as to give the Highway Authority full control over the land upon which the structure and it component parts rest. This includes all land within the 'footprint' of the structure.
- An additional 2m margin 'halo' around all structural elements [including buried elements such as foundations, soil nailing, and reinforced earth] shall be dedicated to highway so as to protect the structure from interference and to provide for future un-inhibited inspection and maintenance access by the Highway Authority.
- These additional areas shall be finished in low maintenance materials agreeable to the Highway Authority, and which may vary from development to development. The area so dedicated shall be fenced off as agreed with the Highway Authority.
- Commuted sums shall be paid to the Highway Authority by the developer to cover future maintenance, and / or reconstruction.

Scenario 2

All new structures over an existing highway where it is intended that the structure will carry a prospectively adoptable highway:

- These will be subject to the requirements of DMRB CG 300
- Where any part of the structure [including approach embankments, etc] extends beyond the limits of the current highway the land not currently designated as highway shall be dedicated as public highway so as to give the Highway Authority full control over the land upon which the structure and it component parts rest. This includes all land within the 'footprint' of the structure.
- An additional 2m margin 'halo' around all structural elements [including buried elements such as foundations, soil nailing, and reinforced earth] shall be dedicated to highway so as to protect the structure from interference and to provide for future un-inhibited inspection and maintenance access by the Highway Authority
- These additional areas shall be finished in low maintenance materials agreeable to the Highway Authority, and which may vary from development to development. The area so dedicated shall be fenced off as agreed with the Highway Authority.
- Commuted sums shall be paid to the Highway Authority by the developer to cover future maintenance, and / or reconstruction.

Scenario 3

Structures supporting the highway [e.g. retaining walls] adjacent to private housing developments:

- These will be subject to the requirements of DMRB CG 300
- Where any part of the structure extends beyond the limits of the current highway the land not currently designated as public highway shall be dedicated as public highway so as to give the Highway Authority full control over the land upon which the structure and it component parts rest.
- An additional 2m margin 'halo' around all structural elements [including buried elements such as foundations, soil nailing, and reinforced earth] shall be dedicated to highway so as to protect the structure from interference and to provide for future un-inhibited inspection and maintenance access by the Highway Authority. These additional areas shall be finished in low maintenance materials acceptable to the Highway Authority, and which may vary from development to development. The area so dedicated shall be fenced off as agreed with the Highway Authority.
- Commuted sums shall be paid to the Highway Authority by the developer to cover future maintenance, and / or reconstruction.

Scenario 4

Structures supporting land above the highway [e.g. retaining walls] adjacent to private housing developments:

- These will be subject to the requirements of DMRB CG 300
- Land not currently designated as public highway shall be dedicated as public highway so as to give the Highway Authority full control over the land upon which the structure and it component parts rest.
- An additional 2m margin 'halo' around all structural elements [including buried elements such as foundations, soil nailing, and reinforced earth] shall be dedicated to highway so as to protect the structure from interference and to provide for future un-inhibited inspection and maintenance access by the Highway Authority. These additional areas shall be finished in low maintenance materials acceptable to the Highway Authority, and which may vary from development to development. The area so dedicated shall be fenced off as agreed with the Highway Authority.
- Commuted sums shall be paid to the Highway Authority by the developer to cover future maintenance, and / or reconstruction.
- Approval Of Structures Not To Be Adopted By The Council The following structures although not necessarily to be adopted by the Council require Structural Approval.
- These will be subject to the requirements of DMRB CG 300
- Any wall or basement constructed on private land by an individual or developer that affects the support of the highway;
- Bridges crossing the Highway where there is no public access to the bridge; [Requires licence s176 of Highways Act 1980. Requires condition to pay for removal or alterations required by highway authority]
- Retaining walls where any part of the retaining wall is 1.20m above the boundary of the highway nearest that point; and
- Buried structures over 0.9m span/diameter carrying services or plant S330 Highways Act 1980 requires SU to gain approval from the highway authority.
- Therefore any structure should be considered but general access chambers using precast units should not need approval. Longitudinal structures which use bespoke parts including pipe and PC box sections should be subject to TA.

Scenario 5

All new structures under an existing highway, or prospectively adoptable highway provided by or for Statutory Undertakings [e.g. flood attenuation, storm overflows].

- These will be subject to the requirements of DMRB CG 300
- Structures should ideally be located away from the carriageway, or in public open space, if this cannot be achieved then they should be so positioned and agreed with the Highway Authority so as not to prohibit the future use of the highway during:
- Cyclic cleansing
- Maintenance of the structure

Scenario 6

Structures supporting the highway [e.g. retaining walls]: adjacent to ongoing commercial developments.

- These will be subject to the requirements of DMRB CG 300
- The developer will be required to commit to the Code of Practice for the Management of Highway Structures complying with the inspections and maintenance requirements in all respects and provide evidence to the Highway Authority that this has been done at each cycle specified within the code. Evidence shall include: copies of inspection reports, maintenance works and structural assessment calculations.
- The developer will carry annual insurance, and / or indemnify the Highway Authority against all such claims arising from the construction, presence, use, and maintenance of the structure. Written evidence shall be provided on an annual basis that such indemnity is provided.
- The above requirements shall be included in property deed transfers to ensure future owners of the land are kept aware of their liabilities. The Highway Authority shall be provided with a copy of the deeds after each transfer of the land.

Scenario 7

Structures supporting land above the highway [e.g. retaining walls] adjacent to ongoing commercial developments.

- These will be subject to the requirements of DMRB CG 300
- The developer will be required to commit to the Code of Practice for the Management of Highway Structures complying with the inspections and maintenance requirements in all respects and provide evidence to the Highway Authority that this has been done at each cycle specified within the code. Evidence shall include: copies of inspection reports, maintenance works and structural assessment calculations.
- The developer will carry annual insurance, and / or indemnify the Highway Authority against all such claims arising from the construction, presence, use, and maintenance of the structure. Written evidence shall be provided on an annual basis that such indemnity is provided.
- The above requirements shall be included in property deed transfers to ensure future owners of the land are kept aware of their liabilities. The Highway Authority shall be provided with a copy of the deeds after each transfer of the land.

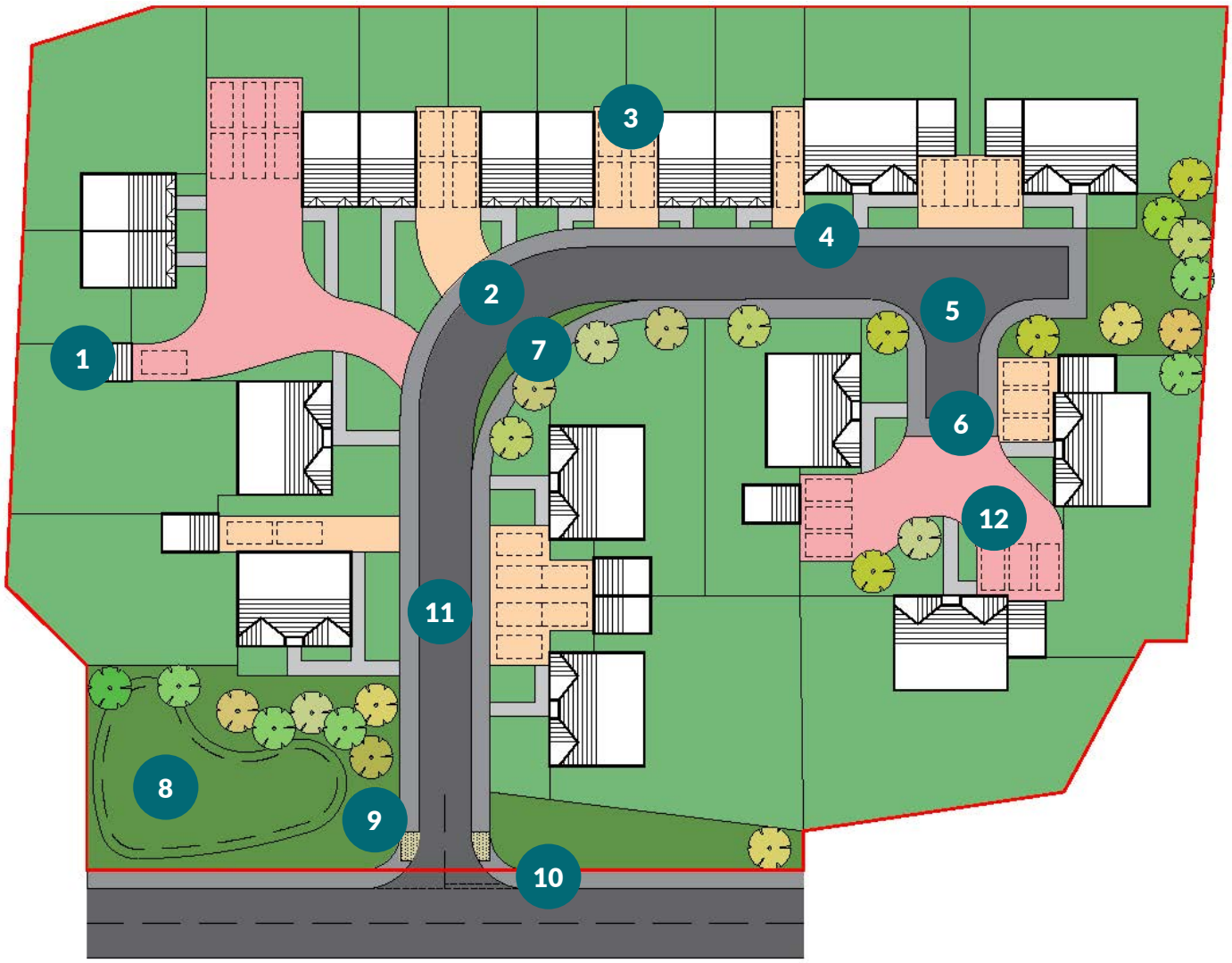
Scenario 8

All new and to be modified structures over an existing highway where the use is to remain private [service and access].

- These will be subject to the requirements of DMRB CG 300
- Wherever possible these should be constructed such that all supporting components are located within land to remain private.
- In particular every attempt should be made to prevent, in use, objects from falling on to the public highway beneath.
- The developer will be required to commit to the Code of Practice for the Management of Highway Structures complying with the inspections and maintenance requirements in all respects and provide evidence to the Highway Authority that this has been done. Evidence shall include: copies of inspection reports, maintenance works and structural assessment calculations.
- The developer will carry annual insurance, and / or indemnify the Highway Authority against all such claims arising from the construction, presence, use, and maintenance of the structure. Written evidence shall be provided on an annual basis that such indemnity is provided.
- The above requirements shall be included in property deed transfers to ensure future owners of the land are kept aware of their liabilities. The Highway Authority shall be provided with a copy of the deeds after each transfer of the land.

Appendix F: Example Residential Site Layout

1. Garages are excluded from the car parking calculations due to the ability to convert these into habitable accommodation without the need for permission. But suitable for accessible, secure and covered cycle storage.
2. Centreline Radius of 15 metres
3. Car parking spaces to a minimum size of 2.4 metres x 4.8 metres, ideally to include additional circulation space **See Page 41**
4. Footway: 2 metre width footway on both sides of the carriageway
5. Turning head dimensions informed by refuse tracking analysis
6. Footway at the boundary of the turning head and shared space, but does not include vertical alignment
7. Forward visibility splay. Area left unobstructed and within public highway ownership
8. Sustainable Urban Drainage System (SUDS). **See Page 12**
9. Tactile paving and dropped kerbs for crossing along pedestrian desire lines
10. Visibility splay at 2.4 metres (X distance) by Y distance, which is determined by 85th percentile vehicle speeds on the mainline. **See Page 23**
11. 5.5 metre carriageway width. Sufficient for two vehicles to pass and vehicles to turn out of driveway spaces over a 2.0 metre dropped kerb footway
12. Shared space to serve up to a maximum of 6 dwellings. Provides pedestrians the impression of priority over vehicles. This will not be adopted as part of the public highway. **See Page 35**



Appendix G: Parking Standards By Land Use

Land Use Class		Car Parking	Cycle Parking
B2	General Industry	1 space per 35sqm for first 250sqm thereafter 1 space per 50sqm GFA	1 space for every 200sqm GFA
B8	Storage and Distribution	1 space per 250sqm GFA	1 space for every 400sqm GFA
C1	Hotel	1 space per bedroom	1 space for every 4 bedrooms, with 2 spaces as a minimum
C2	Hospital	1 space per 2 FTE staff 1 space per 3 beds for visitors	1 space per 3 staff
C2	Nursing Home	1 space per 4 residents plus 1 space per staff member	1 space for every 10 residents and 1 space for every 4 members of staff
C2	Residential School	1 space per 2 staff (FTE) plus 1 space per 15 students, plus 1 space per bed for residential staff	1 space per 5 residents
C2	Sheltered Accommodation	1 space per 3 units. 1 space per staff member	1 space for every 5 residents
C3	Residential (1 bedroom)	1 space per unit	1 space per bedroom (1)
C3	Residential (2-3 bedroom)	2 spaces per unit	1 spaces per bedroom (2 / 3)
C3	Residential (4-5) bedroom	3 spaces per unit	3 spaces for bedrooms and 4 spaces for 5 bedrooms
C3	Residential (6+ bedrooms)	4 car spaces minimum or value to be agreed based on evidence	5 spaces for 6+ bedrooms
C3	Residential Caravan	1 space per unit (2 spaces per unit if 3+ bedrooms)	1 space per unit
C3	Transit/Static Holiday Home	Same as residential dwellings	
C3	Yurts	1 space per unit	1 space per unit
E	Retail (<1000sqm GFA)	1 space per 25sqm GFA	1 space per 150sqm GFA
E	Food Retail (>1000sqm GFA)	1 space per 25sqm for first 1000sqm thereafter 1 space per 14sqm GFA	1 space per 150sqm GFA
E	Non-Food Retail	1 space per 20sqm GFA	1 space per 150sqm GFA
E	Financial and Professional Services	1 space per 25sqm GFA	1 space per 150sqm GFA
E	Restaurants and Cafes	1 space per 5sqm GFA Plus appropriate standard for dwelling accommodation	1 space per 100sqm GFA

Land Use Class		Car Parking	Cycle Parking
E	Office / Business	1 space per 25sqm for first 2500sqm thereafter 1 space per 30sqm GFA	1 space for every 150sqm GFA
E	Surgery / Dentist/ Health Facility	4 spaces per consulting room	2 spaces per consulting room
E	Leisure Centre/Sports Centre	1 space per 22sqm GFA	1 space per 100sqm GFA and 1 space for every 5 members of staff
E	Creche	1 space per staff member. Drop off/pick up facilities at 1 space per 10 children	1 space for every 4 members of staff
F.1	Primary and Secondary Schools	1 space per member of staff. Parking spaces not to exceed FTE staff.	1 space per 10 pupils1 space per 5 staffScooter parking required. Quantum to be identified in a Travel Plan
F.1	Further & Higher Education	1 space per 2 members of staff1 space per 15 students	1 space per 10 students1 space per 5 staff
F.1	Art Gallery /Library / Museum	1 space per 30sqm GFA	1 space per 50sqm GFA
F.1	Place of Worship	1 space per 22sqm GFA	1 space per 50sqm GFA
F.2	Swimming Pool	1 space per 5sqm. pool area	1 space per 100sqm GFA
F.2	Golf Course /Driving Range	2 spaces per hole. 2 spaces per bay for driving range	1 space per 5 car parking spaces
*	Drinking Establishments	1 space per 10sqm GFA. Plus appropriate standard for dwelling accommodation	1 space per 100sqm GFA
*	Hot Food Takeaways	1 space per 20sqm GFA	1 space per 100sqm GFA
*	Cinema	1 space per 5 seats	1 space per 100sqm GFA
*	Conference Facility	1 space per 5 seats	1 space per 100sqm GFA
*	Concert Hall/Nightclub	1 space per 22sqm GFA	1 space per 100sqm GFA

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