



The Streetscape Design Guide

2025

Worcestershire County Council

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Chapter 1: Introduction to Streetscape Design Guide

Foreword

High-quality street design has a fundamental role to play in how we meet the challenges of growth in building new homes and generating jobs across Worcestershire. This Streetscape Design Guide emphasises the importance for Worcestershire to pride itself in having high-quality developments that incorporate safe, functioning, and attractive roads and public spaces that meet the needs of all users, while respecting the local character, environment and promoting sustainability, longevity, and easy maintenance for future generations.

Street design principles not only facilitate good connectivity and safety, but they also help to define a vibrant and attractive neighbourhood or community for the health and wellbeing of its residents and help encourage economic activity. All of these factors contribute to the four priorities of our Corporate Plan 2022 to 2027:

- Open for Business
- Children and Families
- The Environment
- Health and Wellbeing

With climate change, streets must cope with heavier rainfall, surface water flooding, and higher temperatures. Therefore, street design considerations to traffic speed, lighting, and planting, through to details of sustainable materials and their transportation can all have a significant impact on how streets function and contribute to the reduction of carbon emissions. These measures will help us collectively achieve a lower carbon economy, create opportunities for sustainable travel, promote healthier lifestyles and well-being, and protect the environment whilst unlocking economic aspirations.

In 2021, Worcestershire County Council declared a climate emergency and set a target for the county to be carbon neutral by 2050. This ambition extends into our role as the Local Highway Authority when advising and assessing new developments.

This document will be reviewed to support major changes in policy, legislation, or guidance at a national and local level. It is anticipated that this may be every five years, and changes will be published on Worcestershire County Council's website.

1. Introduction

New streets and public areas in Worcestershire need to be of a high-quality design and be well connected to play a vital role in leading to greater economic and social well-being with improved health for its residents. They need to be well-designed to:

- **Prioritise** the provision for people to safely walk, wheel and cycle more for shorter journeys and use public transport more instead of driving a private vehicle.
- **Mitigate** the impact of current and future climatic conditions by assessing, managing, and minimising risk through good design.
- **Be innovative** where possible, to use sustainable and low carbon materials to reduce the impact on the environment and carbon emissions.
- **Be respectful** of our heritage and natural environment to create vibrant and attractive places where people and nature can thrive alongside each other.
- **Being well integrated and connected** to existing areas, public rights of ways and services such as schools and shops so they can function well.
- **Use digital infrastructure and/or the use of technology** that will help future-proof solutions and services, reduce future maintenance costs, help asset management, reduce environmental impacts and improve physical connectivity through the ability to make decisions based on 'real time information'.

The Streetscape Design Guide (SDG) sets the standards and expectations on several technical issues such as street hierarchy, space allocation, active travel and parking. The aim of this document is to provide guidelines for developers to work towards, whilst simultaneously supporting innovation and originality further enriching an already diverse county that is rich in its heritage, urban areas and natural landscapes.

This document is intended for the use of all involved in designing, delivering and maintaining new and existing streetscapes, highways and public realm in Worcestershire. This includes development projects, capital projects, revenue projects and maintenance projects in public and private sectors. As such, its users will include developers, private sector interests, councils, the wider public sector, and communities including their agents and consultants.

It is essential that all layouts and street designs are vehicle tracked and assessed to ensure they can perform to a safe and satisfactory level. Therefore, early engagement with Worcestershire County Council is encouraged from the start of the design process through to construction. This would allow developers to benefit from a combined consultation from officers representing different disciplines such as highways, public transport and transport strategy, etc.

2. Purpose

Worcestershire County Council is responsible for ensuring that new streets (including its own schemes) meet certain design standards to ensure they function in a practical and safe manner and help deliver the aspirations of the county; to encourage high-quality developments with a strong

focus on creating options for safe, accessible, and sustainable modes of transport to reduce congestion and carbon emissions.

Currently, these standards are set out in various local and national guidance documents. Whilst these guides are important to communicate standards, they do not necessarily demonstrate how all the various disciplines might come together in a holistic manner to create streets and places.

The primary purpose of this design guide is to bring together the key design principles from the multitude of disciplines covered by existing guidance. This document allows designers and developers to understand Worcestershire County Council's clear expectations for early engagement and advice, standards, including innovation. The Guide outlines guidance for the different streetscape components that need to be considered in the design and planning stages:

- Requirements on access, layout, and connectivity.
- Standards on road space allocation.
- Parking provision.
- Trees and landscaping.
- Street lighting.
- Active travel provision for walking, wheeling and cycling
- Passenger transport, bus stops, and school drop-off areas.
- Drainage and Sustainable Drainage Systems (SuDs).
- Requirements and processes for creating a streetscape suitable for adoption.

The SDG is intended to be used in conjunction with the relevant Local Planning Authority Design Codes to provide design solutions at the pre-application and planning application stages.

This guide refers to various national and local guidance, and it should be read in conjunction with these documents. These are shown in Appendices A and B.

3. Aims

Worcestershire County Council wants to deliver high-quality streets and places in Worcestershire for the benefit of the community. Good streetscape design should aim to create:

1. Accessible, safe, and practical space for all users.
2. Prioritised active and sustainable optimised travel options for walking, wheeling^[1], and cycling and the use of public transport.
3. Attractive places using high-quality design which are easy to maintain and built to last with sustainable, climate resilient materials that can adapt to future changes in the climate in terms of adaptation to extremes in weather patterns from hot and dry spells to mild and wet ones.

4. Enhanced local areas that are respectful to existing conservation, historic, and heritage areas.
5. Green and blue spaces that make the most of green and blue infrastructure provide attractive areas for local communities and the mental and physical health and well-being of all ages.
6. Habitats for ecology and biodiversity, to protect and encourage nature to thrive.

^[1] *“An equivalent alternative to foot/pedestrian-based mobility. Includes wheeled mobilities such as manual self- or assistant-propelled wheelchairs, including wheelchairs with power attachments or all-terrain attachments (such as the “Freewheel”), powered wheelchairs, mobility scooters (three and four-wheeled) and rollators. Some people rely on their cycle to move (at a pedestrian’s pace) through pedestrianised environments when it is not physically possible to walk/push their cycle. Some people use their cycle as a walking aid; by leaning on it, some people use e-scooters (with or without a seat), to wheel/scoot through pedestrianised environment if they cannot walk unaided.” (Wheels for Wellbeing).*

As the Local Highway Authority, Worcestershire County Council adheres to this Streetscape Design Guide for its own Public Realm and highway infrastructure schemes.

4. Ethos

A high-quality streetscape can be achieved by many integrated factors:

1. Design of the buildings.
2. The scale and proportion of the spaces between the buildings.
3. Use and quality of robust and sustainable materials and where appropriate, to incorporate eco-friendly materials to reduce carbon, and consideration to use materials and texture that prevent anti-social behaviour such as graffiti.
4. Design of lighting and carefully designed street furniture. Street furniture is defined as a collective term for all functional furniture, fittings and objectives in streets such as seating, cycle storage, bins, etc.
5. Integrated Sustainable Drainage Systems (SuDs) for flooding and surface run-off.
6. Green and blue spaces to complement and connect with existing residential, urban, and rural areas.

This Streetscape Design Guide sets out good practice design guidance for Worcestershire. The guide is to complement other national guidance and best practice documents. This document is not intended as a full specification and use of this document in no way relieves the works’ promoter of their responsibilities to provide a safe design compliant with the regulations, codes of practice and national recommendations in force at the time.

The National Design Guide: Planning practice guidance for beautiful, enduring, and successful places (2021), published by the Ministry of Housing, Communities and 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.”

The National Design Guide also 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.”

Development proposals in Worcestershire should, therefore, consider the following principles to:

1. Respect and contribute towards a clear hierarchy of streets and spaces. The transport user hierarchy should be applied within all aspects of street design to consider the needs of pedestrians first, then wheelers and cyclists, followed by public transport users, and finally private vehicles.
2. Consider the impact of parking provision on connectivity. Parking arrangements should be integrated into the street scene, and large areas of surface parking should be avoided.
3. Ensure that car parking and highways design do not dominate the design of the development of a street scene or the public realm design to be safe for all users.
4. Be aligned with all relevant Public Realm design codes where applicable.
5. Design signage, lighting, and street furniture to minimise street clutter.
6. Design and plan open spaces to clearly delineate public and private areas, and with appropriate enclosures.
7. Plans for street trees and green spaces to contribute to a network of green and blue infrastructure. These should be carefully sited to promote connectivity and enjoyment for people and promote greater biodiversity.
8. Sustainable Drainage Systems (SuDS) to cope with run-off and flood water.
9. Cross reference the local design codes and policies during the initial stages of pre-app planning and Master Planning.
10. 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.

5. Roles and Responsibilities

5.1 The Local Authority

As the Local Highway Authority (LHA), it is the statutory duty of Worcestershire County Council as outlined in Section 41 of the Highways Act 1980, to maintain highways that are adopted at public expense, ensuring they are safe and passable for all users, including dealing with snow and ice, as far as is reasonably practicable. The public highway network includes all adopted roads, footpaths, and verges (maintainable at the public expense). It does not include unadopted or privately owned roads. As the LHA, we must also take steps to prevent collisions from occurring on new roads when they come into use (Section 39 Road Traffic Act 1988).

The LHA plays a crucial role in streetscape design, ensuring that new developments and public realm improvements align with safety, functionality, and legal requirements. The LHA acts as a statutory consultee on planning applications, providing guidance on highway aspects and ensuring developments integrate well with the existing transportation network. In particular, the LHA reviews planning applications to ensure that proposed developments, particularly those impacting highways, are safe, efficient, and do not negatively affect the existing transport network.

The LHA also assesses proposals, approving submissions, and inspecting site works to ensure adherence to relevant standards and policies. Any deviations from established highway design standards are assessed for approval, ensuring that any departures are justified and do not compromise safety or functionality.

Worcestershire County Council is also the Planning Authority for minerals and waste planning, commonly referred to as 'County Matters.'

5.2 Hierarchy of road users

Manual for Streets 1 (2007) and Manual for Streets 2 (2010) aim to improve the quality of streets and public spaces by shifting the focus in street design from solely prioritising traffic movement to prioritising people and place. Manual for Streets 1 focuses on residential streets, whilst Manual for Streets 2 extends the principles to busier, urban and rural streets.

Manual for Streets 1 and Manual for Streets 2, state that the design of any new road or improvements to an existing road, should follow a user hierarchy as set out below in the preferred order of priority:

1. Pedestrians and wheelers
2. Cyclists and horse riders
3. Public transport users
4. Specialist service vehicles i.e. emergency services, waste etc.
5. Other motor traffic

As well as considering the hierarchy of road users, it is important to refer to the Department for Transport guidance published in 2021 called '[Inclusive Mobility. A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure](#)' when designing all schemes.

Applicants are advised to discuss their proposed application at the pre-planning submission stage with the relevant Local Planning Authority and where there are highway and transportation issues, consult with Worcestershire County Council as the Local Highway Authority. Early engagement is advised to help resolve issues before they become more difficult to deal with.

As an overview to the role of the Local Highway Authority, Appendix D sets out the principal functions involved in the planning application and design process.

5.3 The Local Planning Authorities

The six Local Planning Authorities (LPAs) in Worcestershire are as follows:

1. [Bromsgrove District Council](#)
2. [Malvern Hills District Council](#)
3. [Redditch Borough Council](#)
4. [Worcester City Council](#)
5. [Wychavon District Council](#)
6. [Wyre Forest District Council](#)

Each LPA is responsible for making the planning decisions within their District and each LPA has its own guidance and design principles to reflect the different and distinctive characteristics of the local area.

As part of the planning process, Worcestershire County Council as the Local Highway Authority is consulted by the LPAs on the highways and transportation implications of planning applications for which they are responsible as the planning authority. The LPAs are statutorily obliged to consult the Local Highway Authority. They are also obliged to consider any advice or recommendation that the Local Highway Authority may offer in response to the consultation.

6. Management of the Transport Network

Worcestershire County Council, as the Local Highway Authority (LHA) is responsible for the management of the following elements of the transport network:

- All public highways except for the Strategic Road Network, 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

Any proposed new development within the county can, therefore, generate an increase in demand across Worcestershire on all modes of transport, the highway network, the public right of way network and can impact on existing communities, infrastructure and structures such as bridges and retaining walls.

To understand the impact of development proposals across the county and to prevent and mitigate any adverse effects, a number of several different teams participate in providing coordinated pre-application advice to developers:

- **Highways Development Management (HDM) Team:** On behalf of the Local Highway's Authority co-ordinate a highways response to new and amended development and infrastructure proposals (planning applications). The HDM team can advise on highways and transport matters, including the requirement for transport infrastructure. This team will coordinate responses from other teams within the County Council, such as Public Rights of Way, in providing highways recommendations to the Local Planning Authority when consulted on proposals. The team is also responsible for Legal Agreements (s106) with developers.
- **Highways Development Control (HDC) Team:** This team is responsible for managing the delivery of developer-led schemes using section 38 and section 278 legal agreements. The team is also responsible for reviewing the engineering detail of schemes to ensure that roads are built to adoptable standards to minimise the cost to the public purse for future maintenance.
- **Street Lighting Team:** This team provides advice for developers and designers about Worcestershire County Council's requirements for street lighting and ensures they meet national prescribed standards to satisfy road safety requirements.
- **Public Rights of Way Team:** It is important to ensure Public Rights of Ways have been fully considered when planning and constructing new developments and/or where existing public rights of way need to be changed or moved. To obtain advice and support, it is advisable to consult with the Public Rights of Way team as early as possible, particularly about consulting the Definitive Map and specifications for public rights of way. This is to ensure existing routes, and the safety of users are always protected. For further details please see Appendix O.

All these teams will consult internally with colleagues as required, subject to the application under consideration.

Worcestershire County Council strongly advocates that a coordinated design process is essential for successful development with all the teams above. The Local Highway Authority reinforces this approach and advocates for early engagement with Developers through pre-application discussions to ensure an integrated approach.

Please see [Planning applications | Worcestershire County Council](#) and [Highways pre-application advice](#) sections of the Worcestershire County Council website for further information on pre-application advice.

7. Supplementary Planning Documents (SPDs)

For large and significant scale developments such as new settlements and major urban extensions in Worcestershire, Masterplans and / or Supplementary Planning Documents (SPDs) play a crucial role

by setting design codes or standards for new developments. SPDs set out general requirements and specific aims to provide a framework for developers to achieve specific outcomes for the developments including goals including design objectives, layouts and specifications. SPDs play a vital role as they offer a distinct form of detailed design guidance to deliver improved quality developments. Where developed, these detailed SPDs are available from the relevant District Councils. Worcestershire County Council will consult accordingly with reference to these SPDs.

8. Net Zero

The UK is committed to reaching net zero by 2050. This means that the total greenhouse gas emissions would be equal to the emissions removed from the atmosphere, with the aim of limiting global warming and resultant climate change. To achieve this, the UK Government has adopted a suite of policies in order to reach net zero. WCC will comply with national legislation and policies relating to net zero where appropriate in its own operations. The Streetscape Design Guide follows the hierarchy of prioritising active and sustainable movement throughout in line with national policy.

9. Guiding Principles

Streetscape design guidance can be both flexible and fixed, depending on the context and the specific guidance being applied. While some aspects of streetscape design, like safety standards, are fixed to ensure public safety, other aspects, such as aesthetic choices and design, may be more flexible to allow for innovative and context-specific solutions.

This document sets out examples of how principles, be they guiding or technical, could be implemented across a variety of situations and places. In many cases, an application will need to be considered on its own merits. Please refer to Appendix A for useful contacts.

This Guide is underpinned by other Worcestershire County Council Plans and Policies which include:

1. [The Local Transport Plan](#)
2. [Local Cycling and Walking Infrastructure Plans](#)
3. [Bus Service Improvement Plan](#)
4. [Green Infrastructure Strategy](#)
5. [Public Rights of Way Improvement Plan](#)

Please note that the Appendices are in a separate document.



Chapter 2

Transport and Movement Considerations

Streetscape Design Guide 2025

Worcestershire County Council

Transport and Movement Considerations

1. Local Highway Authority responsibility in response to a consultation

The Local Highway Authority (LHA) acts as a statutory consultee to the relevant Local Planning Authority (LPA) in relation to planning application submissions. The role of the Local Highway Authority is to analyse the information accompanying the planning application submission and provide advice in the form of a highway's recommendation, to the relevant Local Planning Authority, alongside other consultees.

The LHA can recommend refusal of a planning application to the LPA if the proposed development would negatively impact highway safety or capacity, or conflict with transportation policy. This recommendation is based on the LHA's assessment of the development's potential impact on the local road network and its ability to handle increased traffic:

“A Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.”

National Planning Policy Framework (NPPF) 2024 section 116

In assessing planning consultations, Worcestershire County Council will consider the proposal alongside the Local Plan policy and National Planning Policy Framework (2024) prior to making a recommendation to an LPA.

The LPA takes a neutral position regarding the development itself. Refusal is only recommended where shortfalls in highway standards would lead to a tangible deterioration in highway safety or capacity, or where there is a clear conflict with our transportation policy. Where a proposed development scheme is identified to impact on the Strategic Road Network (SRN), the relevant Local Planning Authority will consult with National Highways who are responsible for managing it.

If there is lack of clarity about the proposal and there are safety concerns, Worcestershire County Council acting as the LHA will request further information.

The relevant Local Planning Authority is entitled to consider its own view, in the light of advice provided by all consultees, including non-highway recommendations, which may or may not conflict with the highway's advice. The Local Planning Authority is then required to reach a planning decision, having taken these numerous factors into account.

2. Manual for Streets (MfS) 1 and 2

[Manual for Streets 1 \(2007\)](#) and [Manual for Streets 2 \(2010\)](#) aim to improve the quality of streets and public spaces by shifting the focus in street design from solely prioritising traffic movement to

prioritising people and place. Manual for Streets 1 focuses on residential streets, whilst Manual for Streets 2 extends the principles to busier, urban and rural streets.

Whilst these manuals are predominantly for the design, construction, adoption and maintenance of new residential streets, they also apply to existing residential streets subject to re-design. They aim to assist in the creation of high quality residential streets that:

- build and strengthen communities;
- balance the needs of all users;
- form part of a well-connected network;
- create safe and attractive places which have their own identity; and
- are cost-effective to construct and maintain.

The manuals state that the design of any new road or improvements to an existing road, should follow a user hierarchy as set out below in the preferred order of priority:

1. Pedestrians and wheelers
2. Cyclists and horse riders
3. Public transport users
4. Specialist service vehicles i.e. emergency services, waste etc.
5. Other motor traffic

This Streetscape Design Guide refers to guidance in the Manual for Streets 1 and 2, in conjunction with [Local Transport Note 1/20 \(LTN1/20\)](#) which provides guidance and good practice for the design of cycle infrastructure. All of which are to ensure the safety of the prioritised road users above.

The objective of the Streetscape Design Guide is to enable designers to create safe, distinctive high-quality streets within developments, whilst ensuring that planned transport infrastructure is safe and resilient, digital infrastructure and future connectivity is considered, and that publicly adopted streets stands the test of time and are cost-effective to maintain in the future. It is important to consider these elements together in the early design stages as Worcestershire County Council advocate a 'dig once policy' and to not retrofit requirements.

3. Design manual for Roads and Bridges (DMRB)

[The Design Manual for Roads and Bridges \(DMRB\)](#), is a set of standards specifically aimed at the Strategic Road Network (SRN) that is managed by National Highways. However, any new roads of a similar nature constructed by Worcestershire County Council should be built to the same standard, if they are to be considered for adoption where appropriate. For all other roads, the decisions on the choice of standards and their incorporation into designs sit with the Local Highway Authority. As the Design Manual for Roads and Bridges sets out the current best practice for highway design, it is the preferred design for highway improvement schemes within Worcestershire.

The Design Manual for Roads and Bridges is also applicable to the Local Highway Authority's managed highway network as it includes high-speed roads, rural roads, large roundabouts and signalised junctions.

Worcestershire County Council will consider the use of Manual for Streets 1 and 2 and the standards set out in the Design Manual for Roads and Bridges where applicable, when it is a consultee for a planning application.

All roads to be considered for adoption must be constructed to an adoptable standard with the appropriate road markings as prescribed by Department for Transport in the [Traffic Signals - Chapter 5 - Road Markings](#)

In addition to this Guide, there are number of other relevant national guidance documents which are listed in Appendix B. The County Council expects the Design Manual for Roads and Bridges to be the primary design manual used for new improvements and the developer's attention is drawn to GG10 which states:

'Where a Local Highway Authority decides to use the Design Manual for Roads and Bridges in whole or in part for development of its own highway/road network, the overseeing organisation is defined in accordance with their own procedures.'

Please consult Worcestershire County Council for early advice and clarification as each development will be considered on a case-by-case basis.

4. Departures from standards

Departures from the Design Manual for Roads and Bridges (DMRB) standards for carriageway design are sometimes necessary to address practical challenges and incorporate innovative solutions. These departures, while deviations from the standard guidelines, can be essential for overcoming physical limitations like land constraints. They are subject to a formal approval process and require thorough justification with the Local Highway Authority.

Despite the range of flexibility with standards that exist with respect to virtually all the significant road design features, there are situations in which the application of even the minimum criteria (including any allowable Relaxations), would result in safety, technical, programme, financial, or environmental negative impacts greater than the benefits that would be obtained by incorporating the proposed departure.

In other circumstances, innovation, cost or performance considerations may result in a departure being proposed, providing it takes account of durability/maintenance and network resilience considerations and is consistent with current legislation, policy and the long-term route management strategy. If the proposed design contradicts or is below the mandatory requirements of the current standards, or permitted as relaxation, then it is known as a 'departure'.

When deciding if the departures process needs to be applied, the designer should compare the design against the declared standard, which may not always be the DMRB standard. Design standards are developed with future maintenance and whole-life costs in mind. Such issues must be considered in any non-standard situation and without effective safeguards, there is a possibility that future problems may be built into designs. Where departures from standard are accepted and implemented, the demonstration of a suitable process and provision of an audit trail is of high importance in defending the decisions taken.

For more information on departures from standards, please see [departures from standards procedures for local highway authorities 17 oct 2011-1.pdf](#)

Any departures or relaxations should be identified at an early stage and developers should seek advice with Worcestershire County Council.

5. Sustainability requirements

Worcestershire County Council as the Local Highway Authority provides the following criteria to determine if a development site meets the following sustainability requirements:

- a) The site must offer a genuine choice of transport modes that can be easily accessed that follow a user hierarchy as set out in the preferred order of priority (pedestrians, cycling, wheeling and public transport).
- b) The site should have access to a basic level of amenities, including education, employment, health, and retail. These should be accessible by travel modes other than the private car, especially for short journeys.
- c) The Chartered Institution of Highways and Transportation (CIHT), supported by Government published statistics, advocate that walking is a viable travel choice for up to 2,000 metres (approximately 25 minutes), where short journeys are required. Cycling has the potential to substitute short car trips, particularly those under 5 km (approximately 25 minutes). [The Department for Transport Cycling and Walking Investment Strategy](#) states that two out of every three personal trips are within five miles. This is an achievable distance to cycle for most people, with many shorter journeys also suitable for walking. However, safety and the condition of the route are important considerations. Public transport is best considered for longer journeys.
- d) Development locations that do not comply with the above guidance are likely to be deemed contrary to policy requirements. They are unlikely to receive a favourable planning response from the Local Highway Authority.
- e) Developments that lead to an intensification of use (more vehicle trips), but which are isolated in the countryside, will need to be reviewed on a case-by-case basis by the Local Highway Authority based.

6. Active Travel design considerations

At a local development level, there is a significant opportunity to design streets that prioritise walking, wheeling, cycling, including equestrian users and using public transport. This guidance aims to create streets that facilitate travel choice, good design and safety for all users. However, if we continue to allocate the same levels of carriageway space primarily for vehicles without consideration for active travel, then reclaiming space in the future for active travel will be challenging.

Integrating these design principles supports the vision of '20-minute neighbourhoods where residents can access most of their daily needs within a short walk or cycle ride from their homes.

In rural locations, public transport limitations mean that creating a modal shift is challenging. However, joined-up active travel routes where possible will need careful consideration. Additionally, ensuring that site allocations are chosen with input from relevant stakeholders will help support rural sustainability efforts.

Designers should always endeavour to provide infrastructure that meets these principles and therefore, caters for the broadest range of users, including equestrian users, by referring to LTN/120 and junction design published by [Active Travel England](#). These principles help inform decision making throughout the design process and aim to avoid unsafe and unsuitable infrastructure.

Guidance published by The Department for Transport (2021): [Inclusive Mobility. A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure](#) should be referred to. It describes features that need to be considered in the provision of an inclusive environment and issues related to disabling barriers, the use of technology, maintenance, awareness of the needs of disabled people, and engagement.

7. Designing for walking, wheeling cycling and horse riding

Developers should make specific reference to "[DMRB CD 143 designing for walking, cycling and horse-riding](#)". It advocates that walking, cycling and horse-riding routes shall be free from unnecessary diversions, frequent obstacles and fragmented facilities to achieve the five core design principles:

1. **Coherence:** Link trip origins and destinations, including public transport access points. Routes are continuous and easy to navigate.
2. **Directness:** Serve all the main destinations and seek to offer an advantage in terms of distance and journey time.
3. **Comfort:** Infrastructure meets design standards and caters for all types of users, including children, equestrians and disabled persons.
4. **Attractiveness:** Aesthetics, noise reduction and integration with surrounding areas are important.

5. **Safety:** Dedicated networks and facilities not only improve pedestrian, cyclist and equestrian safety, but also their feeling of how safe the environment is. This includes access to adjacent areas, sightlines, fencing, lighting, landscaping and surveillance. It also includes avoiding opportunities for assailants to conceal themselves.

These five principles are also emphasised in [Cycle infrastructure design \(LTN1/20\)](#).

To ensure the safety of equestrian users, it is particularly advisable that developers refer to these guidance documents in the early design process and also consult with the [British Horse Society](#) for additional advice with equestrian specific queries.

8. Pre-Application Advice

Prior to the preparation of technical documents accompanying a future planning application submission, developers are encouraged to engage with Worcestershire County Council in pre-application highways discussions and with the relevant Local Planning Authority.

Scoping or pre-application discussions with the Local Highway Authority can help to avoid unnecessary or abortive work. These discussions are often accompanied by the submission of a Scoping Note or initial details of the proposals. In these discussions, Worcestershire County Council as the Local Highway Authority would expect to see details about the site's geographical location, existing constraints, development proposals and access arrangements. Additional information that can be supplied is helpful to the Local Highway Authority to identify any areas that need attention. This feedback will aid the applicant in the preparation of a future Transport Assessment and Statement.

Developers should apply for [pre-application advice online](#). The advice given is chargeable and does not bind the council's decision-making or constitute a formal representation by the Local Highway Authority. Any views or opinions expressed by the Authority are given with 'best endeavours and without prejudice' to the formal consideration of any future planning application. The written advice provided will be taken into consideration (time limited) by the council, in the representation of 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 at the same time to ensure they are fully aware of the local policy context.

9. Equality Act (2010) and Inclusivity

[The Equality Act 2010](#) places councils under the 'public sector equality duty'. Worcestershire County Council is obliged through the Equality Act 2010 to have due regard to the access needs of all people. The Local Highway Authority will take account of this duty in planning and reviewing services, and in consideration of all planning application submissions.

Applicants should ensure that they have considered the needs of all users, including those with protected characteristics. This approach should be clearly demonstrated within the Transport Assessment / Statement accompanying the planning application.

To create an inclusive and accessible environment, consideration must be given to the integral relationships between the position and orientation of buildings in conjunction with the topography, pedestrian routes, access roads and parking areas, whilst also addressing other design, safety, and sustainability requirements. When considering proposals, Worcestershire County Council will also be mindful of the duty to 'advance equality of opportunity between people who share a relevant protected characteristic and people who do not share it.' When applied to new residential or commercial developments, this means that roads and footways should be usable by all members of the public, including the elderly, children, and people with disabilities such as sensory impairments, mobility needs and learning disabilities.

Consideration must be given to the requirements of the Department for Transport's publication '[Inclusive Mobility](#)'. This is important guidance to design streets to ensure everyone can enjoy the benefits of Active Travel. If the gradients of the carriageway or footway are greater than prescribed in the guidance, then alternative, convenient and safe alternative routes should be provided that give the same overall level of access as the carriageway network. However, what is deemed 'reasonable' will depend upon the circumstances. For example, the topography of a site or any existing development might affect what it would be reasonable to provide.

10. Health Impact Assessments (HIA's)

The [National Planning Policy Framework \(NPPF\) 2024](#) sets out the Government's planning policies, including a specific requirement to promote healthy and safe communities (Section 8 of the NPPF), and to draw on evidence for health and wellbeing requirements. The NPPF is supported by [National Planning Practice Guidance \(NPPG\)](#) which further outlines the importance of health and wellbeing in planning.

In Worcestershire, a Health Impact Assessment (HIA) aims to evaluate the potential health effects of a plan, policy, or project. It is used to identify both positive and negative impacts on the population, particularly focusing on vulnerable or disadvantaged groups. HIAs in Worcestershire are used to ensure that health considerations are integrated into the planning process, promoting public health and well-being. A HIA needs to be completed by developers to consider and mitigate any unintended impacts.

Although developed for South Worcestershire, the HIA guidance is relevant for applicants, relevant organisations and the wider community to help deliver healthier developments that include measures such as:

- Sustainable development
- Green infrastructure and play spaces/recreation

- Urban form
- Housing and employment
- Age-friendly environments
- Air quality, noise, light and water management
- Active travel
- Encouraging healthier food choices

For more information about HIAs and local area data for health and wellbeing, please refer to our [South Worcestershire Planning for Health SPD](#) website.

11. Transport Plans, Assessments and Statements

[The National Planning Policy Framework \(NPPF\) 2024, section 118](#) 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 and monitored.”

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.

Transport Assessments and Statements are ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development and include proposals to mitigate the impact of the development on the highway network).

The general Transport Assessment methodology adopted by Worcestershire County Council aligns with the NPPF and guidance for [Travel Plans, Transport Assessments and Statements](#) published by the Ministry of Housing, Communities and Local Government (MHCLG).

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

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

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

Every Transport Assessment must be accompanied by a Travel Plan that is compliant with Worcestershire County Council's guidelines. The threshold requirements for a Travel Plan and Assessment are for guidance only and may be changed in line with subsequent reviews.

Highway Pre-application advice should be sought to determine the scope and level of assessment required prior to the submission and validation of a planning application.

12. 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 outlined in Appendix E.

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



Chapter 3: Wider Environmental Considerations

Streetscape Design Guide 2025

Worcestershire County Council

Chapter 3: Wider Environmental Considerations

1. Construction Environmental Management Plan (CEMP)

A Construction Environmental Management Plan (CEMP) is a document submitted by developers to Local Planning Authorities that outlines how a developer will minimise any negative environmental impacts of a specific construction project. Local Planning Authorities may require a CEMP as a condition of planning permission. The CEMP also demonstrates how a project complies with environmental regulations and mitigates potential issues.

A CEMP allows a proactive approach in controlling potentially polluting activities to prevent adverse public health impacts, nuisance, and hazards to the natural and human environment. The production of a CEMP is the responsibility of the applicant/developer, and the onus is on them to ensure that it is specific to their project and is suitable in scope.

The CEMP may often require a Construction Traffic Management Plan (CTMP) for large sites or sites in locations where the local road network is sensitive to large vehicles or higher volumes of traffic. The proposed development may also be the subject of planning permission conditions requiring a CTMP which will need to be formally discharged before any significant works can take place on site. The 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 usually be some disruption during construction; however, this needs to be minimised to protect the local community and the highway network.

These plans should comply with the requirements of Worcestershire Regulatory Services (WRS) [Best Practice for Demolition and Construction Sites](#). WRS is a shared service delivering environmental health functions, including health and safety, as well as aspects of pollution control and licensing administration for the six District Councils in Worcestershire.

Local site conditions will dictate the range of considerations for inclusion in a CEMP, but a non-exhaustive list of considerations for construction activities relevant to the Local Highway Authority includes, but not limited to:

1. Duration of build.
2. Hours of operation (working hours restrictions that apply).
3. Number and size of delivery vehicles (average per day) and time restrictions when deliveries can be made.
4. Location of the site compound for storage and parking for operatives and site visitors.
5. A pre-commencement condition survey of surrounding roads.
6. Wheel washing facilities to be retained throughout the construction period by which means the wheels of vehicles may be cleaned before leaving the site.

7. A strategy to inform the local community of activities, including the provision of complaints procedures.
8. Any temporary access arrangements.
9. Temporary traffic management arrangements.
10. The routing of construction vehicles and deliveries to and from the site (suitability of existing network to cater for Heavy Goods Vehicles).
11. Monitoring regimes for noise and vibration levels.

The level of detail required in a CEMP will be proportionate to the scale of the development and to the level of risk presented by the development. The CEMP should state how the necessary level of detail has been determined.

It is recommended that contractors are registered with the '[Considerate Constructors' scheme](#)' to conform to the Code of Considerate Practice.

Prior to work commencing onsite, the principal contractors should consult with WRS, to discuss methods of working and measures planned to minimise disruption throughout the construction works. In addition to this, further meetings may be held to discuss environmentally sensitive works which may occur due to the demand for night-time work or the use of certain types of construction techniques. The contractor should appoint a responsible person to liaise and engage with WRS, residents, businesses and other authorities to keep them informed of matters likely to affect them.

2. Green Infrastructure (GI)

Green infrastructure (GI) refers to a strategically planned network of natural and semi-natural areas designed to deliver multiple ecosystem services and enhance biodiversity. It includes both "green" (land) and "blue" (water) spaces, such as parks, woodlands, waterways, and even individual features like green roofs and street trees. GI is an approach that recognizes the value of natural systems in providing benefits to the environment, health and well-being.

The National Planning Policy Framework, 2024 (Annex 2: Glossary) defines green infrastructure as:

“A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity.”

Natural England guidance called [Green infrastructure](#), cites:

“Green infrastructure has an important role to play in our urban and rural environments for improving health and wellbeing, air quality, nature recovery and resilience to and mitigation of climate change, along with addressing issues of social inequality and environmental decline the following benefits of green infrastructure.”

Green infrastructure, including trees, hedgerows, and other vegetation such as wildflowers and grassland, all have a valuable part to play in creating ecological networks, allowing biodiversity to thrive. The Vision in Worcestershire County Council's 'Planning for Green Infrastructure Strategy (2023 to 2028)' states:

“Worcestershire’s high-quality natural and historic environment will fulfil a multi-functional role. It will underpin and enable sustainable growth of the economy, significantly improve the communities’ experience of natural and historic places, deliver meaningful benefits to health and wellbeing, and underpin and act as the foundation for the county’s resilience to climate change.”

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

The [Worcestershire’s Green Infrastructure Strategy 2023 - 2028](#) sets out the principles to consider when integrating green infrastructure within a new development. It is expected that proposals for investment in infrastructure will actively incorporate green infrastructure.

Further guidance for green infrastructure is also included in the Supplementary Planning Document called '[Planning for Health in South Worcestershire.](#)'

3. Environmental and Ecological Impact Assessments

[Environmental Impact Assessments \(EIAs\)](#) and Ecological Impact Assessments (EclAs) are crucial processes for evaluating the potential environmental and ecological consequences of proposed projects, ensuring that development decisions are made with a full understanding of their impacts. An Environmental Impact Assessment (EIA) is a procedure used to evaluate the potential effects of a proposed development on the environment and an Ecological Impact Assessment (EclA) focuses specifically on the impacts of a development on habitats, species, and ecosystems. EclAs are typically conducted in accordance with established guidelines, such as those from the [Chartered Institute of Ecology and Environmental Management \(CIEEM\)](#).

Both assessments help identify, quantify, and assess what these impacts might have, ensuring that any negative effects are minimised or mitigated. Example measures which developers and planners could incorporate into a scheme that can help mitigate impacts include:

1. Mammal passes (e.g. for safe otter and badger passage).
2. Inset kerbs (e.g. to prevent entrapment and drowning of hedgehogs).
3. Tunnels (e.g. for safe passage of reptiles and amphibians)
4. Drains with wildlife exit routes (e.g. to prevent entrapment and drowning of amphibians).

5. Arboreal hop overs (e.g. to promote safe passage and reduce collisions between vehicles, birds and bats).

The highway extent and configurations to it, may significantly adversely impact habitats, leading to habitat loss, fragmentation and degradation, for example, artificial light at night from street lighting can adversely impact feeding, nesting and roosting behaviours of various species that can negatively impact the species as a whole.

Some of Worcestershire's scarcest species have populations reliant on the careful management of the county's highway network. Therefore, careful consideration should be given to ecological risks and opportunities posed by highway development, for example: opportunities may be available which contribute towards a development's Biodiversity Net Gain (BNG) and Green Infrastructure target quanta.

As an iterative process, where highway proposals are subject to design modifications, supporting ecological assessments may need to be updated to ensure they remain valid.

In England and Wales, the requirements of the Environmental Impact Assessment (EIA) Directive (about road projects) have 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.

3.1 Worcestershire County Council datasets and tools

3.1.1 GIS

To inform the baseline of required assessments, consideration should be given to Worcestershire County Council's resources and datasets, with specific focus on the [Green Infrastructure Framework 2 report](#).

Worcestershire County Council provides and maintains a mapping data resource at an overall spatial level, called Geographic Information System (GIS). GIS data is vital for establishing a robust baseline in ecological assessments by providing a comprehensive spatial understanding of the environment before any development or change. It allows for the mapping and analysis of various environmental factors, and the baseline data then serves as a benchmark against which to measure future changes and impacts from a proposed project. Developers should seek early engagement with Worcestershire County Council for advice.

3.1.2 Worcestershire Landscape Character Assessment (LCA)

Worcestershire Landscape Character Assessment (LCA) is a tool used to identify and describe the unique characteristics of different landscapes within the county. It helps understand how various features, like hedgerows, fields, woodland, and settlement patterns, contribute to the distinct character of each landscape type. This assessment supports strategic planning and decision-making, ensuring the preservation and enhancement of Worcestershire's landscape.

[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 occur and what future planning and management needs to be incorporated into development plans.

To avoid detrimental effects on the landscape character of new developments and highway infrastructure, a full assessment of the existing character and its ability to accept change needs to be established.

4. Street Trees

The National Planning Policy Framework (NPPF) 2024, paragraph 136 states that:

“Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined.”

Worcestershire County Council recognises the significant importance to the contribution that a diverse mixture of tree planting can make to our environment. Trees are an important part of the natural environment and open spaces. They offer a unique contribution to visual amenity, and ecosystems and play a vital role in our response to climate change by capturing carbon, storing air pollution as they grow and providing areas of welcome shade in a streetscene.

Trees in the highway, often referred to as street trees, are an integral component of the overall streetscape design. Trees growing as part of the adopted highway are the responsibility of the Local Highway Authority and are managed and maintained in line with the maintenance of other highway infrastructure.

Trees with varying height, structure, and the appearance of trees (leaf colour, bark texture and flowering season) can create welcomed shaded areas, a greater sense of depth and softened views, therefore, adding to the experience of developments, which sets them apart from more formal streetscapes. Trees can also help alleviate flooding issues through several mechanisms:

- Interception of rainfall.
- Promoting soil infiltration rates.

- Removing water from catchment areas (reducing pressure on drainage systems and absorbing run-off) by slowing the flow of water during heavy rainfall events. For more information about flooding, please refer to Worcestershire County Council's website on [Flood risk and development](#).

Worcestershire County Council strives to retain as many healthy trees as possible, whilst encouraging the planting of new ones in new developments and green open spaces. We encourage the planting of the 'right tree in the right place', which is a principle that is not restricted by road classification. The aim of this guidance is to ensure the right tree and right technical design solution is included in street design. The guidance is not exhaustive but aims at encouraging and helping developers and planners to find the right place, choosing the right method for establishing trees and selecting the right species for a development that benefits the local community.

Key consideration for street trees should be given to the following points:

1. In accordance with guidance published in the [Urban Tree Manual - Forest Research](#), Worcestershire County Council strongly advocates the principle of the 'right tree in the right place'. This means that the location should be suitable for tree planting in the first instance and the tree species selected, should be best suited to its environment. Applying this principle during the early design stage will minimise future onward maintenance and ensure trees are harmoniously incorporated into the landscape.
2. The height, habit, longevity and fruiting characteristics of the tree or trees should all be taken into consideration for the appropriate location. The canopy of a street tree needs to have a minimum clearance of 5.1m above a carriageway and 2.4m above a footway. Please refer to Appendix F.
3. Where possible, existing trees must be retained and integrated within new development proposals. This is particularly important where trees are subject to a Tree Preservation Order (TPO). It is important to engage a professional 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'](#). 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. The Government has specific advice and guidance on Tree Preservation Orders and conservation areas [Tree Preservation Orders and trees in conservation areas - GOV.UK](#)
4. It is often larger trees, in the context of the highway, which may cause issues to surrounding built infrastructure. The removal of a tree is only ever considered if it presents an unacceptable risk to the public or property, which is often associated with dying or diseased trees or where a tree is causing physical damage to its surroundings. However, there are a range of engineering and maintenance solutions that can be applied throughout a tree's lifecycle that allow both the tree and the highway to co-exist. These measures for developers and planners are referenced in the [Highway tree management: operations note 51 - GOV.UK](#)

5. It is preferable for streets trees to be planted in the verge, but where this is not practicable, it should be ensured that the tree is of the appropriate species and size for the location with an appropriate tree pit or engineering and maintenance solution, if required.

The design of street trees should, therefore, be considered in relation to drainage, utilities, and street lighting ensuring:

1. Proper tree selection and placement, along with careful consideration of root growth, can ensure harmonious coexistence with both utilities and lighting systems. This means selecting the appropriate tree species at the early design stage with predictable growth habits that will not interfere with utilities or street lighting as they mature. If necessary, root barriers should be considered to protect services.
2. There is allowance for some precipitation to reach the tree-rooting environment.
2. Stormwater run-off can be managed.
3. Surface water drainage is designed in line with best practice outlined in [The SuDS Manual \(C753\)](#) and the [WCC Sustainable Drainage Design & Evaluation Guide](#)

Early engagement with developers and planners is always welcomed to allow us to provide further advice about selecting appropriate tree species and the appropriate engineering and maintenance solutions. Recommendations can help to establish the health, longevity, root zone and tree works required, and will aid in the decision making of any road alignment. [Trees in Hard Landscape, A Guide for Delivery by the Design Action Group \(TDAG\)](#) explains the collaborative process to be adopted in designing with trees, providing technical design solutions and species selection criteria.

5. Wildflower Verges

Worcestershire County Council recognises the significant importance and benefits of wildflower verges on county council-owned highway verges. Where appropriately located, designed and managed, these verges contribute significantly to providing sustainable and biodiverse landscapes in our communities. Wildflower verges provide vital habitats for biodiversity, such as our important pollinators like bees and butterflies, and our foraging birds and hedgehogs. By allowing wildflowers to thrive on our highway verges, Worcestershire County Council is helping to meet its statutory responsibility to conserve and enhance the county's biodiversity. Wildflower verges offer many other environmental benefits:

- They help improve air quality, store carbon, and help manage water run-off by reducing the number of impervious surfaces.
- Wildflower verges have been shown to absorb rainwater more effectively than traditional grass verges, which reduces flood risks and eases pressure on our drainage systems.
- Traditional grass verges require expensive topsoil to establish and require regular mowing, consuming considerable energy and resources.
- Once established, wildflower verges require far less maintenance. This reduces our use of fossil fuels, minimises use of chemical fertilisers and pesticides, and in turn, this reduces the harm these products have on our natural environment and human health.

- The natural beauty of our wildflower verges also enhances the appeal of Worcestershire's roadsides and public spaces; it makes them a visually attractive and enjoyable location for Worcestershire's residents and visitors alike.
- Wildflower verges can also contribute significantly towards a location's quantitative Green Infrastructure and Biodiversity Net Gain value.

The conservation charity Plant Life has published best practice guidance on the management of highway verges [Managing Grassland & Green Space - Plant life.](#)

6. Biodiversity Net Gain (BNG)

Biodiversity Net Gain (BNG) in the UK aims to halt and reverse the decline of wildlife by creating new habitats, increasing access to green spaces, and building healthy and resilient places. It requires developers to ensure their development sites deliver at least a 10% increase in biodiversity value. This means a project must result in more or better-quality natural habitats than existed on the site prior to development. BNG became a mandatory requirement for major developments and minor developments in England in 2024. Guidance is available about [Biodiversity Net Gain](#) on the Government website.

Developers must submit a Biodiversity Gain Plan to the relevant Local Planning Authority, which must be approved before development can begin. The primary goal of BNG, as required by the Environment Act 2021, is to achieve a measurable net gain in biodiversity, following the mitigation hierarchy outlined in the National Planning Policy Framework (2024). This involves avoiding, minimising, mitigating, and as a last resort, compensating for any adverse impacts to biodiversity. As part of the BNG process any mitigation or compensation should follow the [Biodiversity Gain Hierarchy](#), which requires habitat creation and enhancement to be prioritised on-site before any off-site habitat options are explored.

In addition to BNG, developers will still have to address any protected species concerns through a series of steps, including ecological surveys, mitigation measures, and potentially obtaining necessary licenses. Planning Authorities play a crucial role in Biodiversity Net Gain (BNG) by overseeing the implementation and enforcement of BNG within the planning regime, including assessing biodiversity gain plans, and habitat management and monitoring plans by securing obligations through legal agreements, such as section 106 agreements. The statutory requirement of +10% [Biodiversity Net Gain \(BNG\)](#) can be achieved on-site, off-site ('offsetting') or through a combination of both. In addition to BNG, developers will still have to address any protected species concerns through a series of steps, including ecological surveys, mitigation measures, and potentially obtaining necessary licenses.

7. Historic Environment

Protecting and enhancing existing sensitive historic environments in Worcestershire for everyone's enjoyment and making them more accessible for the social, economic and health benefits they can bring is a crucial element of the planning process.

The National Planning Policy Framework 2024, (section 16, paragraph 203) states:

Plans should set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. This strategy should take into account:

- d) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation.*
- e) the wider social, cultural, economic and environmental benefits that conservation of the historic environment can bring.*
- f) the desirability of new development making a positive contribution to local character and distinctiveness; and*
- g) opportunities to draw on the contribution made by the historic environment to the character of a place.*

The National Planning Policy Framework 2024, (paragraph 135c) also states:

“Planning policies and decisions should ensure that developments:

- c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities)”*

Local Plans in Worcestershire highlight the importance of preserving and enhancing the historic environment in planning and development and, therefore, developers are advised to consult with guidance published by [Historic England](#).

Worcestershire County Council works closely with Historic England and local conservation colleagues in sensitive locations of historic importance around the county to encourage and facilitate new development which is based on an understanding of each site's unique history, character and context, and thus creating distinctive new neighbourhoods.

Historic England advises those involved in the planning process to look at making improvements to public spaces and highways without harming the valued character of historic environments. It includes specific recommendations for works to surfaces, street furniture, street lighting, new equipment, traffic management infrastructure, and environmental improvements. It draws on experience of Historic England's planning teams in highways and public realm schemes, including case studies showing where highway works, and other public realm schemes have successfully integrated with and enhanced areas of historic or architectural sensitivity. For reference, Historic England have

published this [Good Practice for Design in the Historic Environment: Principles and Case Studies | Historic England](#).

7.1 Worcestershire's Landscape Assessment

Generally, an application for residential development should show that the key characteristics of the 'Landscape Type' of the intended site have been considered in the siting, design, scale and layout of any proposed change. Wherever possible, development should strive to strengthen landscape character, retaining and conserving existing features whilst seeking opportunities to restore or enhance others. [Worcestershire's Landscape Characterisation Assessment tool](#) provides a framework for assessing the Landscape character, which is an important factor that is considered in the assessment of planning applications to demonstrate that any change must be accompanied by considerable benefit to the landscape, rather than just mitigation.

8. Digital Connectivity and Infrastructure

As part of our Corporate Plan 2022 - 2027, it is important to ensure our residents are equipped to access future opportunities as we experience a shift in working patterns and value quality of life alongside earning potential. Ensuring people and places are connected, physically and digitally, is vital to supporting continued economic growth, and unlock further expansion in high-tech and knowledge intensive industries. All new developments will be expected to include the provision of full fibre gigabit capable network infrastructure / Fibre to the Premises (FTTP) to enable broadband services for all occupiers. Please see Appendix H for more information.



Chapter 4: Access, Layout and Connectivity

Streetscape Design Guide 2025

Chapter 4: Access, Layout and Connectivity

1. Attributes of Street Types

For the highway network in Worcestershire, the following street types are classified and defined as follows:

1. Single Private Access
2. Private Shared Drive, Mews and Courtyard Parking Area (unadopted)
3. Local Residential Street
4. Secondary Street
5. Primary Street
6. Distributor Road
7. Industrial Access Roads
8. Active Travel (walking cycling, and wheeling) route

Table 1 provides an overview of the different attributes for the various classifications of street types.

Table 1: Street Attributes

Street Type	Indicative number of dwellings	Suitable for adoption	Design Speed	Minimum Carriageway Width	Cycleway, Footway and Service Margin	Minimum Centre line Radii	Minimum Junction Radii	Direct Frontage Access Allowed
Single Private Access	1	No	N/A	3.2 metres	N/A	N/A	N/A	N/A
Shared Private Drive, Mews and Courtyards	2 - 6	No	10mph	4.5 metres for at least for the first 15 metres	N/A	N/A	N/A	N/A
Local Residential Street	7- 50	Yes	15mph	4.5 metres to 5.5 metres	Footways and Service Margin	15 metres	6 metres	Yes
Secondary Street	51 - 100	Yes	20mph	5.5 metres	Footways	20 metres	6 metres	Yes
Primary Street	101-500	Yes	20mph	5.5 metres to 6.2 metres (Bus Route dependent)	Segregated Cycle Track and Footway	25 metres	Scheme Specific	Yes
Distributor Road	500+	Yes	30mph	6.7 metres to 7.3 metres	Segregated Cycle Track and Footway	40 metres	Scheme Specific	No, but considered where traffic volumes do not exceed 10,000 AADT

Industrial Access Road	N/A	Case-by-case basis	30mph	7.3 metres	Segregated Cycle Track and Footway	40 metres	10 metres	Yes
Active Travel Route (Walking, cycling, and wheeling)	N/A	Yes	15mph	3 metres to 5 metres Active Travel Route off carriageway	N/A	15 metres	N/A	No

The design of new streets should consider the intended link and place functions, as well as the type, density and character of the development.

A streetscape environment should be accessible, comfortable and safe for both pedestrians, cyclists, wheelers, and other highway users. Furthermore, integration of the surrounding landscape and ecological context of the site must be integral to any design development.

1.1 Single Private Access

A single private access, serving only one dwelling, will not be adopted as a public highway. However, it will still need to be designed with the following considerations:

1. The driveway to include a minimum width of 3.2 metres.
2. Access from the existing highway will be via vehicular footway crossing (vehicle cross over), positioned at 90 degrees to the kerb line, where possible. Junction radii are not required.
3. The driveway to be surfaced with bound materials for first 5 metres from edge of highway/back of footway (loose material will not be supported).
4. If gates are sought, these must be set back at a minimum of 5 metres (subject to what the access serves) from the edge of highway and open inwards. This allows a vehicle to fully exit the highway before the gates are opened.
5. Accesses that exit onto A and B classified roads, including distributor roads and primary streets, must include the ability for vehicles to turn within the site, allowing access and egress in a forward-facing gear.
6. Surface water run-off from the driveway must not be allowed to discharge onto the highway.
7. Longitudinal fall – maximum gradient 1:12 towards carriageway (relaxed to 1:8 in exceptional circumstances), maximum gradient 1:15 away from carriageway.

1.2 Private shared driveways, mews and courtyards

A shared surface driveway, courtyard or mews can serve two or more dwellings, but not more than six dwellings, after which traffic volumes are unsuitable for this carriageway form. They are areas suitable for high levels of pedestrian and cyclist activity, particularly small children. Vehicle speeds must be very low and be self-enforcing through good design and appearance. Such driveways, mews and courtyards will not be adopted by the Local Highway Authority.

A private shared driveway, parking courtyard or mews can typically form an extension of a Local Residential Street.

If a shared surface street is designed, it must be:

- 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 these must not include vertical alignment i.e. raised tables and so forth.
- A combination of shared streets, with separate vehicle access points, but which are connected by a pedestrian or cycle route could be used to form a mews-style street.
- The Local Highway Authority will not adopt shared streets.

A private shared driveway, parking courtyard or mews area should be designed with the following considerations:

1. Carriageway width of 4.5 metres for the first 15 metres of the drive, measured from the edge of highway, allowing for two vehicles to enter and leave simultaneously. A minimum carriageway width of 4.1 metres could be accepted in certain circumstances, subject to agreement from the Local Highway Authority.
2. A separate footway is not required, as this becomes a shared surface with the driveway.
3. Design speed of 10 mph.
4. Access from the existing highway will be via vehicular footway crossing (vehicle cross over), positioned at 90 degrees to the kerb line. Junction radii are not required.
5. A turning facility is to be provided for cars where cul-de-sacs extend beyond 25 metres.
6. Consideration must be given to refuse collection if required. Layouts should not require a refuse vehicle to reverse more than 12 metres. The design must allow refuse vehicles to be able to get to within 25 metres of a refuse storage point. Residents must not be required to carry waste more than 30 metres to a refuse collection point or storage point.
7. Longitudinal fall – maximum gradient 1:12 towards carriageway (relaxed to 1:8 in exceptional circumstances), maximum gradient 1:15 away from carriageway.
8. If there are two points of access, full manoeuvring / turning within the site should be possible, with visibility requirements achieved at both access points.
9. It will not be adopted as public highway.

1.3 Local Residential Street

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, as they are not designed to cope with large traffic volumes. Their geometry and design should reflect low vehicle speeds to prioritise active travel¹.

Street Dimensions and Character:

1. Serving up to 50 dwellings, not suitable for bus service access.
2. Minimum carriageway width of 4.5 metres and a maximum of 5.5 metres.
3. Minimum 6 metre radii at junctions or sufficient to accommodate the largest vehicle expected i.e. a refuse collection vehicle without oversailing footway or verge. This ensures that these vehicles can manoeuvre comfortably without obstruction.
4. Design speed of 15 mph. Achieved through measures such as surface changes, visual narrowing, central reservations, sensitive parking provision and green infrastructure. Vertical alignment speed measures must not be included.
5. A minimum centreline carriageway radius of 15 metres. Forward visibility must remain within the public highway land area and be free from obstruction.
6. No unbroken straight section of carriageway greater than 100 metres.
7. A minimum 2 metre footway is required on both sides of the carriageway. Where no frontage development is provided, a 1 metre service margin will be accepted.
8. Direct vehicle access is permitted, subject to suitable vehicle and pedestrian visibility being demonstrated for safety.
9. Local Residential Streets can be put forward for adoption, should they meet the Streetscape Design Guide requirements and be acceptable to the Local Highway Authority.

Additional design considerations:

10. Maximum gradient of 1:20 (5%) desirable, but consideration given to gradients of 1:12 (8.3%) for lengths of 10 metres or less. Minimum gradient of 1:80 (1.25%).
11. Footways shall have a crossfall of 1:40 (2.5%) towards the kerb and a maximum longitudinal gradient of 1:12 (8.3%).
12. Turning head to be provided as per minimum dimensions for a suitable vehicle to turn.
13. Low rise kerbs should be provided, either as kerb sets or concrete edge strips, to indicate the boundary between adopted highway and private property.
14. Green infrastructure should be used extensively to soften highway infrastructure and add to the visual appeal of the street. The landscaping should consider a green infrastructure strategy for the character area of the site. Existing trees should be accommodated within the design and removal of them should be a last resort. Green infrastructure should be

¹ Active travel refers to making journeys using physically active modes of transportation, primarily walking, wheeling (using wheelchairs or mobility aids), and cycling. It encompasses journeys undertaken for various purposes, such as commuting to work or school, running errands, or leisure activities, as long as they involve personal physical effort).

incorporated as part of the service margin using an appropriate design solution. A commuted sum may be charged for future maintenance.

15. Street trees based on the principle of 'right tree, right place,' will be considered within the highway boundary irrespective of carriageway type.
16. Applicants are required to consult with the relevant stakeholders including the emergency services during the design and planning stages, particularly where there are designs which limit access for emergency vehicles to any part of the development.

1.4 Secondary Street

Roads suitable for serving up to approximately 100 dwellings.

A Secondary Street carries local traffic and provides access into a neighbourhood. They are often the location of schools and community facilities and may also be residential streets in themselves.

Street Dimensions and Character:

1. Serving up to 100 dwellings, not suitable for bus service access.
2. Minimum carriageway width of 5.5 metres. Lane widening may be required on bends.
3. Minimum 6 metre radii at junctions or sufficient to accommodate the largest vehicle expected i.e. a refuse collection vehicle without oversailing the footway or verge.
4. Design speed of 20 mph. Achieved through measures such as surface changes, visual narrowing, central reservations, sensitive parking provision and green infrastructure. Vertical alignment speed measures must not be included.
5. A minimum centreline carriageway radius of 20 metres. Forward visibility must remain within public highway land and free from obstruction.
6. No unbroken straight section of carriageway greater than 100 metres.
7. Minimum 2 metres footway on both sides of the carriageway.
8. Direct vehicle access is permitted, subject to suitable vehicle and pedestrian visibility being demonstrated for safety.
9. Secondary Residential Streets can be put forward for adoption, should they meet the Streetscape Design Guide requirements and be acceptable to the Local Highway Authority.

Additional design considerations:

10. Maximum gradient of 1:20 (5%) desirable, but consideration given to gradients of 1:12 (8.3%) for lengths of 10m or less. Minimum gradient of 1:100 (1%).
11. Footways shall have a crossfall of 1:40 (2.5%) towards the kerb and a maximum longitudinal gradient of 1:12 (8.3%).
12. Turning head to be provided as per minimum dimensions for a suitable vehicle to turn.
13. Green infrastructure should be used extensively to soften highway infrastructure and add to the visual appeal of the street. The landscaping should consider a green infrastructure strategy for the character area of the site. Existing trees should be accommodated within the design and removal of them should be a last resort. Green infrastructure should be

incorporated as part of the service margin using an appropriate design solution. See Chapter 3. A commuted sum may be charged for future maintenance.

14. Street trees based on the principle 'right tree, right place,' will be considered within the highway boundary irrespective of carriageway type. See Appendix F.
15. Applicants are required to consult with the relevant stakeholders including the emergency services during the design and planning stages, particularly where there are designs which limit access for emergency vehicles to any part of the development.

1.5 Primary Street

Roads suitable for serving up to approximately 500 dwellings.

Primary streets function as a connection for Local Residential and Secondary Streets to higher order roads. A primary street acts as a thoroughfare that connects areas, carries higher traffic volumes and can accommodate bus routes through a development.

Street Dimensions and Character:

1. Serving up to 500 dwellings, not designed as a cul-de-sac.
2. Carriageway width of 5.5 metres to 6.2 metres. The latter width required to accommodate bus service provision. Lane widening may be required on bends.
3. Junction radii sufficient to accommodate the largest vehicle expected i.e. a refuse collection vehicle without oversailing the footway or verge or cycle track or encroaching into opposing traffic lanes. Typically, the radius is in the range of 6-10 metres, but subject to appropriate vehicle tracking.
4. Design speed of 20 mph.
5. Minimum centreline radii of 25 metres. Forward visibility must remain within public highway land and free from obstruction.
6. No unbroken straight section of carriageway greater than 100 metres.
7. Minimum 2 metres footways on both sides of the carriageway. Widened footways to facilitate higher pedestrian demand and movement, where necessary.
8. Direct vehicle access will be considered, subject to network layout, and suitable vehicle and pedestrian visibility being demonstrated to ensure safety.
9. Segregated cycle facilities that form part of an existing or proposed cycle network will be required where possible. One-way cycle tracks should provide a minimum 2 metres width + 0.5 metre buffer on both sides of the carriageway. Two-way cycle tracks will only be required on one side of the carriageway, with a minimum 3 metres width + 0.5 metre buffer with appropriate crossing facilities.

Additional design considerations:

10. Maximum gradient of 1:20 (5%) is desirable but consideration given to gradients of 1:12 (8.3%) for lengths of 10 metres or less. Minimum gradient of 1:100 (1%).
11. At junctions, the gradient of the side road should not exceed 1 in 20 (5%) for the first 10 metres from the channel of the major road.

12. Footways shall have a crossfall of 1:40 (2.5%) towards the kerb and a maximum longitudinal gradient of 1:12 (8.3%).
13. Cycle tracks will need priority over other vehicles when crossing side roads. LTN 1/20 Chapter 10 includes several suggested junction layouts for priority junctions with cycle track priority crossing.
14. Worcestershire County Council would not normally support the use of raised tables as it does not support vertical traffic calming techniques at this type of location. However, the use of raised tables (vertical deflection) may be possible if the highway is going to be lit.
15. On-street visitor parking will be permitted within the highway extent. Where we adopt additional areas to accommodate on-street parking, Worcestershire County Council may seek a commuted sum to cover future maintenance. Applicants may also be required to provide measures to prevent parking in unsuitable areas. In certain circumstances, Traffic Regulation Orders (TROs) may be needed to control on-street parking, including waiting or loading restrictions either within the development or on the surrounding highway network. Where this is so, you will normally be required to pay costs associated with making the orders.
16. Where the route is identified as a bus route, on-street unallocated parallel or perpendicular parking bays will need to ensure bus journey time reliability and punctuality is not compromised. Parallel bays should be 2 metres by 6 metres with a 1 metre 'pull out' strip. A maximum of 3 contiguous bays will be permitted. Parallel parking spaces which are constrained along one edge by, for example, a fence or wall will need to be wider. Perpendicular spaces shall be at least 5 metres long and 2.5 metres wide if next to another parking space or open space. If constrained along one edge, then the width should increase to 2.7 metres. If constrained on both sides, the width needs to be increased to 2.9 metres. Where it appears that on-street parking could cause problems, we may ask developers for swept path tracking assessments of appropriate vehicle paths (these are likely to include larger vehicles such as refuse collection vehicles, emergency vehicles and buses if the development is to be served by public transport).
17. Turning head to be provided as per minimum dimensions for a suitable vehicle to turn
18. Street trees based on the principle 'right tree, right place,' will be considered within the highway boundary irrespective of carriageway type.
19. Applicants are required to consult with the relevant stakeholders including the emergency services during the design and planning stages, particularly where there are designs which limit access for emergency vehicles to any part of the development.

1.6 Distributor Road

Roads suitable for serving more than 500 dwellings.

A distributor road is a road within a larger development that carries higher traffic flows than local streets. They are designed to facilitate efficient movement of traffic, particularly for vehicles, while still considering pedestrian and cycle safety.

Dimensions and Character:

1. Serving 500 plus dwellings, linking principal routes. They are not to be designed as a cul-de-sac.
2. Carriageway width of 6.7 metres to 7.3 metres depending on traffic volumes, bus use and proportion of Heavy Goods Vehicles (HGVs). Lane widening may be required on bends.
3. Junction radii should include a minimum of 10 metres or determined by tracking sufficient to accommodate the largest vehicle expected i.e. a refuse collection vehicle without oversailing the footway and cycle track or encroaching into opposing traffic lanes.
4. Design speed of 30mph.
5. Minimum 2 metres footways on both sides of the carriageway. Consideration may be given to widening footways to facilitate pedestrian movement where necessary.
6. Minimum centreline radii of 40 metres. Forward visibility must remain within public highway land and free from obstruction.
7. Segregated cycle facilities that form part of an existing or proposed cycle network will be required where possible. One-way cycle tracks should provide a minimum 2 metres width + 0.5 metre buffer on both sides of the carriageway. Two-way cycle tracks will only be required on one side of the carriageway, with a minimum 3 metres width + 0.5 metre buffer with appropriate crossing facilities to enable cyclists to reach the cycle track.
8. Cycle tracks will need priority over other vehicles when crossing side roads . LTN 1/20 Chapter 10 includes several suggested junction layouts for priority junctions with cycle track priority crossing.
9. Worcestershire County Council would not support the use of raised tables as it does not support vertical traffic calming techniques at this type of location.

Additional design considerations:

10. Maximum gradient of 1:20 (5%) is desirable but consideration given to gradients of 1:12 (8.3%) for lengths of 10 metres or less. Minimum gradient of 1:100 (1%).
11. At junctions, the gradient of the side road should not exceed 1 in 20 (5%) for the first 10 metres from the channel of the major road.
12. 2-metre-wide verges on both sides of the carriageway.
13. Footways shall have a crossfall of 1:40 (2.5%) towards the kerb and a maximum longitudinal gradient of 1:12 (8.3%).
14. Street trees based on the principle 'right tree, right place,' will be considered within the highway boundary irrespective of carriageway type.
15. No direct frontage access, unless otherwise agreed with the Local Highway Authority.
16. For potential congestion and safety concerns, there is no on-street parking provision within the highway boundary. This also excludes parallel or perpendicular parking spaces.
17. In streets where on-street parking is discouraged, developers are typically responsible for the costs of implementing any necessary traffic regulation orders, such as waiting or loading

restrictions. These restrictions might include double yellow lines, single yellow lines, or clearways to manage traffic flow and prevent obstruction.

18. Applicants are required to consult with the relevant stakeholders including the emergency services during the design and planning stages, particularly where there are designs which limit access for emergency vehicles to any part of the development.

1.7 Industrial Access Roads

These road types, by their very nature are more focused towards vehicular traffic. It is, however, still an important requirement to consider the interaction of Heavy Goods Vehicle's (HGVs) with other non-motorised and public transport users.

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

The Local Highway Authority normally considers industrial access roads to be of an insufficient public utility to warrant adoption. Where industrial access roads link with the public highway network, industrial access roads must be designed to accommodate HGV movements on a regular basis with the following considerations:

1. Carriageway widths may need to be increased to accommodate all types of vehicles expected to access these sites.
2. Design speed of 30 mph.
3. Carriageway width of minimum 6.7 metres and maximum 7.3 metres. Lane widening on bends may be required to reduce the likelihood of movement conflicts and overriding of the footway or verge. 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.
4. A minimum of 2.0 metres width footways or wider shared footway/cycleways should be provided. A footway or cycleway can deviate away from the carriageway if required, in providing a direct access to development plots or if it follows a pedestrian and cycle desire line or path. These should be separated from the highway by a minimum 1 metre green infrastructure strip and minimum 2 metres footways on both sides of carriageway.
5. Segregated cycle facilities that form part of an existing or proposed cycle network will be required where possible.
6. One-way cycle tracks should provide a minimum of 2 metres width + 0.5 metre buffer on both sides of the carriageway.
7. Two-way cycle tracks will only be required on one side of the carriageway, with a minimum 3 metres width + 0.5 metre buffer with appropriate crossing facilities to enable cyclists to reach the cycle track.
8. Cycle tracks will need priority over other vehicles when crossing side roads. LTN 1/20 Chapter 10 includes several suggested junction layouts for priority junctions with cycle track priority crossing.

9. Unless the Local Highway Authority considers it to be necessary and unavoidable, Worcestershire County Council does not normally support the use of vertical traffic calming, raised tables, on roads to be offered for adoption.
10. Minimum centre line radii of 40 metres.
11. Maximum gradient of 1:20 (5%) desirable but consideration given to gradients of 1:12 (8.3%) for lengths of 10 metres or less. Minimum gradient of 1:100 (1%).
12. Pedestrian crossings will normally be required wherever footpaths intersect with roads and accesses.
13. 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. In this instance, the developer will normally be required to pay all costs associated with making the orders.
14. Green and blue infrastructure has a significant role in mitigating the impacts of major industrial/employment uses on biodiversity. If this type of road is put forward for adoption, these should be accommodated outside the limits of the adopted highway.
15. Sustainable drainage systems (SuDS) can be incorporated into green infrastructure, for example, using swales and tree planting. The Local Highway Authority would normally only accept adoptable highway drainage that connects directly to systems that are maintained by a statutory body (e.g. Severn Trent Water Ltd.) Where a dedicated highway surface water system is proposed, SuDS may be considered based on the design proposals and geotechnical considerations.
16. Street trees based on the principle 'right tree, right place,' will be considered in the highway boundary, irrespective of carriageway type.
17. Suitable kerb types and avoidance wherever possible of tight kerb radii will assist in reducing damage caused by vehicle overrun at junctions and bends. Where there is an unavoidable risk of kerb mounting or a likelihood of abuse of the footways or verges by vehicles, then specialised barrier kerbs should be used. In exceptional cases, practical and suitably spaced bollards may be installed.
18. Applicants are required to consult with the relevant stakeholders including the emergency services during the design and planning stages, particularly where there are designs which limit access for emergency vehicles to any part of the development.

2. Active Travel (Walking, Wheeling and Cycling) Routes

Active travel routes in new developments should be designed to ensure they provide a more direct and convenient means of accessing services and facilities than by using the road network alone.

For safety reasons, Worcestershire County Council requires that active travel routes be clearly marked to provide adequate separation of pedestrians and wheelers from motorised vehicles and cyclists, recognising the accessibility and safety benefits of this approach. Active travel should be designed to minimise the need for cyclists to stop and to maintain a speed of up to approximately 15 mph.

Referring to [LTN1/20 guidance](#) for cycle infrastructure design, active travel routes will need to be designed with the following considerations, not limited to:

1. Design speed typically allows for up to 15 mph for cyclists.
2. Route width. Separate facilities should provide a cycleway width of 3 metres, with a footpath width of 2 metres that can be used to accommodate street lighting if required and where appropriate.
3. Route width for shared pedestrian/cycle facilities should provide an overall width of 4.5 metres, increasing to 5 metres to accommodate street lighting where appropriate.
4. New junctions should be designed to provide good conditions for cycling in all permitted directions, regardless of whether they are on a designated route, unless there are clearly defined and suitable alternatives.
5. Preferably 4 metres minimum radii at junctions subject to anticipated vehicle movements.
6. Minimum centreline radii of 15 metres.
7. Maximum gradient of 1:20 (5%) desirable, but consideration given to gradients of 1:12 (8.3%) for lengths of 10m or less. Minimum gradient of 1:100 (1%). Further details on suitable gradients for cyclists can be found in Chapter 5 - LTN 1/20: Cycle Infrastructure Design.
8. Protection from vehicular use - bollards or other suitable control measures should be used to prevent the use of footways and cycleways being used by motor vehicles.
9. Guard railing for pedestrian use should not be used as a default choice and any unnecessary physical hazards should be avoided.

3. Footways

Footways usually run parallel and adjacent to the carriageway. Footways and footpaths should be safe, convenient and secure for all users. Routes must include a smooth and even surface, be well-maintained, free from hazards and accessible. In achieving these basic objectives, footways and footpaths should be designed to:

1. Allow users such as pedestrians, pushchairs, mobility scooters and wheelchair users, including those with mobility issues to pass each other freely and without hindrance. The design should accommodate predicted demand. In locations where these provide access to high usage, footways may need to be wider than standard widths.
2. Accommodate dropped crossings and/or tactiles where accesses cross the footway.
3. Accommodate street furniture and statutory undertakers' services.
5. Chapter 9 Streetlighting should be referenced for lighting requirements.
6. Be overlooked i.e. include active frontages over their entire length.

Segregated footways are pedestrian walkways that are physically separated from cycle tracks or other traffic lanes, often by a kerb or other barrier. If highway adoption is sought, this will only be considered if the route is provided to a suitable width conforming with national and local design standards.

4. Establishing Access (Junctions)

An applicant must demonstrate that the junction arrangement proposed, represents an appropriate design, ensuring function and the safety of all users and that minimises queues/delays to highway users. Schemes must refer to the Manual for Streets (MfS) or Design Manual for Roads and Bridges (DRMB), as appropriate.

For cycle provision, the standards set out in [Department for Transport's 'Cycle Infrastructure Design,' Local Transport Note LTN 1/20](#) should be applied, where it is reasonably possible.

The identification of an appropriate design guide should be discussed and agreed with the Local Highway Authority. In some cases, it may be appropriate to deviate from these standards, but this approach should be agreed in writing with the Local Highway Authority.

Scheme promoters are strongly encouraged to apply for the Early Technical Assessment process in considering access / junction design. The principle of seeking any Departures from Standards should be identified and discussed at the planning stage, supported by a Road Safety Audit (RSA), for any proposed permanent change to the public highway. Please see Appendix J for RSA templates.

In considering junction forms, wider technical considerations to consider include:

1. The volume of traffic: anticipated to use it and turning movements.
2. The volume of pedestrian /cycle activity.

3. Traffic composition and highway activity.
4. Demarcation: the requirements for clear demarcation between carriageway and footways as appropriate.
5. Where a single point of access for vehicles is proposed, this should be supplemented by additional points of access (wherever possible) for active modes to ensure the site is well connected with its surroundings, supporting [Building for Healthy Living principles](#).
6. Street lighting: for all section 278 and section 38 applications, a developer will need to assess whether streetlighting is considered necessary or not. In all cases, developers shall complete the street lighting feasibility assessment, except where specified by 'BS 5489 - Road lighting' in line with WCC's Chapter 9 Street Lighting. Considerations will include the environment, sensitive ecology, maintenance requirements and energy costs. For street lighting requirements for traffic calming features see [LTN 1/07 – Traffic Calming Guidance](#), chapter 2.
7. Design speed: measures to control vehicles' speed must work at all times of the day and regardless of traffic volumes. Worcestershire County Council does not normally support the use of vertical traffic calming on roads to be offered for adoption where there is no specific provision for cyclists.
8. Geometry of the street: Depending on the road type, it may be necessary to increase the carriageway widths of bends to accommodate swept paths of larger vehicles without encroaching into the opposing carriageway or oversailing footways or verges, limiting unbroken straight sections of carriageway and the use of minimum centreline radii.
9. Vehicle tracking: all vehicle tracking (modelled at 10 mph) should demonstrate at least a 0.5 metre clearance (wheel tracking swept path) from all physical features within the highway and from other vehicles travelling on the highway. This is to allow for a factor of safety within the vehicle tracking proposals, as these tracking plans are often over optimistic and do not reflect real life manoeuvres. For more information about service vehicles, please refer to the [Health and Safety Executive \(HSE\) guidance for safe operation of refuse and recycling collection vehicles in a pedestrian environment](#).
10. Applicants should normally avoid priority-controlled ('Give way') crossroads. When a crossroad cannot be avoided, the developer should normally provide an appropriate form of control such as a roundabout. Whilst mini roundabouts will not normally be acceptable at a junction into a development, they will be considered for use within developments, where they form part of a more comprehensive traffic calming scheme.
11. Digital infrastructure and/or the use of technology should be considered and incorporated to help future-proof solutions and services, reduce future maintenance costs, assist asset management, reduce environmental impacts and improve physical connectivity through the ability to make decisions based on 'real time' information. Please see Appendix H for more information.
12. Street trees provide opportunities for counteracting the emissions from traffic and energy use, as well as the overall environment, composition, quality and scale of streets, providing edges and canopies. Street trees based on the principle of 'right tree, right place' will be considered within the highway boundary irrespective of carriageway type. See Appendix F.

13. Climate change and carbon emissions: Selecting the right elements that are appropriate for the site location by ensuring the elements are resilient to climate change, using sustainable materials that can withstand wear and tear and providing adequate drainage and irrigation.

The identification of an appropriate design standard, different to that referred to in this guide, should be discussed and agreed with the Highways Development Control Team at an early stage. In some cases, it may be appropriate to deviate from these standards, should the Highways Development Control Team approve this approach in writing to the applicant.

Applicants are strongly encouraged to agree the principle of any Departures from Standards at the planning stage and encouraged to enter the Early Technical Assessment process. Any Departures from Standards should follow the Local Highway Authority's standard procedure, including the one for highway structures; the Local Highway Authority will require a Road Safety Audit (RSA) in this circumstance. An RSA process in accordance with GG 119 should usually accompany any proposed permanent change or addition to the local public highway. Please see Appendix J for RSA templates.

4.1 Innovative Junction Design

Innovation in junction and street design is welcomed on a case-by-case basis, and it can be appropriate to extend these principles onto the existing highway network, either as part of an access scheme or as highway mitigation. Where innovative schemes are to be proposed, early discussions are essential with the Local Highway Authority and some specific issues will need to be explicitly considered. A non-exhaustive list includes:

- 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 appropriate to the location and the junctions design.
- Proposed construction materials should be suitable and readily available; and
- Consideration must be given to junction efficiency, minimising delays to all highway users.

The developer will need to demonstrate that any highway design offered for adoption to the Local Highway Authority, enables Worcestershire County Council to discharge statutory responsibilities placed upon it by Section 149 of the Equalities Act 2010.

4.2 Junctions or Access Spacing

For non-DMRB design junctions and accesses, the minimum spacing requirements include:

1. 30 metres for opposing junctions and 60 metres for adjacent junctions.
2. No accesses or driveways are to be positioned within 20 metres of a junction bell mouth.

The Local Highway Authority adopts these standards in principle as a starting point. However, the Authority may consider alternative distances subject to the local context and supporting evidence. Any reductions on these values would require the provision of a Road Safety Audit to inform its consideration. These standards apply to both newly designed junctions or access points as part of a larger site and junctions or accesses incorporated into existing layouts.

Junction layout designs should be based on DMRB, will be spaced in accordance with visibility requirements and shall be suitable for higher speed roads. These will require a greater spacing distance to those distances specified above.

4.2.1 Stopping Sight Distances (SSDs) and Visibility Splays

An important contribution to road safety is the provision of adequate visibility, thereby enabling road users to see a potential hazard in time to slow down or stop comfortably before reaching it. In the context of stopping sight distance (SSD), link design refers to the geometric design of a road section (known as a "link") to ensure adequate visibility for drivers to stop safely at any point along that section. This involves coordinating horizontal and vertical curves to provide sufficient stopping sight distance, considering factors like design speed, road type, and terrain. For links, this will be provision of appropriate Stopping Sight Distances (SSDs) and, for junctions, provision of appropriate sightline visibility splays.

For all traffic locations, the following standards apply:

- For all traffic locations including traffic signals within the local road network in Worcestershire, DMRB visibility standards apply where the Design Speed / 85th percentile speed is above 64 kph (39.8 mph).
- MfS 1 visibility criteria shall apply where a Design Speed /85th percentile speed is 60 kph (37.3 mph) or below.
- Between 60 kph and 64 kph, and the characteristics of the road alignment with paragraph 1.3.6. of MfS2, the following may be used in the calculation to establish the SSD:
 - Reaction time of 2.0 seconds
 - Absolute Minimum deceleration rate of 0.375g

Table 2: Stopping Sight Distances and standards to be applied

Location	Design Speed	Standard
All traffic locations	>39.8 mph (64 kph)	DMRB Visibility standards
All traffic locations	<37.3 mph (60kph)	MfS 1 Visibility standards
All traffic locations	>37.3 and <39.8 mph (60 kph and 64 kph)	Use formula to calculate SSD as given in 10.1.5 MfS2, as described above.

For residential streets and commercial/industrial estates where the recorded 85th percentile speeds are 60 kph (37.3 mph) or less, MfS1 visibility splay requirements apply. Above this speed, a MfS2 visibility splay requirements may apply, particularly in residential areas or commercial/industrial areas, or where you would expect people to be walking, cycling, or wheeling. In other circumstances, and particularly for the Strategic Road Network, arterial routes (such as A classification roads), or higher speed roads, DMRB visibility requirements will apply, where there is little or no residential or commercial activity.

At junctions, visibility splays play a vital role to ensure drivers merging or crossing traffic have a clear view of oncoming vehicles, reducing the risk of collisions.

Where MfS1 focuses on lower volumes of traffic in residential streets, DMRB is more suited to roads outside of the residential street environment. Visibility requirements need to consider the relationship of the highway to its surroundings. The use of MfS2 helps fill the perceived gap between MfS1 and DMRB, assisting in identifying and applying an appropriate visibility splay for slightly faster routes, but still reflects a residential, employment environment or street function.

DMRB allows relaxation in certain circumstances. However, the SSD shall not be relaxed on the *“immediate approaches”* to junctions. Within road links, the forward visibility SSD can be relaxed based on the design speed, and in accordance with CD 109.

For Section 278 and Section 38 Design Audit Submissions, any relaxations included within the design shall be detailed and the mitigating circumstances explained. This shall also be provided to the Road Safety Audit team within the safety audit brief.

4.2.2 Speed Measurement

Speed measurements should be taken in accordance with [DMRB’s CA 185](#) that provides guidelines for spot speed measurements on roads. Spot speed is the instantaneous speed of a vehicle at a specific location and is used to understand how vehicles are moving at a particular point on the road. This data is crucial for road design and safety considerations.

For non-signalised junctions, the location at which the speed measurements are to be taken should be at the approximate ‘Y’ distance (see diagram 1) based on the posted speed limit of the major road permitted by legislation.

The method of measurement of the spot speeds (radar metre or pneumatic road tube example) shall be in accordance with CA 185 (DMRB). This includes free flow conditions, minimum number of vehicles measured or a minimum of three days of data, frequency of measurement and timing.

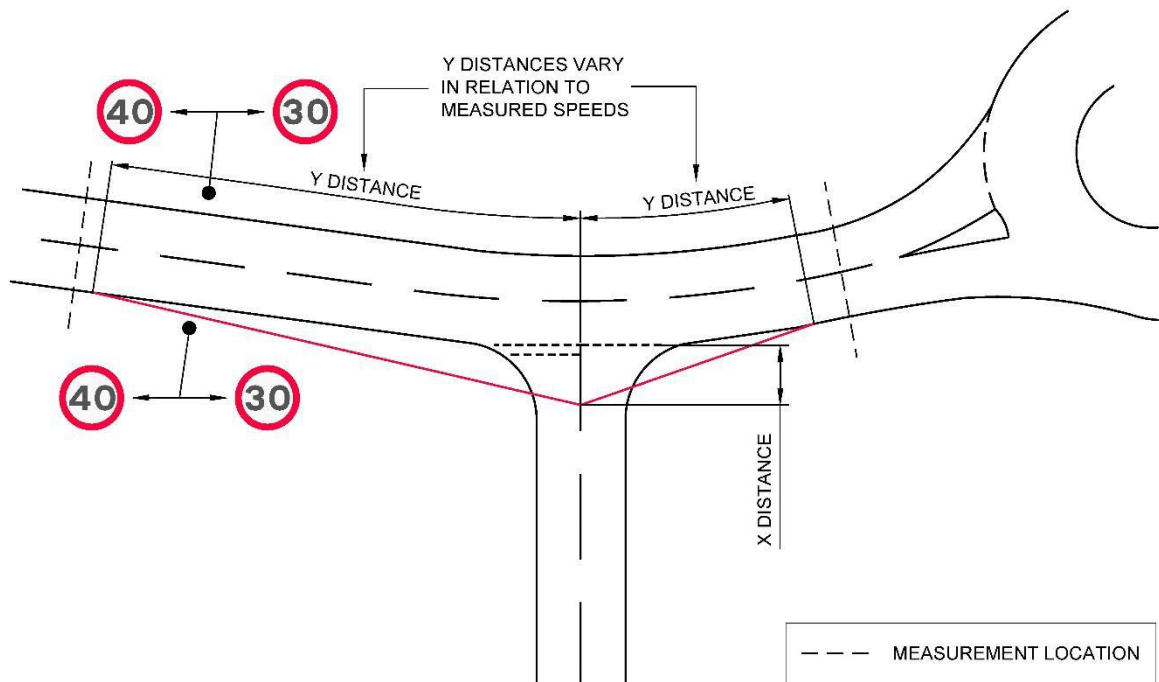
In the absence of confirmed dry weather and road conditions, 85th percentile speeds shall be increased by 8 kph for dual carriageways and 4 kph for single carriageways in accordance with CA 185.

Where there is a difference in speed depending on the direction of travel, different 'Y' distances may be used (rather than a single 'Y' distance based on the highest speed).

Early engagement with Worcestershire County Council is encouraged to resolve any queries.

Diagram 1: Indicative Measurement Locations

This is an illustrative example only.



4.2.3 Forward visibility sightline distance

Forward visibility, in the context of road design, refers to the minimum distance a driver needs to see ahead to safely stop and avoid an obstruction in the road. This distance is often determined by the vehicle's stopping sight distance (SSD), which is the distance required to stop safely, considering factors like speed, reaction time, and deceleration. Sightline distance, on the other hand, is the distance along which a driver needs to have an unobstructed view to perceive potential hazards in time to react and stop safely.

SSD shall be based on the design speed in accordance with Table 2.10 in CD 109 or Table 7.1 in MfS as appropriate. The minimum design speed for SSD shall be 20 mph. Where the design speed falls between the tabulated values in CD 109 or MfS, the higher value shall be used. Alternatively, the SSD may be calculated from first principles.

When assessing forward visibility, the vertical visibility envelope shall be as stated in MfS and CD 109 respectively with an object height of between 0.6 metre and 1.05 metres (2.00 metres where the combined proportion of HGV and bus traffic is more than 5% of the traffic flow) where MfS 1 or 2 applies and between 0.26 metre and 2.00 metres where DMRB applies.

Where the forward visibility line passes over any soft landscaping areas (e.g., where the alignment is on a horizontal curve), a 6 metre vertical clearance shall be achieved above the soft landscaping/grass to allow for vegetation growth. Where a 6 metre clearance is not achievable, hard landscaping should be considered. Horizontally, visibility splays shall not be obstructed by vegetation. Proposed planting or trees shall be set back sufficiently so as not to impede the visibility splay once fully mature.

If there is any doubt that an adequate visibility splay is achievable vertically in any direction, it may be necessary to procure a topographical survey and to provide a long section with the carriageway level and the visibility splay plotted. This may require supporting by cross sections, where the visibility splay crosses land at the edge of the carriageway that is elevated or contains features that are above carriageway level such as a roadside embankment.

The driver's position in an agricultural vehicle is often much higher than in a car, van, or lorry, and the driver is often sat much further back from the front of the vehicle. The elevated position of the driver may allow a clear line of sight in the vertical plane over field boundaries. However, obstacles such as tree canopies, traffic signs, or bridges, may obstruct the driver's visibility from the elevated position. Where an agricultural access is proposed or it is likely that the use of an existing agricultural access will increase, it will be necessary to demonstrate that a clear line of vision would be available from the access at an 'X' distance of 4.5 metres, from a height of between 2.0 metres and 3.5 metres above carriageway level to a height of 2.0 metres over the stopping sight distance, as well as demonstrating that the general visibility splay requirements set out in this chapter are achievable.

4.2.4 'Y' distances for vehicles

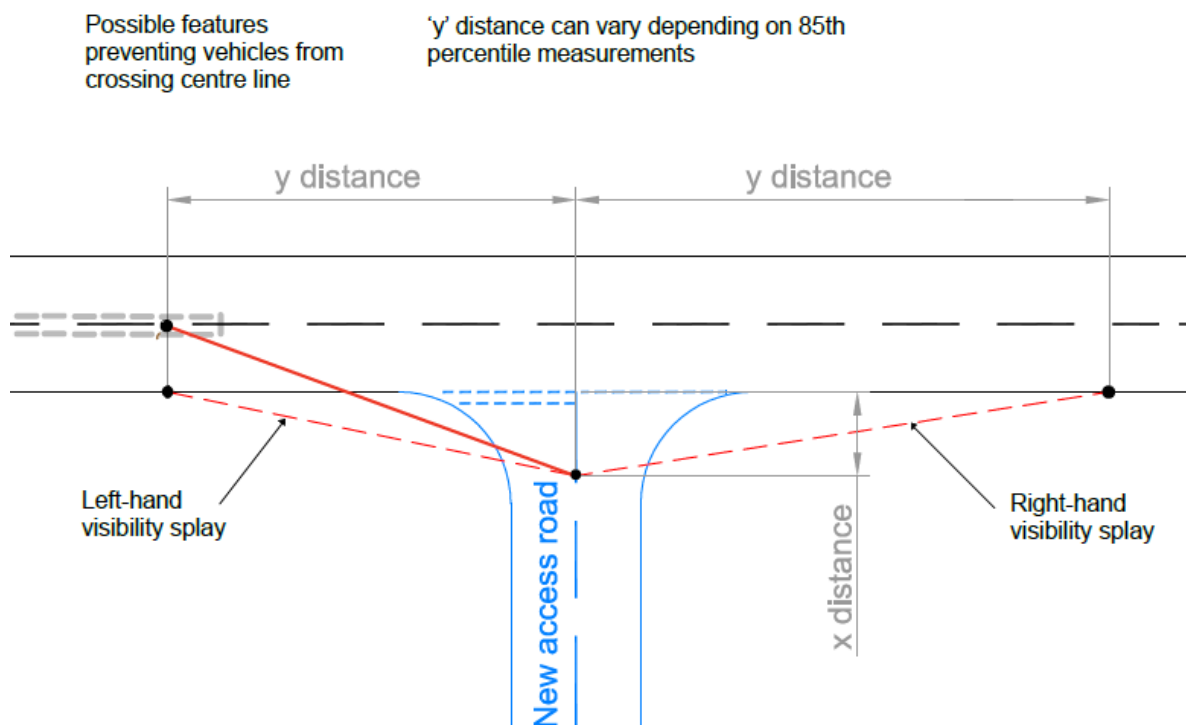
The 'Y' distance is the Stopping Sight Distance (SSD). Please refer to diagram 2.

The point to which the 'Y' distance to the left is measured may be relaxed in some circumstances as listed below:

- A refuge island is provided with high level 'keep left' signs within the 'Y' distance or,
- Where a physical feature is provided such as a central reserve or refuge preventing vehicles from crossing the roads centreline.
- Relaxations would require written approval from the Local Highway Authority.

Diagram 2: Measurement of 'Y' Distances

This is an illustrative example only. MfS1 Figure 7.18 Measurement of junction visibility splays on a straight road section (as below) and on the inside and outside of a bend.



The point to which the 'Y' distance is measured should be to the channel / kerb line as shown in Diagram 2.

When considering stopping sight distances, if the speed of a vehicle varies depending on the direction of travel (e.g., uphill vs. downhill), it is crucial to use different 'Y' distances for each direction rather than relying on a single 'Y' distance based on the highest speed. This ensures a more accurate and safer assessment of visibility requirements.

The visibility splay shall not enter an adjacent junction minor arm, such that a vehicle waiting to exit the adjacent junction, would then obscure the visibility splay. For example:

- a) For a junction to the right, the visibility splay shall not cross the tangent point of the bell mouth with the mainline.
- b) For a junction to the left the visibility splay shall not cross the centreline of the adjacent junction).
- c) Where the adjacent junction to the right is a merge, the visibility splay shall not enter the merge taper.

The following principles apply:

- When designing a visibility splay at a road junction, it should not extend over any nearby crossovers that serve seven or more homes, commercial properties, or any side road. This ensures clear sightlines and prevents potential accidents.
- Road junctions on the same side of a road within a development scheme should be spaced so that a vehicle waiting to enter the main road, does not interfere with visibility for a vehicle waiting at another.
- A visibility splay should either be within existing public highway or across land controlled/owned by the developer and which can be adopted as public highway.
- The vertical visibility envelope when assessing visibility along the ‘Y’ distance shall have an object height of between 0.6 metres and 1.05 metres (2.0 metres) as described above if MfS applies (see section 4.2.3).
- Horizontally, visibility splays shall not be obstructed by vegetation or other objects. Proposed planting or trees shall be set back sufficiently so as not to impede the visibility splay once fully mature.

4.2.5 ‘X’ distances for vehicles at priority junctions

A priority junction is where one road has right-of-way over another, typically at T-junctions and crossroads. Vehicles on the major road have priority, and those on the minor road must give way, usually by using 'Give Way' or 'Stop' lines. At unmarked crossroads, drivers should proceed with caution, as no one has clear priority. A simple priority junction is a type of road intersection where traffic on the main road has right-of-way, and traffic on the minor road must yield. It is a common configuration for T-junctions and crossroads where no central treatment like a central reserve or ghost island exists and no merging or diverging tapers are present.

The ‘X’ distance for priority junctions shall, unless otherwise agreed with the Local Highway Authority, be as detailed in table 3.

Table 3: ‘X’ distances for priority junctions

Type of Priority Junction	‘X’ Distance
All priority junctions where the major road is less than 40mph	2.4 metres
Simple priority junctions (as defined by CD 123 DMRB) where the major road is 40mph or more	2.4 metres
All other priority junctions where the major road is 40mph or more (see below)	4.5 metres

A greater 'X' distance of 4.5 metres is a common visibility requirement for major junctions, busy access roads or where the side road has a speed greater than 40 mph. The greater distance would also likely apply to industrial roads. The requirement for this will be site specific and designers should seek advice from the Local Highway Authority.

4.3 Walking, Cycling and Horse-Riding Sightline Distance Requirements

Requirements for walking, cycling and horse riding shall be considered as appropriate, in accordance with the relevant national design standards including DMRB, MfS, Traffic Sign Manual, Local Transport Notes (e.g. LTN 1/20).

Each crossing location with a carriageway shall be assessed in terms of visibility splay and stopping sight distance in accordance with CD 143 and CD 195 (DMRB) and utilising MfS SSD's only where MfS applies.

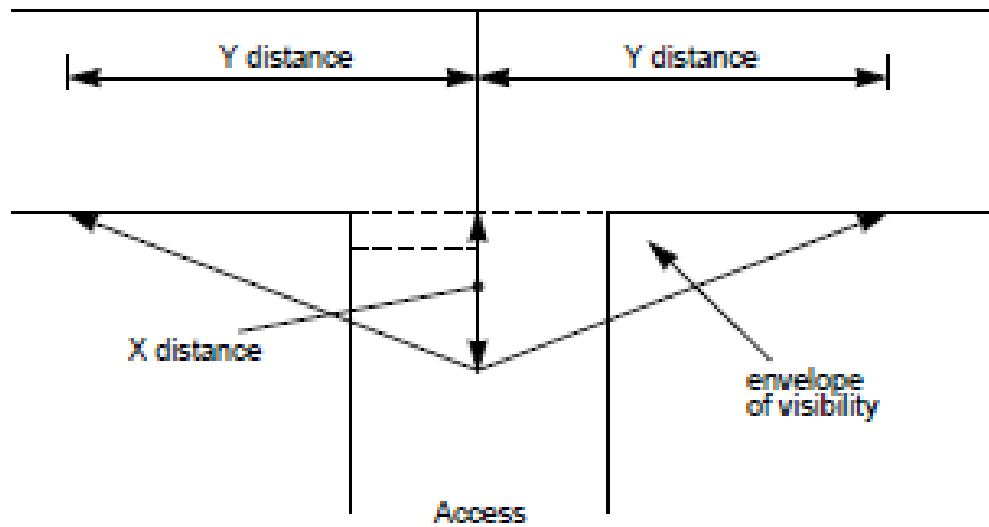
4.4 Visibility Requirements at Vehicle Crossovers

For vehicle crossovers (dropped kerb accesses, not full bellmouth construction), the 'X and Y' distance(s) can either be based on the design speed or 85th percentile speeds. Diagram 3 also shows an illustrative example.

MfS2 states that a minimum 'X' distance of 2 metres may be considered in some slow-speed situations when flows on the minor arm are low, but using this value will mean that the front of some vehicles will protrude slightly into the running carriageway of the major arm, and many drivers will tend to cautiously nose out into traffic. The ability of drivers and other road users such as cyclists to see this overhang from a reasonable distance, and to manoeuvre around it without undue difficulty, needs to be considered. An 'X' distance of 2 metres will only be accepted in appropriate locations that are considered by the Local Highway Authority to be appropriate, i.e. for example a cul-de-sac, where the road design of the carriageway ensures slow speeds and the traffic volumes are low.

Diagram 3: Vehicle Crossover Visibility

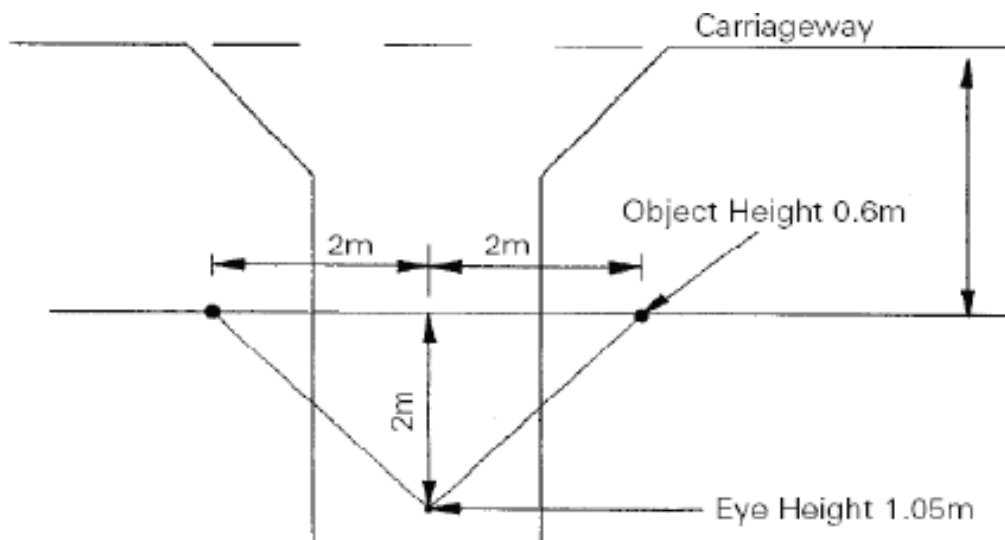
This is an illustrative example only.



Where the proposed access crosses a footway/cycleway, then inter-visibility from between the driver and any footway/cycleway users shall be provided. This shall be measured as 2 metres x 2 metres from the back of the footway/verge and be kept clear of any obstruction including trees or landscaping greater than 6 metres in height above the carriageway level, i.e. taken from driver's eye height. See Diagram 4.

Diagram 4: Pedestrian/Vehicle Intervisibility at Vehicle Crossovers

This is an illustrative example only.



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

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

4.5 Vertical Alignment

Steep gradients should be minimised where possible. Gradients should not exceed the guidance in the “Inclusive Mobility” government guidance document. Where the footway follows the longitudinal fall of the carriageway then consideration must be given to maximum gradients and lengths, to ensure that the footway remains accessible to people with disabilities. The desirable maximum longitudinal section gradient of adoptable or adopted footways or footpaths is 1 in 20 (5%). In some circumstances 1 in 10 may be permissible but, generally 1 in 12 should be the maximum footway longitudinal or crossfall gradient.

For new carriageways, the maximum and minimum gradients allowable are as follows shown in Table 5.

Table 5 – Maximum and Minimum gradients allowable

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 give way line	1:100 (1%)
Cycle tracks and footways	1:20 (5%) over a distance of <u>10</u> metres	1:100 (1%)

It is important to note:

- Where a 1:12 gradient is proposed, no length shall exceed 10 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. The minimum ‘K’ values are defined in table 6.

Table 6 – minimum ‘K’ values

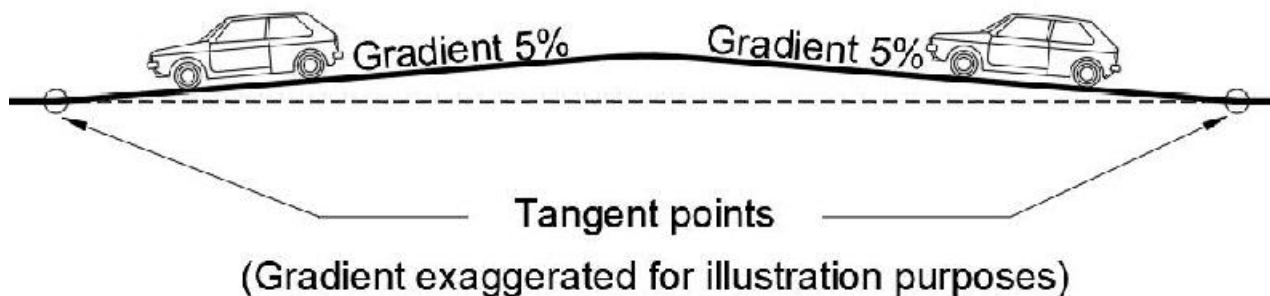
Category	Minimum ‘K’ value
Major access and above	6
Minor access and below	2
Cycle track	6

Additionally, the minimum curve length shall not be less than 20 metres. The following example has been included to assist developers in designing vertical curves.

Example Alignment:

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

Diagram 5: vertical curves



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

$$'K' = 20 / 10$$

$$'K' = 2$$

The calculated 'K' value is acceptable for a minor access road and falls within the design criteria and therefore, would 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 for a suitable grit bin to be located and provided.

Carriageways should normally have standard camber or crossfall gradients. Consideration may need to be given to eliminate any adverse crossfall on tight radii in roads to allow vehicles to negotiate such bends safely. Superelevation of local distributor roads may need to be applied for certain centreline radii. Superelevation should not be introduced or adverse crossfalls eliminated so gradually as to create almost flat areas of carriageway or so sharply as to give the kerb line a kinked appearance.

4.6 Horizontal Alignment

4.6.1 Sharp Corners and Speed Control Bends (Highway Geometry)

Speed control bends, with a deflection of between 80 degrees and 100 degrees, are usually only suitable on non-primary streets within developments where speeds have already been reduced. They must be clearly visible as being different from a normal bend. The full forward visibility for the appropriate design speed should be provided.

Carriageway widths should be able to safely accommodate all vehicles that can be anticipated to use the road. On a swept path analysis, where a large vehicle is indicated as crossing the centre line of the carriageway to negotiate a bend or junction, traffic volumes must be minimal with associated speeds should be less than 10 mph for the crossing vehicle.

Within secondary or local residential streets, the vehicle swept path could use both sides of the carriageway to enable consideration to be given to tight junction radii to allow more direct and convenient pedestrian and cycle desire lines to be achieved. This approach will not necessarily apply at proposed junctions to the existing highway network. Whether a vehicle swept path can use the entire carriageway depends on a Road Safety Audit, the specific context, and written agreement from the Local Highway Authority. The Road Safety Audit assesses safety and feasibility, while the context, including vehicle type and road conditions, also plays a crucial role. Written agreement by the Local Highway Authority ensures clarity and responsibility for any necessary adjustments or restrictions, like strengthening footways or ensuring visibility.

Strengthened footways may be necessary where unavoidable vehicle overrun by heavy vehicles may be expected, e.g. bends where corner radius is less than 6 metres and could otherwise lead to early deterioration and result in more frequent maintenance.

4.6.2 Overrun Areas

Overrun areas should be avoided in residential streets. Where an overrun area is used adjacent to a pedestrian, wheeler, cycle or horse-rider crossing, the overrun area should not resemble a footway or refuge to discourage pedestrians or cyclists using it to cross the carriageway. In some instances, access to an overrun area by vulnerable road users should be prevented.

Where it is proven and accepted that an overrun area is unavoidable, the maximum dimensions for overrun areas need to be in accordance with Regulation 5 of Highways (Traffic Calming) Regulations 1999. The design of an overrun area should not prevent cyclists crossing it safely. The radius for the outer edge of an overrun area shall be formed from readily obtainable radius kerbs. Signing is not normally required, as they should normally be constructed in contrasting material or colour. Where appropriate, delineation from the normal running surface may be achieved using road markings to diagram 1012.1, Traffic Signs Regulations General Directions 2016 (as amended). It is not appropriate to use any type of hatched markings across overrun areas, as this may conceal them.

Overrun areas may be viewed by some as parking places as they are surface finished in a contrasting appearance to the regular blacktop treatment. To prevent this from occurring, it may be necessary to implement yellow line parking restrictions on the bends. In this instance, the developer will normally be required to pay all costs associated with making the Traffic Regulation Orders (TROs).

Worcestershire County Council requires development layouts and access routes to be assessed using appropriate design vehicles included in the AutoCAD (or equivalent) vehicle tracking software. Design vehicles should be representative of vehicle types likely to serve the development.

4.6.3 Swept Path Analysis

Good practice should be followed when undertaking swept path analysis, including the use of appropriate design speeds and other parameters appropriate to the context of the analysis.

All schemes must incorporate reasonable tolerances and safety margins. Vehicle tracking should demonstrate at least 0.5 metre clearance (wheel tracking swept path) to kerbing or vertical obstructions on each side of the swept path.

In areas of potential conflict between vehicles, the swept path analysis shall demonstrate that the minimum clearances required can be achieved between both moving and stationary traffic. The extent of stationary traffic queues for this assessment shall be the agreed peak flows from the traffic assessment for the junction.

Tracking assessments will be required to validate the functionality of turning areas and emergency routes. This will include a refuse vehicle and a fire tender, but vehicle and specific vehicle specifications should be agreed in advance with Worcestershire County Council.

When presenting drawings of vehicle tracking swept paths, the following criteria should be applied:

1. Vehicle tracking to be illustrated at an appropriate drawing scale with a north arrow and new or existing roads clearly identified.
2. Vehicle profile to be shown in a drawing frame.
3. Vehicle tracking speed to be shown in a drawing frame. Generally, 10 mph is acceptable, although lower speeds may be accepted for certain turning movements.
4. Vehicle tracking to show both the body of the vehicle and wheel tracks.
5. No hatching is to be shown within the vehicle envelope to ensure no features are obscured.
6. A minimum 0.5 metre offset to kerbs and features from the outside edge of vehicle body should be maintained.
7. Swept paths demonstrating that the vehicles which will use the street on a day-to-day basis can pass one another.
8. How on-street permissible parking will affect available carriageway width.
9. The route for larger vehicles such as service vehicles or buses should not require back-tracking.

5. Designing for Service Vehicles

Service vehicles are infrequent users of the road and their incorporation into the design should not dominate the overall design. The frequency with which they use each road should be considered and the road should be designed to match the requirement. Sites where a high number of HGVs or service vehicles are expected will require that the road width be suitable to accommodate these vehicles traveling in both directions and the width should ensure that they can pass each other safely and at the appropriate speed, including any widening on bends.

Where service vehicles are less frequent in residential areas and are unlikely to meet each other traveling in opposite directions, the road width can be reduced accordingly. In these circumstances HGVs can use all parts of the road and cross the centreline. However, road design in these situations must incorporate a swept path analysis to ensure that all HGV service vehicles can travel along the

road without complicated manoeuvres being required. Roads or private accesses shall be laid out so that, when accessing a collection/drop-off point or residential property, the maximum distance a pantechnicon, or other light goods vehicle (LGV) needs to reverse, should not exceed 20 metres.

Cul-de-sacs longer than 20 metres shall be provided with turning facilities. These shall be suitable for vehicles up to 3.5 tonne maximum gross weight plus other vehicles that will be expected to use them. The drivers of vehicles intending to enter a cul-de-sac should be able to see whether the turning facility is free of obstructions before undertaking the manoeuvre.

Turning heads and similar facilities should contain vehicular accesses at suitable locations to discourage obstructive parking. Where this would not be practicable, the turning facility shall still be useable with the expected parking.

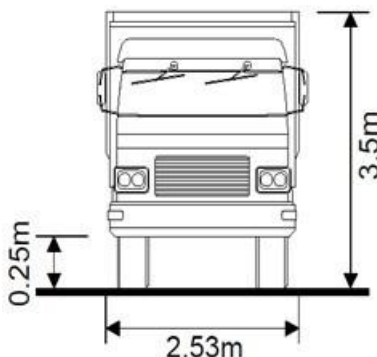
5.1 Refuse Collection Vehicles (RCVs)

A new or amended development site should be designed to accommodate refuse collection vehicles used locally for junction radii and vehicle turning.

Refuse collection 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 as per diagram 6.

Diagram 6: typical refuse collection vehicle specifications

This is an illustrative example only.



The length of a refuse collection vehicle differs throughout the county. For example, in Malvern Hills, a vehicle typically has a total length of 11.3 metres with the tailgate raised, whereas other Districts use a vehicle of 10.3 metres in length (assuming the tailgate is raised). Therefore, it is advisable to consult with the Design Codes for the relevant District Council to confirm the exact refuse collection vehicle specifications when providing a suitable design layout.

The design layout must demonstrate that the standard refuse vehicles can enter the site safely and efficiently, and manoeuvre around the site to collect from all the proposed presentation points. Provision to turn the vehicle within the site must also be provided to allow safe exit in a forward gear where necessary. All bin presentation points are to be positioned to allow safe working of the refuse

vehicle and operatives in respect of road junctions or not cause unnecessary obstruction to other road users.

All required swept path analysis should account for the likely locations of on-street parking, the passing of other vehicles and the need to ensure a 0.5 metre buffer between the vehicle wheels and the kerb edge.

Reversing and manoeuvring a refuse vehicle is one of the most hazardous tasks refuse drivers perform. The maximum distance a refuse collection vehicle needs to reverse should typically not exceed 12 metres and shall be no more than 20 metres. Longer distances can be considered, but any reversing routes should be straight and free from obstacles or visual obstructions, with the potential requirement of street lighting in some instances. Such situations should be discussed with the relevant Local Planning Authority.

Building regulations mandate that residents should not have to carry their wheelie bins more than 30 metres to their designated storage area, or from the storage area to the collection point. The waste containers should be within 25 metres of any waste collection point specified by the waste collection authority. The route between storage and refuse collection points should be solid, non-slip and as far as possible level. The route should not require bins to be moved up/down slopes of more than 1:12 or multiple steps.

For access purposes the minimum width of a private drive or unadopted road should be not less than 3.5 metres and the minimum height clearance should not be less than 4 metres across the whole width of the road and 1 metre either side. There must be no obstruction from overhanging branches, cables, etc. likely to cause damage to the vehicle. Any part of a building through which a refuse vehicle passes must have a minimum clear height of 4.5 metres, to allow for overhead fixtures and fittings.

5.2 Vehicle Turning Heads for RCVs

To accommodate refuse collection vehicles, residential cul-de-sacs typically 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 on the street.

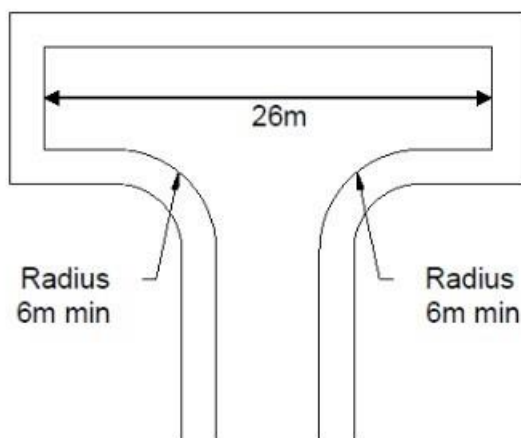
Turning areas in residential streets should be designed to allow turning for refuse collection vehicles, whereas in industrial and retail developments, turning areas should allow for articulated or pantechon vehicles to turn, subject to what is relevant to the proposals. Tracking of the relevant vehicle swept paths must be presented using CAD software.

‘T-form’ turning facilities should maintain a length of 26 metres across the ‘T’ to facilitate manoeuvres by pan Technicon (HGV) sized vehicles. The carriageway widths, radii and footway

widths should comply with the design specification for the road which they serve. Please refer to diagrams 7 and 8 for specifications.

Diagram 7: 'T' form

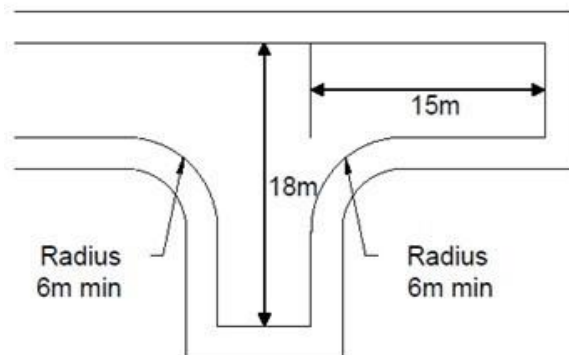
This is an illustrative example only.



'Side T-form' turning facilities as per below, should maintain a width of 18 metres and a length 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.

Diagram 8: 'T' turning

This is an illustrative example only.

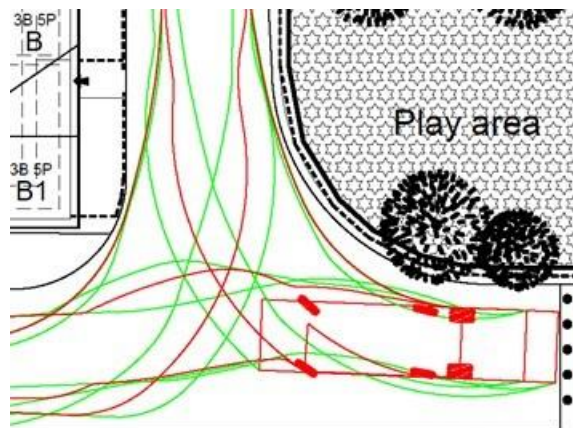


Variation from these dimensions is acceptable subject to successful tracking of the District Local Authority's refuse collection vehicle specifications.

The refuse collection vehicle should stay within the kerb lines, 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. Please see diagram 9 for refuse collection vehicle tracking.

Diagram 9: Tracking for Refuse Collection Vehicle

This is an illustrative example only.



5.3 Emergency Vehicle Access

Developments should be designed so that there is no requirement for an emergency vehicle only access link. These are difficult to enforce, and physical barriers can cause delays. The practical requirements for servicing by an emergency vehicle must be incorporated into the design of all developments whether they are proposed for adoption or not.

Developers should consult with the relevant emergency services during the early design and planning stages, particularly where there are designs which limit access for emergency vehicles to any part of the development. It is recommended for developers to have early engagement with [Hereford and Worcester Fire and Rescue Service \(HWFR\)](#) for further guidance about vehicle access.

Where emergency access is to be provided, the applicant shall provide scaled drawings of the access which includes vehicle tracking.

5.4 Traffic Mirrors

The placing of traffic mirrors on or around publicly maintained roads are not normally permitted. An exception may be made where the site has a poor personal injury road traffic accident record, and all other viable solutions have been explored. Worcestershire County Council, as the Local Highway Authority, has the responsibility for deciding whether a traffic mirror is needed to maintain highway safety. They are not provided for private roads.

A traffic mirror is legally defined as a traffic sign and can only be erected by Worcestershire County Council as the Local Highway Authority. It is governed by Legislation: [The Traffic Signs Regulations and General Directions \(TSRGD\) 2016](#). The Local Highway Authority can place them without authorisation from the Department for Transport (DfT).

The placing of a traffic mirror can affect road safety due to the following issues:

1. Distortion of reflected image; glare from sunlight or headlamps affecting the driver's vision.
2. Visibility issues during bad or extreme weather such as rain, snow, fog and frost.
3. Difficulty judging the speed of an approaching vehicle from the mirror image.
4. Maintenance issues – mirrors could be prone to vandalism, maintenance of their alignment and cleanliness is critical.
5. Unreasonable dependence on the mirror's restricted image may compromise the safety of other road users, including pedestrians, wheelers and cyclists, who do not appear in the mirror.
6. Other solutions may be available instead, e.g. cutting back vegetation, moving or lowering boundary fences, walls, or other obstructions.

The Local Highway Authority will use its powers to remove any traffic mirror placed in private property that is found to adversely affect highway safety. A mirror placed on private land shall:

1. Be subject to any required planning permission.
2. Be erected outside the limits of the highway.
3. Cause no danger to any other road user either by glare from reflected sunlight, or headlights at night.
4. Not overhang the highway and obstruct vehicles, pedestrians, or equestrians.
5. Have permission of the landowner.
6. Be at no cost or liability being passed on to the Local Highway Authority.

Early engagement in the design process with Worcestershire County Council is encouraged to resolve any queries.



Chapter 5: Drainage and Structures

Streetscape Design Guide 2025

Worcestershire County Council

Chapter 5: Drainage and structures

1. Drainage Requirements

Drainage systems intended to be adopted as highway drains shall be hydraulically designed and constructed in accordance with [Sewers for Adoption](#) published by Water UK and with the specifications within this Design Guide. Please visit [our website](#) for flood risk information and [the WCC Sustainable Drainage Design & Evaluation Guide](#) for more guidance.

The Local Highway Authority only accepts adoptable highway drainage that connects directly to systems that are maintained by a statutory body (e.g. Severn Trent Water Ltd.) Worcestershire County Council welcomes the use of Sustainable Drainage Systems (SuDs) but is not currently set up to adopt such schemes. However, where a dedicated highway surface water system is proposed, SuDs may be considered based on design proposals and geotechnical considerations subject to approval.

Pipes that solely carry surface water runoff from an adopted highway are typically the responsibility of the Local Highway Authority for maintenance. This is often part of an agreement made when the highway is adopted. 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 relevant water company who operate the public water and sewerage network 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 at right angles to the centreline of the road to minimise their length. Any infiltration, storage or discharge from private SuDs will be on private land.

SuDs for the highway shall drain into the highway drain network, and any infiltration will be within highway/public areas. Worcestershire County Council will consider adopting highways which discharge highway run-off into a SuDs system carrying surface water from private areas, where the applicant can produce a satisfactory design in compliance with the appropriate guidance and standards. The applicant must also demonstrate that the Local Highway Authority will not be exposed to maintenance liability by ensuring that the SuDs system is maintained by a statutory body.

1.2 Drainage 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 relevant Water Authority will adopt the sewers, subject to compliance with their adoption procedure.

The Local Highway Authority will typically not adopt a highway under a Section 38 agreement (s38) until the relevant Water Authority has confirmed the adoption of all sewers within that highway, including those outside the directly adoptable area but connected to its drainage. This is because the

Local Highway Authority needs assurance that the drainage system, including connections, is properly maintained and managed by the Water Authority before taking on responsibility for the highway itself.

Highway drains intended for adoption must discharge into a pipe or watercourse approved by the Local Highway Authority, with the developer proving the right to discharge without liability. Adoption by the relevant Water Authority of all highway sewers is also a prerequisite, including those outside the adoptable highway but contributing to its drainage.

The following important points apply:

1. Private drains will not normally be permitted within the adoptable highway.
2. 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.
3. Where such circumstances do arise, the landowner at the time of completing a s38 Agreement will be required to give a grant of easement keeping three 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 weakens the rights conferred on it.
4. The land must be easily accessible and not be in areas that would cause an unreasonable level of disturbance during maintenance such as private gardens or private driveways.
5. Where the outfall is into a ditch, watercourse, or main river, the approval of the Lead Local Flood Authority or Environment Agency (EA)² (as appropriate) must be obtained in writing.
6. 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 conducting of any improvement works found to be necessary.
7. Where the highway drain discharges into a watercourse, calculations shall consider the possibility that the watercourse may be flooded.
8. In exceptional circumstances we may consider the use of combined kerb and drainage systems if there is suitable justification of why a more traditional system cannot be accommodated.
9. In certain cases, Worcestershire County Council may require the provision of a larger capacity drain than would normally be needed to accommodate the drainage of adjoining land and/or future development.

² Or their successor organisations

1.3 Soakaways

Where soakaways are to be considered, it will be at the discretion and approval of Worcestershire County Council and will be considered by exception. The developer is to note that a Commuted Sum may be charged for each soakaway installed. The size and number of soakaways required will be determined based on the volume of surface water that needs to be handled, the soil conditions, and size of properties.

The following important points apply:

1. The minimum diameter shall be 1500 mm. If more than one soakaway is planned, they are to be linked by a 225 mm diameter pipe and must conform to Building Regulations.
2. 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.
3. Where possible, the soakaway is to incorporate an overflow link (minimum diameter 225 mm) to an existing highway drain/outfall system.

1.4 Drainage design

Gullies, which are roadside drains or channels, are strategically placed to manage surface water runoff. They are required immediately before block paving, pedestrian crossing points, and road junctions to collect water and prevent flooding. However, gullies should never be positioned directly on pedestrian crossings to avoid creating a hazard for pedestrians.

Gully spacing should, in most cases, be determined using the recommendations of DMRB: CD 526 for highway improvement (Section 278) schemes and using our Highways Specification for adoptable highway (Section 38) schemes.

It is the developer’s responsibility to demonstrate and ensure that the number and positioning of gullies is adequate to drain the highway including footways, footpaths, paved areas or verges that fall towards a carriageway. The parameters and specification for drainage are shown in table 1.

Table 1: Parameters for drainage

Parameter	Specification
Rainfall average return period	1: 5 years Design (no surcharge of drainage system)
Rainfall average return period	1: 30 years Design (no flooding within highway or third-party land)
Rainfall average return period	The highway system must be assessed for 1:100 years + climate change allowance. * See note 1
Climate change allowance	40% uplift in peak rainfall intensity
Time of entry (default)	4 minutes
Design flow velocities	0.75m/s (absolute minimum)

	7.5m/s (absolute maximum, if greater than 3.0 m/s consult with adopting authority)
Minimum gradient	1:225
Design maximum rainfall	Should be set to the maximum that the modelling software allows. * See note 2.
Minimum pipe diameter	Highway (carrier) drain – 2.25metres Lateral gully connection – 1.5 metres

**Note 1 - Any attenuation storage should be below ground where possible. Using existing highway assets as surface storage shall be considered on a case-by-case basis. The Environment Agency uses depth and velocity criteria to assess flood risk to pedestrians. For adults, the limiting depth is 1.2m and the limiting velocity is 3.0 m/s. For children, these limits are 0.5m and 3.0 m/s, respectively. These values represent the thresholds where the risk of instability and potential harm becomes very high.*

**Note 2 - This parameter can cap the maximum rainfall intensity able to enter a system so if a modelled storm has an intensity higher than the input value then all water above this is lost. Whilst few events exceed this, and only for short periods when they do (meaning the volume lost by capping is small), it can still lead to water being unaccounted for. Therefore, it is recommended that the maximum value be entered to avoid this. Justification and details must be provided if values less than 1.5 metre/hr are used.*

1.5 Surface water connection to a publicly maintained highway drain

If no other reasonably obtainable option exists, then discharge of surface water to a Local Highway Authority maintained highway drainage asset may be considered. However, in most circumstances, it is unlikely that approval to discharge into a highway drainage system will be given.

These systems usually only have the capacity to drain the highway extent. They are not designed to accept any private surface water from individual properties, business, and private developments or discharges from private treatment plants/septic tanks and land drainage. Therefore, any additional connections may increase the risk of flooding on the highway and are unlikely to be approved unless the system capacity is proven and, where necessary, improved. Applications for connection to existing highway drainage shall include hydraulic modelling taking account of the whole contributing catchment area and a dilapidation survey to include CCTV survey of pipe drainage.

2. Highway structures

A ‘highway structure’ refers to any bridge, culvert, subway, retaining wall or other construction built over, under, or adjacent to a highway that affects the support or safety of the highway. This includes

items like tunnels, and even certain pieces of street furniture. The term also encompasses structures that, while not directly supporting the highway, may still impact its stability or safety.

Worcestershire County Council as the Local Highway Authority follow technical approval procedures as set out in the [‘Technical Approval of Highway Structures’ CG 300 \(formally BD 2/12\) of the DMRB Structures manual](#).

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

For the purposes of this guide, references to the TAA in CG 300 means Worcestershire County Council acting as the Local Highway Authority. 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.

Worcestershire County Council will be able to 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, and Microsoft Word versions are 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, 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 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 and Microsoft Word versions are 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, the relevant Local Planning Authority, 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:

1. All bridges over or under the highway.
2. All culvert pipes crossing under the highway greater than 0.9 metres span.
3. 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.
4. Any structures which are not pipes less than 0.9 metres span/diameter.
5. Retaining walls greater than 1.22 metres in height and within 3.66 metres of the highway boundary as described in Section 167 of The Highways Act 1980.
6. Any retaining wall within 3.66 metres of the highway, retaining sloping ground.
7. Any retaining wall supporting the highway regardless of height.
8. Any private cellar or basement under or adjacent to the highway.
9. Reinforced earth structures with or without hard facings, including gabion and crib lock walls.
10. High masts and lighting columns compliant with the standard for the design of minor structures CD 354 will be category 0 unless notified otherwise.
11. 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.
12. Any part of a building structure overhanging the highway.
13. Highway signposts greater than 7 metres in height.
14. Any temporary works which are described as above.
15. Structures required to be assessed by the Local Highway Authority whether or not maintained by them.

This list is not exhaustive, and developers are urged to consult with 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:

1. A bridge that comprises of in-situ cast abutments with pre-cast concrete deck beams.
2. Cast in-situ or driven piles on which in-situ abutments / piers are constructed.
3. Temporary works Adoption of Structures by Worcestershire County Council. We 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 and requirements as outlined in Appendix G.

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.

2.1 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 Assessment of highway bridges and structures](#) and other related 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 Technical Approving Authority (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.

2.2 Approval Submissions

The Technical Approval Process (TAP) shall be applied for all structures whether adoptable or not where an Approval in Principle (AIP) is appropriate. Design and Check Certificates and Construction Compliance certificates will be required.

The AIP will include the following:

1. General arrangement drawing showing location and extent of all structures and in the case of walls detailing lengths to be adopted and/or over 1.20 metre high if applicable.
2. Sufficient to determine wall heights, giving ground levels, behind and in front of wall and any features affecting loadings such as cover to culverts.
3. Clearances to deck soffit and piers/abutments shall be submitted for bridges.
4. Cross section drawings for retaining walls annotated with proposed and existing ground levels.
5. Designers' Risk Assessment - to include risks for design, construction, maintenance and operation, and demolition.
6. 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 found on site by those responsible for construction and should include the following:

1. Construction details and material specifications.
2. Agreed departures from standard.
3. 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 DMRB. 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.

2.3 Departures from Standards (Eurocodes)

Departures from Standards (DfS) 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, if it is shown that the alternative rules comply with the relevant principles and are at least equivalent 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 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 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:

1. Proposed departure.
2. Reasons for departure.
3. Consequences of the departure, particularly any increases in risks or hazards.
4. A risk assessment for complying with the standard and one for the departure.
5. For bridges, normally all departures are to be agreed prior to the acceptance of the Approval In Principle (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:
 - a) Details of the materials used in construction and the supplier.
 - b) Requirements for future maintenance.
 - c) Any survey and geotechnical details undertaken on the site of the Structure,
 - d) Details of problems encountered during construction may have a long-term effect on the structure.
 - e) Any access arrangements for future maintenance.

- f) As-built drawings should be submitted electronically in the format of TIF, DXF or AutoCAD files.
- g) Design calculations: and Special arrangements required for demolition.

The above information will comprise the documentation to be provided under the CDM Regulations. In addition to the contents listed, the following documentation must be included:

1. All relevant documentation from the technical approval process.
2. Approval In Principle.
3. Design and Check Certificates.
4. Construction Compliance Certificate.
5. Copies of the accepted certificate by the Technical Approving Authority:
 - a) Appropriate certification of components, Vehicle Restraint Systems (VRS), quality assurance certification for reinforcement and concrete suppliers, waterproofing and other materials,
 - b) Certificates for any material or integrity testing undertaken, i.e., concrete cube results or integrity testing of piles,
6. Any residual risks or hazards within the structure, similar confined space, hazardous materials used in construction or hazards found within the original ground.

2.4 Statutory and other services

All new roads should be designed to accommodate services. Liaison is, therefore, needed with all statutory undertakers and communications providers at the earliest possible stage. This is to ensure that their equipment is installed in an efficient manner and as much as possible, to comply with the recommendations by [Streetworks UK](#) (Trade Association representing utilities and their contractors on street works' issues) including, but not limited to correct positioning, depth and colour coding.

Any utility equipment that is to be above ground such as a cabinet, box, or pillar should be sited so that it:

1. It is not a danger to the public or maintenance operatives
2. Is clear of any visibility splays
3. Is sited wherever possible at the back of the footway or verge. Where sited nearer a carriageway edge no less than the minimum required clearance distance should be provided.
4. Should not obstruct pedestrians, wheelers chair users, prams, or pushchairs. (The Local Government Association stipulates that footways should be wide enough to accommodate all users, including those with wheelchairs, prams, or pushchairs. A minimum clearance of 1.2 metres is recommended, increasing to two metres in areas with high pedestrian traffic to allow for safe passage and passage of two wheelchair users side-by-side).
5. Does not disproportionately offend visual amenity by restricting the outlook from windows of a house, intruding on areas of open plan front gardens or the line of low boundary walls

6. Does not result in visual clutter by being in an inappropriate place. Consultation is needed with the relevant Local Planning Authority especially if it is sited near a listed building or conservation area.
7. Access doors should always open onto the footway or verge. On footways the position of cabinets shall be such that a minimum distance of 1.2 metres between the edge of an open access door and the edge of the carriageway where pedestrian flows are low, or in areas where pedestrian flows are high the distance should be increased to two metres.

Worcestershire County Council may consider adopting any additional small areas so above ground apparatus can meet national requirements. However, if these requirements cannot be met within adoptable areas, developers should locate equipment such as cabinets, away from the proposed adoptable highway. This may then require an easement to allow Worcestershire County Council or the utility equipment providers future access in perpetuity to enter land not owned by them for specified purposes such as maintenance, readjustment, or relocation. Easements for any highway infrastructure intended for adoption by the Local Highway Authority which are outside of the adoptable areas, must be agreed with Worcestershire County Council and completed prior to any transfer of the land. All apparatus at the highway surface should:

- a) Be positioned so that there is enough access for the equipment and the surrounding area of the highway can be maintained and cleaned.
- b) Not to be located within any tactile paving.
- c) Allow space for associated jointing chambers.
- d) Take account of known highway alterations.
- e) Allow for future surfacing works.

Worcestershire County Council may consider adopting any additional small areas, so above ground apparatus can meet national requirements. However, if a developer cannot meet the requirements within adoptable areas, equipment such as cabinets should be located off the proposed adoptable highway. This may then require an easement to allow Worcestershire County Council or the utility equipment providers future access in perpetuity to enter land not owned by them for specified purposes such as maintenance, readjustment, or relocation. Easements for any highway infrastructure intended for adoption by the Local Highway Authority which are outside of the adoptable areas must be agreed with Worcestershire County Council and completed prior to any transfer of the land.

All apparatus at the highway surface should:

1. Be positioned so that there is enough access for the equipment and the surrounding area of highway can be maintained and cleaned.
2. Not be located within any tactile paving.
3. Allow space for associated jointing chambers.
4. Take account of known highway alterations.
5. Allow for future surfacing works.



Chapter 6: Planning for Parking

Streetscape Design Guide 2025

Worcestershire County Council

Chapter 6: Planning for Parking

1. Introduction

The guidance in the Streetscape Design Guide is provided for both residential and non-residential development, and functions as a means of ensuring that the 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 using modes of travel by walking, wheeling, cycling, or using public transport.

The under-provision of car parking can add to congestion and delays with unacceptable levels of on-street parking in some locations. This can create obstructions on the highway hindering access for other vehicles and especially for emergency vehicles. Therefore, the provision of minimum car parking standards is set as a benchmark to address these issues. Consideration should be made for the creation of underground parking in new parking areas to reduce the area of land required for development.

This Guidance should be read alongside the latest version of the Local Transport Plan (LTP) or South Worcestershire Development Plan (SWDP) 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 guide, justification should be provided. It will be for the Local Highway Authority to decide if this is acceptable or not. A list of minimum car and cycle parking standards adopted by the Local Highway Authority are set out in Appendix I.

The [National Planning Policy Framework 2024](#) (paragraph 112) states

“If setting local parking standards for residential and non-residential development, policies should take into account:

- a) the accessibility of the development.*
- b) the type, mix and use of development.*
- c) the availability of and opportunities for public transport.*
- d) local car ownership levels; and*
- e) the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles is essential.”*

Worcestershire County Council identifies ‘minimum’ car parking standards suitable for the transport characteristics of the county. For car parking bay specifications, we refer to the guidance published in 2016 by the British Parking Association called [‘Parking know-how, bay sizes’](#).

2. Residential Car Parking

For residential proposals (including houses, flats, holiday accommodation, yurts, campsites and apartments) car parking spaces provision is identified in relation to bedroom numbers. Minimum required residential car parking spaces within the curtilage of the property are set out in Table 1:

Table 1: minimum residential car parking spaces

Bedrooms	Minimum Required Car Parking 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, there is a minimum requirement of four spaces (since 2019).*

Key considerations for residential parking are as follows:

1. Garages are often excluded from car parking calculations because they can be converted into habitable space without requiring planning permission, but this depends on the specific context and local regulations.
2. A reduced parking standard may only be accepted for sites in 'highly sustainable' locations considered suitable by the Local Highway Authority and based on evidence presented by the applicant.
3. 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.
4. Undercroft car parking is possible if in private ownership. However, the design must be fit for purpose, noting that gate posts and drainpipes on the side of walls will also take up additional access width. The height of the undercroft will need to accommodate all suitable vehicle types expected to use the site. This includes access for refuse collection vehicles and emergency vehicles, subject to the wider sites design and considerations.
5. Tandem parking is restricted to two places only and is acceptable in suitable locations.
6. The minimum space for maneuvering between opposing parking bays is six metres.
7. For residential driveways that include car ports, additional width should be given to the vehicle space to allow for the positioning of posts. The Local Highway Authority will require evidence to support such a provision.
8. If a parking space is located against a wall or other boundary structure, additional parking width should be provided to ensure people are able to exit and enter vehicles.
9. A minimum of six metres is required in front of a garage door (typically on a driveway) to ensure that when the garage is opened, a vehicle does not require overhang into the adjoining carriageway / footway.

2.1 Residential Car Visitor Parking

Visitor spaces are not a requirement for residential sites.

There will be residential sites where no on-street parking restrictions are provided. In these locations, it is acknowledged and accepted that there will be occasional and short-term parking occurring on - street, related to infrequent visitors, deliveries, etc. The site design will ensure that these are appropriate for the carriageway, for the volumes and type of traffic anticipated to use the site.

Where existing street demand, or parking restrictions prevent this, off-road visitor and delivery parking provision should be made at a ratio of one space per five residential units.

Any planned kerbside parking on-street should be provided at a minimum of 2 metres x 6 metres.

2.3 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. Minimum parking standards for HMO's are shown in the table 2 below:

Table 2: HMO car parking spaces

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

Key considerations for HMO parking include:

1. An HMO is expected to provide full, in-curtilage parking provision in line with the above table.
2. Exceptions will only be considered at the discretion of the Local Highway Authority where the applicant can demonstrate with sufficient evidence that changes to the above requirements would not result in detrimental highways conditions i.e. congestion, parking availability, safety for residents, businesses, site occupants and road users.
3. For clarity, HMO parking provisions include allowances for visitors.

3 Non-Residential Parking

Non - residential development includes a wide range of development types i.e. education, health, industry, retail, etc.

An end user of these types of development may be best able to identify their operational parking needs on site, but parking provision must still reflect the land use classification of the proposals and

their size. It is on this basis that the Local Highway Authority identifies minimum car parking standards, which must be applied to new developments. See Appendix I.

Key considerations include:

- For non-residential development, there is a requirement to secure motorcycle parking. The ratio is one space per ten car parking spaces, with a minimum provision of one space. Please see Appendix I.
- Should a development be sufficiently bespoke or fall outside this list of land use classifications, the Local Highway Authority will need to determine parking provision 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.

4 Car Parking Free Development

A car parking free development is only accepted in appropriate urban centre locations or close to major public transportation interchanges.

However, it is accepted that even in car parking free developments, residents still have the potential to own a vehicle and require parking. Unfortunately, in these situations, car parking often takes place on the public highway, which can often lead to increased conflict with other road users, congestion and safety concerns for the highway network. Therefore, care must be taken to ensure that car parking free sites are positioned in areas where appropriate infrastructure and local amenities are available, allowing for a range of alternative modes of travel to the private car.

Where car parking free development is proposed, applicants will be required to submit all of the following information to the Local Highway Authority in support of their application:

- Details of key local amenities within a convenient walking distance of the development.
- Details regarding all of the existing and any proposed alternative travel modes to and from the development, including active travel routes (walking, wheeling and cycling). This should include an audit of available routes, the destinations they serve and journey times.
- Details of existing and proposed public transport services, routes (bus and rail) and their frequency. This must be practical and convenient to enable residents (and employees) of the development to access services such as places of work, education, leisure, retail, etc.
- A Travel Plan for the proposed development, which should look at opportunities to maximise the use of alternative modes of travel to the private car. Where appropriate, options could include car/ bike-sharing and other micromobility initiatives.
- Details of how servicing and delivery vehicles will serve the site, acknowledging that at times, there will be a requirement for access by these vehicles.

- A review of car parking opportunities and availability within 300m of the proposed development. This should be supported with a wider audit (including availability) of designated public car parking provision and on-street parking, including restrictions.

The Local Highway Authority will discuss and determine the suitability of parking free development upon the submission of this information.

5. Car Clubs

Car sharing schemes or car clubs can provide many travel and economic benefits to residents as an alternative to private car ownership. Car sharing clubs are becoming increasingly popular for new residential developments but need to be economically viable.

A development of at least 100 units is considered to be a viable economic threshold for car clubs, though this does not mean that they are unsuitable for smaller developments, particularly if the scheme can be extended to neighbouring buildings or wider community.

Developments should be designed to facilitate car clubs either now or in the future. They should also be responsive to changes in local car-driving and car-ownership dynamics, offering the opportunity to change on-street parking spaces to car-club spaces with ease and without detriment to the streetscape.

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

6. Electric Vehicle Charging Requirements

Section 117 (e) of the NPPF states that applications for development should be designed to enable the charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations. Where Electric Vehicle (EV) charging points are installed, they need to be accessible for disabled motorists.

The technical requirements for EV charge points, for both residential and non-residential developments are set out in Building Regulations, in the following document: [The Building Regulations 2010- Approved Document for Infrastructure for charging electric vehicles.](#)

For all new residential developments (including new static home developments), every new home with on-site parking must have access to an EV charge point.

Residential buildings undergoing major renovation, which includes ten or more parking spaces after the renovation is complete, must provide an EV charge point for each dwelling. There is also a requirement to ensure that all parking spaces have the potential to be upgraded to an EV charging space in the future, with cable routes provided in all spaces without charge points.

For non-residential sites, EV parking should include 10% of the site's total car parking requirement, although different requirements may also be identified and requested by District/Borough Councils. In addition, a minimum of one accessible EV charging space should be provided for non-residential site visitors, compliant with PAS1899.

For full details, see [Building Regulations: Infrastructure for Charging Electric Vehicles](#). Please note that other legislation may also apply to the installation of electric vehicle charge points. For example, [The Alternative Fuels Infrastructure Regulations 2017](#).

7. Blue Badge Holder Parking

For non-residential developments, consideration and provision must be given to Blue Badge holders. Parking ratios are set out in Table 3:

Table 3: Blue Badge Bay provision

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 two blue badge spaces.

Applicants should look to:

1. Minimise the distance from blue badge spaces to a building's accessible entrance.
2. Make sure parking spaces have an accessible route to footways and entrances, using dropped kerbs, tactile paving, ramps, etc.
3. Avoid the placement of bollards and street furniture which would obstruct routes to and from the parking space.
4. Show clear signage and markings for the spaces where appropriate.

8. Cycle Parking

For cycle parking, Worcestershire County Council prioritises accessibility, security, and convenience for cyclists. Parking requirements vary in relation to the type and scale of development proposed. In all situations, effective cycle parking design prioritizes safety, security, convenience, and visibility:

- Conveniently located. In a position that is closer, or at least as close, to the nearest available car parking space.

- Cycle parking should be visible and overlooked in public view, or covered by security measures such as CCTV, or located within a designated room or a cage with an access code.
- Sheltered, especially if long stay parking.
- Well maintained.
- Lit at night.
- With ample space for maneuvering and locking bikes securely.
- Allow for locking both the frame and the wheels.

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

Worcestershire County Council adopts minimum cycle parking standards for each land use. Full car and cycle parking (minimum) standards are set out in Appendix I.

Further information and wider details regarding cycle route design can be found in [LTN 1/20 - Cycle Infrastructure Design and guidance](#) for designing high-quality, safe cycle infrastructure.

8.1 Residential Cycle Parking

Cycle parking is a requirement for new or extended residential dwellings, encouraging sustainable commuting and promoting cycling as a convenient mode of active travel. Therefore, the following considerations apply:

- Secure bicycle and e-bike storage in residential developments can be achieved through a variety of solutions, but must provide protection from theft, the weather and vandalism.
- Consideration should be given to cycle parking being placed close to access points of the property.
- Cycle parking within an appropriate rear garden building is acceptable if the route between the building and front of the property is useable, direct, free from obstruction and as short as possible. A route that requires a person with a bike to negotiate 90-degree bends via a narrow alley or requires them to travel through a series of gates, would not be acceptable. A requirement to take a bike through the dwelling to reach the garage or garden is also not acceptable.

Garages can be used for bicycle storage, where these have a minimum internal dimension of 6 metres x 3 metres.

For residential dwellings, minimum cycle parking requirements are shown in table 4 below:

Table 4: Land use classification for cycle parking provision

Land use class	Description	Cycle parking provision
C3	Residential (1 bedroom)	1 space per bedroom

C3	Residential (2-3 bedroom)	1 space per bedroom (2/3)
C3	Residential (4-5) bedroom	3 spaces for 4 bedrooms and 4 spaces for 5 bedrooms
C3	Residential (6+ bedrooms)	5 spaces for 6+ bedrooms

All cycle parking standards are set out in Appendix I.

8.2 Longer Term Cycle Parking

There are locations where a cyclist may need to leave a bike for a longer period, potentially overnight and for multiple days or weeks. These might include public transport interchanges, workplaces, college and university grounds, holiday or event locations, etc.

Cycle parking in these locations might be best combined with changing rooms, showers, lockers and other amenities for cyclists. They may play a wider role, providing a centralised facility that provides various services and amenities for cyclists, including repairs, information on routes, cycle hire, etc, acting as more of a cycle or mobility hub.

Leaving cycles for extended periods of time necessitates further consideration of the safety, security, and protection of cycle parking facilities. Considerations for long-stay cycle parking include:

- Long-stay cycle parking should be in an accessible location, but attention is needed to degree of security to reduce the risk of vandalism in public space.
- Greater provision of surveillance measures.
- Well-lit for 24-hour access and to discourage theft and antisocial behavior.
- Greater degree of security, such as more impenetrable locking mechanisms or cage-like surroundings.
- Protection from the elements (UV exposure, wind, rain, and associated corrosion risk) afforded by entire enclosure or shelter.
- Proximity to shower and personal storage facilities (or inclusion of these into design of long-stay cycle parking).

For clarification, the provision of long-stay cycle parking at ‘workplaces’ refers to areas with a high employment density, be it a retail or business parks, office complex, etc rather than individual workplaces.

8.3 School Parking Provision

Parking around schools and other education institutions can cause safety hazards and traffic congestion. Parking areas should be designed to minimise movement conflicts and ensure pedestrian safety at a priority. In addition to parking, areas will need to be designed for short-term drop-off and pick-up movements, but in locations that do not impede other traffic on the highway network.

Educational institutions may need to allocate separate parking areas for staff and students, with varying demands throughout the day, with primary, infant and junior schools providing both cycle and scooter parking. Access for coaches, buses or taxis to safely drop off pupils, particularly those with Special Educational Needs or Disabilities will also need to be considered.

It is important to consider the means of separating student and staff access from vehicular circulation, delivery areas and parking for safety reasons.



Chapter 7: Planning for Passenger Transport

Streetscape Design Guide 2025

Worcestershire County Council

Chapter 7: Planning for Passenger Transport

1. Aim

Efficient and affordable passenger transport services are needed to provide essential access to employment, education, healthcare and to other vital services, ensuring everyone can participate fully in society. Efficient public transport can also reduce congestion, lower emissions, improve air quality and contribute to a healthier and more sustainable environment.

The Streetscape Design Guide prioritises the needs of pedestrians, wheelers, cyclists and public transport over cars for shorter journeys in the design of developments. Therefore, the provision of local bus services is important, and Worcestershire County Council recognises and supports the requirement for bus and highway infrastructure for delivering connectivity between new developments, urban centres, major employment sites and other prominent generators of local trips.

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

Several factors can detrimentally affect the operational efficiency of a bus service. These include traffic congestion, inadequate infrastructure, inefficient route planning, and poor parking provision in a development that may obstruct a route (see Streetscape Design Guide Chapter 6 for Planning for Parking).

To strengthen the commercial viability of passenger transport networks, a developer should prioritise creating a development that actively encourages and facilitates the use of public transportation. This involves ensuring the development is well-connected to existing transport options, making it convenient and attractive for residents and visitors to choose public transport over private vehicles. Encouraging sustainable travel choices should include the following important considerations:

1. Quality infrastructure such as secure bicycle storage, well designed bus stops and real-time public transport information with up-to-date timetables to limit wait times, ensure passenger comfort, and assist with journey planning.
2. Developments should be planned with an integrated approach to transport, connecting different modes (e.g., bus, train, bicycle) seamlessly.
3. Developers should engage with the local community to understand their transport needs and preferences.

Developers will be expected to consider passenger transport access at an early stage in the development process, and where relevant, set out a costed passenger transport access strategy for their proposed development.

2. Bus Routes

Public transport hubs should also be easily accessible on foot, wheeling mode and by bicycle with excellent interconnectivity.³

For bus infrastructure, the position of Worcestershire County Council is aligned with national and local policy as stated below:

- [The National Planning Policy Framework \(NPPF\) 2024](#) (paragraphs 17, 29 and 34), steers development towards promoting its connectivity with sustainable transport to facilitate sustainable development and contribute towards wider sustainability.
- The NPPF (paragraphs 37, 38, 58 and 70) also promotes the integration of planning and sustainable transport to provide attractive alternatives to travelling by car. This is important to provide people with a choice in how they travel to access employment, education, health facilities, leisure, and amenities.
- Worcestershire County Council requests provision and/or improvements to local bus services in association with new development in alignment with the policies established in [Worcestershire County Council's Local Transport Plan \(2018 – 2030\)](#) in respect to promoting public transport connectivity between new development and local amenities; and

3. Bus Service Improvement Plan (BSIP)

Worcestershire County Council has produced a single [Bus Service Improvement Plan \(BSIP\)](#) covering the full extent of its area. The BSIP sets out the Local Transport Authority's ambition to promote the use of buses across the county.

The BSIP consists of several core principle themes as follows to:

1. Increase the frequency of services on Worcestershire Strategic Network
2. Increase service level patterns to meet the needs of residents
3. Provide alternative forms of transport where normal modes are not cost effective
4. Review current Worcestershire fare structures and consider simpler and lower fare structures
5. Progress to a consistent, uniform, accessible and quality provision of bus infrastructure
6. Provide a safe and secure environment to travel; delivery of next generation mobility hubs to integrate alternative service provision and active travel with local bus services
7. Address operator congestion and pinch-points that can impact bus services.

³ Please see Chapter 2 for design considerations for Active Travel in accordance with LTN/120.

Worcestershire County Council recognises that ensuring direct, fast, reliable, and punctual bus services are critically important if passenger transport is to offer credible travel options as an alternative to using private vehicles.

4. Bus stops and infrastructure

Bus stops and infrastructure such as bus shelters should prioritise accessibility, safety and passenger comfort, whilst ensuring efficient bus operations. This would mean having a development close to or served by a main road or spine road. If only one point of vehicular access is provisioned into a new development, it is unlikely that the bus service will consider it viable, unless the proposal represents a major bus trip generator.

Worcestershire County Council will consider the bus stop infrastructure at each site on a case-by-case basis, including the frequency and type of services planned for that development. The provision and location of bus stops should be planned at an early stage to ensure bus stops are not placed in hazardous areas on the network. Therefore, the following points should be considered:

4.1 Bus stop locations

- Worcestershire County Council proposes a mean average walking distance of 400 metres to the nearest bus stop for all properties within a development. The routes to the bus stops should be safe, direct, convenient, and accessible for people of all abilities.
- However, longer walking distances may be required in rural areas where bus stop provision is less frequent. Distances of up to 800 metres will be considered where a high-quality, direct, and level route is provided to the nearest bus stop if a mean average distance of 400 metres is not possible.
- This distance is to be measured accurately from the front door to a 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.
- Parking provision in a development must be carefully designed to ensure there are no obstructions to cause a 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.

4.2 Bus Route Designs

- 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.
- 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 bus turning facilities should never be required.

4.3 Accessibility

- Bus stops should be located on a footway. The footway width behind the bus stop should be a minimum of 1.5 metres or 2 metres for high footfall areas and be designed to be accessible to people with wheelchairs, mobility scooters and other mobility aids.
- The bus stop must be clearly marked on all plans, well in advance of construction and brought to the attention of potential householders, to avoid any problems when a bus service starts later than initial occupations.
- Bus stops provided on, or adjacent to existing highway networks should be placed as close as possible to existing footways which provide access into the development.
- Bus shelters should provide a comfortable waiting area and be designed for easy access, visibility to the bus with clear information. It should have a non-slip and well drained surface.
- For new bus shelters that are to be put forward for adoption by Worcestershire County Council, a Commuted Sum may be sought from developers to support ongoing maintenance of this infrastructure asset. At some bus stop locations, the provision of new cycle parking, to encourage 'cycle & ride', may be appropriate, but these plans must be discussed and agreed with Worcestershire County Council in advance. Full details of the bus shelter maintenance policy can be found in the [Transport Asset Management Plan](#).

Large-phased developments (residential and employment) require careful planning for public transport, including bus services, to ensure the area remains accessible and sustainable. Bus services can be integrated into the development in many ways, including extending existing routes, adding new ones, and implementing bus priority measures such as bus lanes or dedicated bus routes. Where bus routes are proposed to operate through developments, these should be agreed in advance with the proposed bus operating company, and should offer direct, unimpeded access through the site to minimise any impact on journey times.

A developer contribution for bus infrastructure may be required to help fund improvements or enhancements to the public bus network, typically as a condition of a planning permission. This funding helps mitigate the impact of a development on the local bus service, ensuring it can accommodate the increased demand generated by the development.

5. 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 Local Highway Authority to provide Home to School transport. In cases where there is such a duty to provide transport, Worcestershire County Council will provide this free of charge. Pupils can also be awarded transport assistance, as appropriate, for the needs identified within their Education, Health and Care (EHC) Plans. 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 Section 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.

6. 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.

7. 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 [Network Rail](#). Worcestershire County 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 at the earliest opportunity.



Chapter 8: Planning for an Adoptable Highway

Streetscape Design Guide 2025

Worcestershire County Council

Chapter 8: Planning for an Adoptable Highway

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 278 and Section 38 (Highways Act 1980) Highway Agreements.

2. Technical Assessment

2.1 Statutory Consultee responsibilities

Worcestershire County Council, as a statutory consultee for Highways Development Management, participates in the approval process of any planning application received.

When considering any development proposals, Worcestershire County Council aims to ensure that all new developments in the county are assessed in terms of their safety and impact on the roads and highway network in accordance with the [National Planning Policy Framework \(NPPF\)](#) published in 2024 and local planning policies.

Worcestershire County Council as the Local Highway Authority and acting as a consultee on a planning application, typically has 21 days to respond to the Local Planning Authority (LPA). This 21-day period is a standard consultation period, and it is usually included within the overall determination period for the planning application, which is 8 weeks for most applications and 13 weeks for major developments. The LHA may respond in three ways to a consultation:

1. To request a deferral for further information to clarify the proposals or resolve highway concerns.
2. To respond with no objection to the proposal subject to planning conditions.
3. Recommend the application is refused on the grounds of highway safety.

The Local Planning Authorities are responsible for deciding whether to grant permission for the proposed development.

2.2 The Adoption Compliance Audit (ACA) for Section 38 Legal Agreements

Following the granting of planning permission, any new roads to be offered for adoption will require an Adoption Compliance Audit (ACA). This is a precursor to the Section 38 process and is not subject to repeated reviews.

The ACA is offered primarily to highlight issues which may arise during the detailed design process of the new roads to be offered for adoption. These issues would not necessarily become known during the assessment of the preliminary designs submitted as part of the planning application submission.

The ACA process will enable a more rigorous assessment of the new roads offered for adoption submitted as part of the planning application. It should also give developers greater confidence that their proposals comply with Worcestershire County Council's specification for adoption.

2.3 Early Technical Assessment (ETA) for Section 278 Legal Agreements

The ETA of off-site highway works is normally undertaken while the planning application is being determined as a precursor to the Section 278 process. This is not subject to repeated reviews.

The ETA is offered primarily to highlight issues which may arise during the detailed design process of the proposed off-site highway works. These issues would not necessarily become known 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. This should give developers greater confidence that their proposals are deliverable in compliance with both National and Worcestershire County Council's design specifications.

Although not a statutory requirement, Worcestershire County Council strongly encourages developers to make use of the ETA where they propose significant alterations to the publicly maintained highway, as part of their development proposals.

2.4 Technical submissions

All drawings and plans must be drafted by a suitably qualified and competent highway consultant appointed by the developer who must have knowledge and experience in comparable highway design and construction. The following points apply:

1. All technical submissions will be subject to an online registration process. The Technical Audit of the submission will not commence without all the information required, as specified in the application process.
2. Incomplete submissions will not progress beyond the registration stage (Validation) if there is missing information.
3. The initial technical submission will need to be supported by a Design Report which discusses all the design elements of the scheme. This includes horizontal and vertical alignment, drainage, and junction control etc. their relevant merits and justifies their use within the submitted design. The Design Report 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.

- A Stage 2 Road Safety Audit (RSA) will also be required as part of the initial technical submission. Worcestershire County Council reserve discretion to require updated Stage 2 Road Safety Audits where the scheme evolves significantly through the design process, or where additional information is submitted that was not considered within the initial Stage 2 Road Safety Audit.
- The developer will be required to obtain Land Drainage consent from the relevant body and enter into a formal agreement with the relevant Local Water Authority or equivalent statutory body. This will be in respect of sewers and pumping stations in accordance with the [Water Industry Act 1991](#). Before the highway agreement can be signed, adoption certificates for the drainage and sewers within the works need to be provided.
- Private services or utility infrastructure within the publicly maintained highway is not accepted by Worcestershire County Council. The inclusion of private infrastructure within a highway will result in the highway not being adopted.
- Where works are proposed on the publicly maintained highway, details of existing utility equipment will need to be provided with the initial submission. As the scheme progresses, further investigations may be required, including radar surveys and trial holes. If utility equipment needs to be diverted to facilitate the delivery of the works, the developer will need to provide written confirmation from the respective utility company that the diversions and associated costs have been agreed. The costs of diversions will be included within the Bond calculation unless the developer can provide written confirmation that the costs have been paid in advance of issuing legal instruction.

Each Technical Assessment conducted by the Local Highway Authority or its consultants acting on its behalf and returned to the developer will be accompanied by a Comment Summary. This 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 the 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 if required to address 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. It is recommended that a meeting is held to discuss the content of each technical assessment. However, after the issue of a second

technical assessment, a progress meeting will have to take place and failure to attend will prevent the registration of any further submissions.

Technical Approval is only valid for a period of 12 months from issue. Where a developer commences the legal process 12 months or more after technical approval. The approval will require a review to accommodate any changes in standards, specifications or legislation, and the Bond value will be recalculated, and additional fees may be charged.

3. Booking Road Space

Where proposals require works or traffic management on the public highway after obtaining the works license (e.g.s278 agreement), the developer or their contractor will need to prepare and submit a Risk Assessment and Method Statement (RAMS), alongside a Works Programme and Traffic Management proposals certified by an accredited TM Practitioner (National Highway Sector Scheme - Section 12D or NRSWA), for the delivery of the works for approval by Worcestershire County Council.

These proposals will be processed in the same iterative process as for other technical submissions. They will need to form part of the application for road space for the appropriate Permits. The application process for Section 278/ Section 184 road space is available online via Worcestershire County Council's website [Application for development agreements, consent or work licenses](#), where further details regarding timelines, fees and pre-requisite information can be obtained. Developers, alongside their contractors, are encouraged to commence this process as soon as they are able. There are lead-in periods that will need to be planned before booking road space. For example:

- There is a 3-month lead-in time for legal orders (road closures/ temporary speed limits)
- Section 58 final surfacing protection and for Major Works (more than 10 days in duration).
- Applications for Section 278 / Section 184 road space cannot be authorised unless there is a signed Section 278/ Section 184 agreement.

Works must not take place on the public highway without a relevant road space license.

Subject to agreement with Worcestershire County Council, some minor works affecting the public highway can be undertaken via a Section 171 License rather than a full Section 278 Agreement.

4. Street Lighting

Whilst there are no statutory requirements for street lighting in the public highway, Worcestershire County Council invites planning applications that provide street lighting in line with the processes and requirements set out in Chapter 9 Streetlighting.

The guidance aims to help designers provide sustainable highway lighting schemes which promote highway safety, minimise energy consumption (helping to achieve net zero), and limit the impact on the environment and adjacent property.

The street lighting guidance is in two stages:

1. An assessment of the feasibility of street lighting during pre-application consultations and the planning application process.
2. The detailed design stage following the award of planning consent.

Worcestershire County Council has a net zero emissions target to reach net zero by 2050 from its own operations and activities, including Worcestershire County Council owned and operated street lighting.

5. Fees

Information about making a Section 278 application and our fees are published separately on [Worcestershire County Council's website](#). For a Section 38 application, information is also available on our [website](#).

The developer will also be responsible for payment of all additional fees incurred by Worcestershire County Council for consultancy design checks and audits, procured by Worcestershire County Council, as considered appropriate for each Section 38 or Section 278 proposal which may include, but are not limited to:

1. Street lighting design.
2. More extensive or complex highway designs (e.g., larger new Section 38 highway layout, major highway junctions including traffic signal installations and roundabouts).
3. Street tree schemes and associated works design (e.g., species selection, placement, establishment, root containment, protection).

6. Site Inspections Highway Drainage

The developer is responsible for the day-to-day supervision of the Works and setting out Section 38/Section 278 Works, until the issue of the Final Certificate of Completion (FCC). A Worcestershire County Council Inspector will be responsible for ensuring the works comply with our Specification and agreed Traffic Management (Section 278 only).

The developer/contractor must facilitate unrestricted access to the works for Worcestershire County Council's representative for the purpose of inspecting the Section 38/ Section 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, 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 is likely to result in the developer being required to reconstruct defective area(s) of the Section 38/Section 278 works (a Defective Works Requirement). Every additional inspection to check compliance with a Defective Works Requirement will be subject to a fee.

6.1 Maintenance Status

If a new road is constructed and the public are invited to use without restriction (unregulated, i.e., not gated, or subject to permission granted by the landowner which can be withdrawn at any time) then it becomes highway, maintainable by a person or company (details Worcestershire County Council do not hold), but not necessarily one maintainable at the public expense (publicly maintained highway). If it is a private, unadopted road, Worcestershire County Council has no obligation to repair or clean it even if it includes a public right of way to which highway and traffic law can be applied.

For sites which are the subject of a Section 38 agreement the developer of the site is expected to fulfil the role of Street Manager in accordance with Section 49 of the New Roads and Street Works Act 1991 and any statutory modification or re-enactment thereof until such time as the road or roads become publicly maintained. Until roads are adopted, the developer and/or an appointed management company remains the streets works manager. Their responsibilities include all legal responsibilities and liabilities in respect of other users' 'slips,' 'trips' and 'spills.'

7. Surety

The developer will be required to provide a financial surety to ensure that there is adequate provision to allow the Section 38/Section 278 works to be completed in default of the developer's obligations under the Section 38/Section 278 Agreement. This may include unfinished or defective works.

The amount to be secured must be equal to the total cost of Section 38/Section 278 Works as determined by Worcestershire County Council. The surety may be in the form of:

- A Bond in Worcestershire County Council's agreed format with a reputable financial institution (Bank/Insurance company) approved by Worcestershire County Council. The financial institution will need to demonstrate a Credit Safe Rating of 'A' or higher for a UK registered company or establishment or UK registered subsidiary, for a period of no less than 12 months prior to application and that the Bond sum must not equate to more than 10% of the surety's turnover.
- A deposit of the equivalent sum deposited with Worcestershire County Council until issue of the final certificate of completion of Section 38/Section 278 works. In the case of a Section 278 Agreement where a Bond is provided, the surety may be a party to the Agreement.

8. Constructing the Works

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

1. The Section 38/Section 278 Agreement has been approved.
2. An acceptable form of the financial surety has been provided.
3. All fees have been paid.

4. Written notification has been provided with the developer's intention to commence construction by giving at least three months' notice (to comply with the requirements of the Traffic Management Act 2004).
5. Details of the appointed contractor for Worcestershire County Council to validate its suitability to conduct Section 38/Section 278 Works. Accreditation via Construction Line, CHAS or similar organisation will be required.

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. This may 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.

9. Highway Enforcement

Worcestershire County Council is the Local Highway Authority for the purposes of the Highway Act 1980. Section 130 of the Act that states:

'Local highway authorities are under a duty to assert and protect the rights of the public to use and enjoy those public rights of way for which they are responsible. They also have a duty to prevent, as far as possible, the stopping up or obstruction of those highways. Local highway authorities are also able to safeguard public enjoyment of highways for which they are not responsible and to prevent the stopping up or obstruction of such highways where this is prejudicial to the interests of their area.'

Works on the public highway cannot take place until a Legal Agreement under Section 278 of the Highways Act 1980 has been approved. The application needs to comply with the requirements of the New Roads and Streetworks Act 1991 (NRSWA) and the Traffic Management Act 2004. The person or organisation making an application will need to apply directly to the Street Works team at Worcestershire County Council as the Local Highway Authority to apply for road space for a period to be agreed.

The Act contains provisions enabling a Local Highway Authority to deal with various encroachments, obstructions, and unlawful interferences. Each provision prescribes action that a Local Highway Authority may take where the provision applies. Common Law exists to enable the Local Highway Authority to remove or reduce obstructions and nuisances under Section 333 of the Act. For more general information on some of the powers available to Local Authorities regarding Highway Enforcement (not an exhaustive list) go to Appendix K.

10. Timescale for completing the works

All Section 278 schemes must be completed in compliance with the agreed Works Programme. Once works have commenced on site they must be completed to Worcestershire County Council's satisfaction within a reasonable time.

11. Issuing a Provisional Certificate

The developer must supply the following prior to issue of the Provisional Certificate of Completion (PCC) to the satisfaction of Worcestershire County Council:

- a) All As-Built Drawings
- b) Health and Safety File
- c) Stage 3 Road Safety Audit (RSA3) and Designer's Response
- d) Electrical Test Certificates
- e) Details of underground apparatus
- f) Completed Construction Proformas
- g) Factory Acceptance Test/Site Acceptance Test Certificates
- h) Calibration Report
- i) Microprocessor Optimised Vehicle Actuation (MOVA) Validation
- j) CCTV surveys of all highway drainage (gullies, laterals, and numbers gully log) infrastructure, including elements covered by Section 104

Once the above information has been received and Section 38/Section 278 Works have been completed in accordance with the approved drawings (including compliance with any Defective Works Requirements) to the satisfaction of Worcestershire County Council's Engineer, a Provisional Certificate of Completion (PCC) will be issued, and the designated maintenance period can commence.

The PCC must be formally requested in writing by the developer from Worcestershire County Council's Engineer.

12. Inspection Process following request for Provisional Certificate

As soon as it is reasonably practicable, the Local Highway Authority will undertake an inspection of the Section 38/Section 278 Works and produce and supply a Defects List to the developer.

The developer will have three months from the date of receipt (or such other period as notified in writing by the LHA) to complete the works as identified on the Defects List (The Defect Works).

When the LHA is satisfied that all works identified have been conducted in accordance with the Section 38/Section 278 Agreement and Worcestershire County Council's specification or as otherwise directed as above, then the Provisional Certificate of Completion (PCC) will be issued. This period denotes the start of the maintenance period. At this stage, the Bond supporting the Agreement would then typically be reduced to 50% of its original value. The developer will remain fully responsible for maintaining the works until a Final Certificate of Completion (FCC) is issued.

The issue of the Provisional Certificate of Completion will constitute the road being 'first open' to the public traffic for the purposes of Sec. 1(9) of the Land Compensation Act 1973. The Section 38/Section 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.

Where a developer has pre-commenced work on highways to be included within the Section 38 agreement, we will consider the imposition of a 36-month maintenance period. Even though a road is 'open to public traffic' it will not, in respect of 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 conducted, the works will not be deemed to form part of the publicly maintainable highway until the issue of the Final Certificate of Completion.

13. Defects, Default Works and Notice to Surety

If the requirements (the Default Works) have not been completed as set out above (or due to circumstances such as non-cooperation or the developer company not operating), the Local Highway Authority with advice from the authority's Legal Services, will pursue legal options for ensuring the works are completed satisfactorily.

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

In respect of In the case 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 our 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 Default Notice will require the Surety] or Bondsman to pay the Default Costs and upon receipt the County Council will apply the sum(s) set out in the Default Notice to carry out the works specified in the Default Notice as appropriate];

or In the case of the financial surety being in the form of a cash deposit lodged with Worcestershire County Council, send to the developer a Notice in writing ("the Default Notice") specifying the work to be carried out, containing an estimate by our 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.

14. Commuted Sums

Commuted sums are financial contributions made by third parties such as developers, to the Local Highway Authority as compensation for taking on the future maintenance responsibility and costs for newly created highway infrastructure assets either through new highways or highway improvements arising from development adopted by the Local Highways Authority. Commuted sums are usually secured through Section 38 and/or Section 278 legal agreements made with developers and landowners.

Information about Commuted Sums is published on Worcestershire County Council's website and will be reviewed and updated annually.

15. Issuing a Final Certificate of Completion

At the end of the maintenance period the developer must request the Final Certificate of Completion (the Final Certificate) from the Local Highway Authority in writing. Copies of as-built drawings will also need to be supplied at the time the request is made.

16. 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.

The Final Certificate of Completion will be issued when the Local Highway Authority's Inspector is satisfied that all works identified have been conducted in accordance with the Section 38 / Section 278 Agreement, and Worcestershire County Council's specification or as otherwise directed.

The issuing of the Final Certificate signifies Worcestershire County Council's adoption of Section 38 / Section 278 Works. Any roads open to public traffic, forming part of 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 conducted 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 section 13 entitled 'Defects, Default Works and Notice to Surety' above.

17. 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.

18. How to apply for Section 278 and/or a Section 38 Legal Agreement

All developer applications for a Section 278 and/or a Section 38 Legal Agreement should be made online through the [Worcestershire County Council online developer portal](#).

If you are unable to make a submission online, you will need to request an electronic form and return it to Worcestershire County Council. Developers or agents may email the County Council with the site name and address in the subject line. Once completed, the form will need to be saved as a PDF and returned by email to: s278ands38@worcestershire.gov.uk

However, if requested and applicable, should a developer or agent require a printed form, then this should be made in writing to:

Section 38/Section 278 Development Control,
Directorate of Economy & Infrastructure,
Worcestershire County Council,
Wildwood, Wildwood Drive,
Worcester, WR5 2QT

For further information regarding Section 38/Section 278 Agreements, please contact the team directly as follows:

Email s278ands38@worcestershire.gov.uk

Telephone number 01905 844053



Chapter 9: Streetlighting

Streetscape Design Guide 2025

Worcestershire County Council

Streetlighting

1. The Aim

The aim of this chapter is to provide guidance to enable promoters of schemes to prepare street lighting designs. It is important to first determine whether there is a need to light or not and to then address the specific requirements of Worcestershire County Council (WCC) in the form of a submission. This chapter should be read in conjunction with the other chapters in the Streetscape Design Guide (SDG) and Worcestershire County Council's Highways Specification.

This chapter is to provide guidance to assist with:

- Clear decision-making and application of Construction Design and Management (CDM) regulations.
- Meaningful consideration of street lighting requirements.
- Open communication about interaction with legislation and potential constraints during Planning Application discussions and the Planning Application process.
- For the developer to deliver sustainable highway lighting schemes which promote highway safety, minimise energy consumption and associated maintenance costs, whilst limiting the impact on the environment and adjacent property.
- Detailed design of highway lighting schemes to the appropriate standards.
- To encourage timely approval of Section 278 and Section 38 proposals and their future adoption.

All submissions will be subject to review by Worcestershire County Council as the Local Highway Authority. The outcome of that review and the decision based on the review will be deemed final and binding.

2. Background

Worcestershire County Council currently owns and maintains circa 69,500 illuminated assets. This includes streetlights, illuminated signs, bollards, and traffic signals. This quantity of assets increases year-on-year due to ongoing development within the county and the addition of new infrastructure.

Street lighting accounts for a significant amount of Worcestershire County Council's own absolute carbon dioxide emissions. Most of the street lighting emissions can currently be offset because Worcestershire County Council procure 100% Renewable Energy Guarantees of Origin (REGO) accredited electricity.

Worcestershire County Council invested in energy efficiency measures in line with the Council's own Net Zero Carbon Plan. Overall, this is seeing a significant reduction in energy consumption and direct carbon emissions despite additional assets being added through development.

3. Introduction

This chapter is split into two distinct parts:

- An assessment of the feasibility and scope of street lighting during pre-application consultations and the planning application process.
- The detailed design stage following the award of planning consent.

The processes detailed within the document aim to encourage open and collaborative decision-making and promote good record keeping of design decisions to create efficient and consistent lighting installations across Worcestershire.

With reference to the relevant British Standards and other publications, this document should assist with the design process and enable the production of appropriate and justifiable designs.

There is a wide range of ecology, (including protected species) and sites worthy of conservation within the county. Therefore, all feasibility assessments and detailed designs should give full regard to the biodiversity duty placed on public bodies and statutory undertakers by Section 40 of the [Natural Environment and Rural Communities Act 2006](#) (NERC Act 2006). This states: *"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."*

The Crime and Disorder Act 1998 places a duty on Local Authorities and the Police to ensure that community safety is considered in all developments, and this is, therefore, an important consideration in the design of the highway. To comply with Worcestershire County Council's obligations under the Act, the applicant will need to demonstrate how they have considered the effect of the highway lighting design upon crime and disorder. This document applies to developments of seven or more properties. If your development is less than seven, then you must evidence what the development is for, and evidence any potential environmental impact of artificial light at night. The aspirations of the relevant Parish will need to be considered through consultation within the feasibility study.

Part 1

1. Preliminary Design/ Feasibility

The Worcestershire County Council Street Lighting Team is an essential internal consultee to understand the light impact on all Pre-Planning Applications and Planning Applications. Early involvement with the Street Lighting team should provide applicants with a defined scope of private or adoptable exterior lighting. Where a development proposes private lighting, this will enable positive outcomes to reduce its impact on the local environment. Where a development proposes adoptable street lighting, this will expedite the detailed design process during the assessment of Section 278 and Section 38 proposals.

All Designers will need to submit a Street Lighting Feasibility Assessment regardless of whether the intention is to provide lighting or not. This shall be completed prior to commencing any form of discussion with Worcestershire County Council Street Lighting to justify the use of adoptable or private Street Lighting or to propose a no-light highways scenario within their proposals.

Please refer to Annex B for information required and Annex G which describes street lighting decisions and involvement in the feasibility process.

For a scheme where no street lighting is proposed, it is still essential for a Street Lighting Feasibility Assessment to be submitted to ensure its compliance with standards and safety for users. For example (but not limited to), conflict areas, controlled pedestrian crossings and approaches to existing lit junctions are highway safety features and will require adoptable lighting so must be assessed by the developer as part of their submission.

Street Lighting Feasibility Assessments will need to reference and provide commentary for the following elements:

- a) Environmental and ecological issues.
- b) Accident figures.
- c) Security (potential for crime and antisocial behaviour).
- d) Road safety.
- e) Scheme specific objectives such as enhancing the night-time economy.
- f) Parish Council lighting aspirations.

Failure to provide a Street Lighting Feasibility Assessment or to engage with Worcestershire County Council Street Lighting during the Pre-Planning Application or Planning Application process will lead to Worcestershire County Council considering the application incomplete. If there is missing or assumed information present, this could delay or prejudice reviews.

Worcestershire County Council Street Lighting Team or its representative at the Street Lighting Manager's discretion shall undertake the review of the Feasibility Assessment within the time frame agreed.

Worcestershire County Council shall not be liable for any delays to the overall programme or additional costs incurred by the Designer or developer due to a failure to provide a full feasibility document and scope of lighting. Please refer to the flowchart in Annex G in this Street Lighting Guide for decision making process.

2. Schemes within or near a National Landscape or sites of ecological interest

Where a scheme is within or adjacent to the setting of a National Landscape (formerly known as an Area of Outstanding Natural Beauty or AONB), a Site of Specific Scientific Interest (SSSI), Local Nature Reserve or a designated Local Wildlife Site, the Feasibility Assessment must consider the lighting impact to the natural environment. It should be noted that Malvern Hills National Landscape and Cotswold's National Landscape have their own aspirations for lighting and the Designer must engage with them where necessary.

Where a scheme interfaces with a river, an ordinary watercourse or recognised wetland, these should be treated as dark corridors. In dark corridors, it is desirable to minimise or avoid new lighting due to its associated risk of significantly and adversely affecting a sensitive ecological receptor unless appropriate technical studies during lighting feasibility assessments demonstrate otherwise.

The applicant will need to provide Worcestershire County Council with accurate details of all ecological constraints which may affect the lighting design during each design stage. This will include up-to-date surveys and information provided by a professional ecologist and where required, include an Ecological Mitigation Strategy (EMS) for a highway lighting report. This must be submitted for consideration before the design process starts to ensure the project aligns with the Flow Chart in Annex G.

The scope of the scheme to be established by the Preliminary Design/Feasibility process will need a good tie-in with any existing Worcestershire County Council lighting provision to an appropriate level, for example, extend a distance equivalent to 5 seconds of driving at the speed limit or 85th percentile (whichever is greater), from the proposed limit of the civil engineering work

The use of Central Management System (CMS) should be at the discretion of Worcestershire County Council Street Lighting.

Part 2

1. Detailed Design/ Detailed Review

At the stage, the applicant decides to proceed with their Section 278 and/or Section 38 submissions and they should appoint a suitably qualified lighting designer. The full process is outlined in Worcestershire County Council Highway Specification section 18. These options will require the

submission of a Schedule of Requirements (SoR) detailing the deliverables required to enable a design to be produced or design checked and formal approval to take place. Further guidance on SoR is available in this document.

Upon registration of the satisfactory SoR, Worcestershire County Council will provide the developer with a fee proposal to produce a detailed design or to undertake a design check of the lighting proposals. Work on the design or design assessment will only commence once Worcestershire County Council has received the outstanding fee.

The Worcestershire County Council Street Lighting Team will review the submitted lighting design within the time frames agreed in the fee proposal. Commencement of the review process will be based upon receipt of ALL necessary information as requested within the SoR.

To avoid delays in achieving the Technical Approval for Section 278 and Section 38 proposals, Street lighting designs or the assessment of third-party street lighting designs will no longer take place once the geometry of the Section 278 or Section 38 proposals have been established. The detailed design process or the assessment of third-party street lighting designs run concurrently with the audit of the other design elements included within the Section 278 or Section 38 proposals.

Approval of lighting proposals may take several iterations. Therefore, it is the Lighting Designer's responsibility to liaise with the developer to keep them informed of the approval process status and any additional costs that may be incurred. Worcestershire County Council shall not be liable for any delays to the overall programme or additional costs incurred by the Designer or developer due to a failure to fulfil the requirements outlined within this document or due to the rejection of the design submission on technical or quality issues.

For further clarification, please contact the Street Lighting Team via email:

StreetLighting@worcestershire.gov.uk

3. Designer's Competence and Responsibilities

The streetlighting Designer will need to demonstrate the appropriate experience, qualifications, and knowledge to undertake a streetlighting design and fulfil their duties under CDM Regulations. The streetlighting consultant should be qualified to either incorporated or chartered engineer status and be a full Member of the Institution of Lighting Professions (MILP).

The use of this guidance for street lighting does not remove the responsibilities of the Designer under CDM regulations. For instance, when the Designer proposes a departure, this remains the responsibility of the Designer. It will be the Designer's responsibility to consult with the developer and all other relevant parties to obtain all the necessary information to conduct a suitable design. The Designer must ensure the submission is based on the final highway tie-in (as approved by the relevant Worcestershire County Council New Development Officer). Any subsequent amendments to

the highway tie-in after approval of the lighting design may require a full resubmission for review and approval and will incur additional fees.

The Designer shall be responsible to ensure:

- A scheme is buildable.
- Completion of Annex B and ensure the table is filled out correctly with accurate information. This shall be supported by references to documents where this information can be assessed / reviewed.
- Submission of their proposals via the relevant New Development officer.
- They provide the information requested by Worcestershire County Council in a single submission including all requested information within section 17 – Schedule of Requirements. If this is not complete, the Designer may incur additional fees and/or delays.
- They use Worcestershire County Council’s Project Checklist - Annex E to assist with communication and to help identify issues which may benefit from early engagement.

4. Design Standards

Street lighting will need to be designed in accordance with the latest relevant British and European standards and industry guidelines. The main technical documents used in Worcestershire are listed below, the latest versions should be used:

- TD 501 Road Lighting Design
- Design Manual for Roads and Bridges Volume 8, Manual of Contract Documents for Highway Works (MCHW) Volume 1-3
- CIE 115 Lighting of Roads for Motor and Pedestrian Traffic (International Commission on Illumination)
- BS 5489-1 - Code of Practice for the Design of Road Lighting. Lighting of Roads and Public Amenity Areas
- BS EN 13201-2 - Road Lighting – Part 2: Performance Requirements
- BS EN 13201-3 - Road Lighting – Part 3: Calculation of Performance incorporating corrigenda up to Feb 2007
- BS EN 12899: - Fixed, Vertical Road Traffic Signs – Part 1:
- BS EN 12767 - Passive safety of support structures for road equipment — Requirements, classification, and test methods -
- BS 7671 - Requirements for Electrical Installations IET Wiring regulations.
- BS EN 40 Lighting columns
- BS42020(biodiversity: code of practice for planning).
- ILP PLG01 – Central Management Systems
- ILP PLG02 – The Application of Conflict Areas on the Highway
- ILP PLG03 – Lighting for Subsidiary Roads
- ILP PLG04 – Guidance on Undertaking Environmental Light Impact Assessment
- ILP PLG08 – Guidance on the Application of Adaptive Lighting within the Public Realm

- ILP PLG23 – Lighting for Cycling Infrastructure
- ILP GP03 – Code of Practice for Electrical Safety in Highway Electrical Operation
- ILP GP10 – Safety During the Installation and Removal of Lighting Columns and Similar Street Furniture in Proximity to High Voltage Overhead Lines
- ILP TR25 – Lighting for Traffic Calming Features
- ILP TR30 – Guidance on the Implementation of Passively Safe Lighting columns and Signposts
- ILP Guidance Note 01 – Guidance Note for the Reduction of Obtrusive Light
- ILP Guidance Note 08 – Bats and Artificial Lighting in the UK
- ILP Guidance Note 11 – Maintenance Factor Determination and its Impacts on the Performance and Overall Efficiency of LED Luminaires

The above list is not exhaustive, and Worcestershire County Council expect a competent Designer to be aware of additional standards and guidelines which may be relevant to lighting and electrical design and to reference them where necessary.

5. Worcestershire County Council Design Requirements/ Specification

5.1 Lighting Design

Designers will need to ensure that:

- Only approved equipment stated in Annex C shall be used by Designers.
- Colour temperature of LED's is to be determined case by case basis dependent on ecological / environmental requirements. Anything other than 3K Correlated Colour Temperature (CCT) (Warm White) will be subject to Commuted Sums which will be applied by Worcestershire County Council.
- Architectural, heritage (incl. conservation areas), subway (underpass), bollards, handrail and any form of bridge lighting which is not covered in the general specification, is subject to Commuted Sums which will be applied by Worcestershire County Council.

5.2 Commuted Sums

Any proposed sign lighting luminaires other than those listed in Annex C are subject to Commuted Sums which will be applied by Worcestershire County Council.

Commuted Sum payments shall be payable to cover but not limited to future; maintenance, hosting charges, energy, carbon offset, and replacement costs associated with all associated equipment over. The following lifecycle periods will apply:

- Lighting associated with structural assets; 120-year lifecycle.
- Lighting associated with non-structural assets; 60-year lifecycle.

Street lighting luminaires must be designed in line with Worcestershire County Council Street Lighting Standard Details (see website for downloads available).

The following important points apply:

1. All lighting points, illuminated signs, bollards and any private cable must be located within the adoptable highway boundary.
2. Locating lighting columns within splitter islands or traffic islands is prohibited.
3. The Designer shall locate columns on the boundary between two properties. Columns which are placed outside a building's frontage shall only be accepted in exceptional circumstances where the Designer can demonstrate there is no viable alternative and provide evidence that this has been communicated and agreed with the building owner.
4. The Designer shall specify raise and lower columns on remote footways or locations where maintenance access cannot be gained from a Mobile Elevate Working Platform (MEWP). The Designer shall ensure that there are no obstructions when the column is lowered or raised.
5. Where lighting is proposed on a subsidiary road, overall uniformity shall be greater than 20% unless greater uniformity is required, as per BS5489 i.e., areas of enhanced uniformity such as conflict areas.
6. Careful application of lighting is recommended when designing turning heads, cul-de-sacs, or roads with dead ends. Deviations from 20% uniformity can be arranged with a view to reducing impact on carbon reduction goals and on-going maintenance. Please contact the Street Lighting team for guidance.
7. Lighting columns shall not be within 5m of the final crown spread of any existing or proposed tree, shrub, or other significant foliage.
8. The lighting Designer is responsible for all liaison with the landscape architect to ensure clashes with trees or other landscaping features are eliminated from the design.
9. In extreme cases where a lighting column is essential for safety, and its proposed position clashes with existing trees, Worcestershire County Council may consider a deviation. The Designer will need to consult with Worcestershire County Council's arboriculturist and the relevant Local Planning Authority (LPA) to request removal of the tree. Any correspondence shall be provided within the formal design submission for review.
10. All existing and proposed trees, shrubs or other significant foliage shall be shown on the lighting layout drawing to demonstrate compliance with the required clearances. The symbol used to represent any trees should indicate the extent of the typical crown spread for a mature tree of the relevant specimen.
11. Where lighting classes for subsidiary roads are required i.e., P classes, the Designer shall provide minimum and maximum spacing calculations to show compliance with the recommended lighting class. Area calculations shall only be used for roads with varying widths and irregularly shaped areas.
12. Where area lighting calculations are required for subsidiary road designs i.e., P classes, a grid shall be provided for each individual road.

13. The Designer shall provide a good tie-in with any existing Worcestershire County Council lighting provision to an appropriate level. This tie-in shall extend a distance equivalent to 5 seconds of driving at the speed limit or 85th percentile (whichever is greater).
14. All concrete columns within 5 seconds of driving at the speed limit or 85th percentile (whichever is greater) of a scheme's civils extent shall be replaced at the developer's expense.
15. All SOX, SON and Cosmopolis light sources and luminaire housing within 5 seconds of driving at the speed limit or 85th percentile (whichever is greater) of a scheme's civils extent shall be replaced at the developer's expense.
16. All LED Street lighting luminaires incl. signs and bollards, greater than 5 years in age and within 5 seconds of driving at the speed limit or 85th percentile (whichever is greater) of a scheme's civils extent shall be replaced at the developer's expense.
17. Columns, posts and bollards located in areas of increased risk e.g., conflict areas, central reserves and roundabouts, shall be installed using retention socket systems, permitting quick installation, removal, and replacement in the event of an impact.

5.3 Electrical Design

Only approved equipment stated in Annex C shall be used by Designers.

The electrical design must be designed in accordance with Worcestershire County Council's Street Lighting Standard Details. Separate standard detail drawings are available for download on the Streetscape Design Guide website.

5.4 Electrical Supply

The following points apply:

1. Electrical supply to Worcestershire County Council's Street Lighting apparatus shall be provided by the Distribution Network Operator (DNO) unless the parameters outlined in point 5 below are applicable.
2. The developer shall consult with the DNO regarding arrangement of electrical supply. No Independent Distributor Network Operators (IDNO) are permitted for adoption.
3. All private cable network (PCN) proposals shall be subject to a Commuted Sum payment and shall be payable to cover but not limited to future; maintenance, hosting charges, energy, carbon offset, and replacement costs associated with all associated equipment over a 60-year lifecycle.
4. Metered supply points are not adoptable on the network, all proposed PCN shall be on an unmetered supply. The Designer shall consult with the DNO to determine maximum un-metered supply fuse size.
5. Requirements for the provision and location of an Earth remain the Designer's responsibility. It is recommended that the Designer consults with the DNO to arrange provision and where it is not feasible that a rod or mat is provided in a suitable, risk assessed location.

6. Illuminated signs and bollards located on roundabouts and splitter islands shall be supplied using a private cable network (PCN) via a dedicated feeder pillar with a DNO supply. The feeder pillar location shall be risk assessed by the Designer and protected by safety barriers where necessary.
7. Typical acceptable locations are at the rear of footway or in the verge at the side of the carriageway.
8. Power supplies shall be provided above a 1 in 100 + climate change flood event level, with suitable maintenance access without the requirement of hiring or leasing additional equipment. Where the Designer does not comply with this request, Commuted Sums will be applied by Worcestershire County Council or be rejected for adoption.
9. The Designer shall provide safe access for maintenance personnel, without the requirement of hiring or leasing additional equipment such as traffic management or mobile elevated platforms. Where the Designer does not comply with this request, Commuted Sums will be applied by Worcestershire County Council or be rejected for adoption.
10. Where a PCN is required in the verge an additional spare duct shall be provided.
11. Where a PCN is required at road crossings, there shall be at least four ducts to reduce impact on future works. All spare ducting shall terminate in a chamber and capped for future use.
12. Refer to the next section for guidance on using PCN in passive safe installations.

5.5 Passive Safe Installations

The requirements for passively safe lighting and disconnection systems shall be in accordance with ILP Technical Report 30 Passive Safe Column. Worcestershire County Council reserves the right to determine any reduction or increase of passive safe requirements on a case-by-case basis.

Worcestershire County Council does not permit passive safe equipment which operates by physical electrical disconnection.

Where passive safe equipment is specified, the electrical supply shall be provided by a private cable network (PCN), it is recommended that the Designer consults with the DNO to agree FP locations early in scheme development to reduce potential for delays to schemes. Refer to section 5.2 for Commuted Sum requirements.

5.6 Central Management System (CMS)

Determination of the use of CMS shall be at the discretion of the Street Lighting Manager. The Street Lighting Managers decision is final.

The Designer will need to consult with the Street Lighting Manager and Ecologist regarding any proposals to introduce variable lighting levels to lessen impact on protected species or net zero carbon goals.

The Designer shall request confirmation of specification from the Worcestershire County Council Street Lighting team. Where a CMS is provided, a Commuted Sum payment shall be payable to cover future maintenance, hosting charges, energy and replacement costs associated with all associated equipment over a 60-year lifecycle.

6. Ecology

Street lighting negatively affects UK fauna and flora by disrupting natural behaviours, such as pollination and feeding patterns, and reducing populations of invertebrates like moths. Bright white, and particularly blue-rich LED [lights](#), a common street lighting type, are particularly harmful to insects compared to older sodium lamps. There are measures to mitigate these impacts which can include dimming or switching off lights at night, using directional downward-facing lights, using warmer coloured lighting, and employing lighting designs that are specific to wildlife needs.

The designer shall consult with the developer to obtain the required planning conditions associated with the scheme to identify any environmental and ecological issues which may affect the lighting design.

The Natural Environment and Rural Communities Act 2006 (NERC Act 2006)(as further strengthened by the Environment Act, 2021) sets out a extends the statutory biodiversity duty set out in the Countryside and Rights of Way (CROW) Act to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. This Duty is set out in Section 40 of the NERC Act, and this states that: consistent with the proper exercise of their functions Public Authorities must further the conservation and enhancement of 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 41 of NERC Act 2006 refers to a published [list of habitats and species](#) which are of principal importance for the conservation of biodiversity in England. This Duty applies to all Local Authorities, Community, Parish and Town Councils, Police, Fire and Rescue Services, Health Authorities, and utility companies.

Where significant environmental issues are present, it is recommended the Designer undertakes early liaison with the Worcestershire County Council Ecologist or person acting on behalf of Worcestershire County Council to understand the restrictions placed upon the lighting design and to agree to an acceptable solution to mitigate any concerns.

Where bats are found using a site, the lighting Designer is responsible for consulting with the scheme's ecologist to confirm proposed lighting design does not impede on bats. Evidence of this liaison is required to approve the scheme. See section 9.1.

6.1 Artificial Light at Night (ALAN) and bats

Artificial Light at Night (ALAN) can adversely affect wildlife, especially the declining bat species in the UK. Artificial lighting, particularly blue-rich light can be disruptive to their roosting sites, predation and foraging. The Institute of Lighting Professionals (ILP Guidance Note 8) emphasises the importance of always completing analysis of bat survey data past guild level to species level to understand how species are impacted at a particular site.

The ILP guidance highlights the importance of integrating avoidance measures into developmental design by retaining ecologically functional dark corridors within schemes wherever feasible, and in preference to seeking lighting mitigation strategies.

The ILP guidance also refers to the Government's 25-year plan and commitment to effectively manage light pollution with the application of the 'mitigation hierarchy' which is operated through England's National Planning Policy Framework (2024) that draws attention to potential for light pollution to cause impacts on 'intrinsically dark landscapes' and on nature conservation.

As there are no lux level thresholds available for individual species, therefore following alignment with the Street Lighting Feasibility Process Chart, schemes containing sensitive ecology could be partially lit and include environmental mitigations such as reduced lighting levels, shielding and light sources with reduced blue content to protect wildlife.

This chapter emphasises the importance for the mitigation hierarchy to be applied to the lighting design for a scheme. Early engagement with the Worcestershire County Council Street Lighting, ecology and road safety teams is strongly recommended for advice as there are likely to be opportunities for ecological betterment through a sensitive lighting design that is appropriate for a scheme.

Developers and planners should refer to the guidance for light sensitive fauna as set out in the ILP/BT's Guidance Note GN08/23: [Guidance Note 8 Bats and Artificial Lighting | Institution of Lighting Professionals](#) (e.g. refer to Figure 3 "*Ecology process for lighting*") and to Worcestershire County Council's information relating to artificial night: [PM45: Artificial light at night in the countryside](#) and [PM46: Artificial light at night within the built environment](#)

Light sensitive fauna and flora, such as species of bats are protected by the Conservation of Habitats and Species (EU Exit) Regulations 2019. Damage to roosts or features considered to be functionally linked to roosts (e.g. hedgerows, watercourses, or other Priority habitats), may be critical in supporting the Favourable Conservation Status of the bat population and is strictly protected. Contravention of legislation carries the risk of punitive fines and imprisonment.

6.2 The Chartered Institute of Ecology and Environmental Management (CIEEM)

The Chartered Institute of Ecology and Environmental Management ([CIEEM](#)) provide standard methods for several types of ecological assessment and surveys and should be referred to as part of any site-and-scheme specific assessments required for street lighting. CIEEM also provide detailed guidance on

the lifespan of ecological reports: [Advice-Note.pdf](#). All ecological reports will need to be up-to-date and in line with the CIEEM requirements.

6.3 Ecological Mitigation Strategy (EMS)

The Designer shall provide Worcestershire County Council Street Lighting with an approved Ecological Mitigation Strategy (EMS) which shall require approval in principle before detailed design should begin.

The Designer shall provide Worcestershire County Council with details of all ecological constraints which may affect the lighting design during each design stage. This information shall be produced by a competent ecologist and shall include an Ecological Mitigation Strategy in the highways lighting report to be submitted to Worcestershire County Council for consideration prior to the commencement of the design process.

6.4 Trees, shrubs and significant foliage

For trees, shrubs and significant foliage, lighting columns shall not be located within 5m of the final crown spread at full maturity. Any proposed removal or relocation of trees which clash with the lighting design is to be resolved by the lighting Designer in conjunction with the main consultant or landscape architect - a note merely highlighting that a clash that needs to be addressed will not be considered sufficient and the design will be rejected.

Where columns are to be positioned close to trees/planting, due account must be taken of future growth and the effect on the lighting distribution. Damage to tree roots is always to be avoided and the installation is to comply with NJUG 10 (Planning, Installation and Maintenance of Utility Services in Proximity to Trees).

7. Attachment to Structures

Lighting equipment and/or illuminated signs subject to adoption should be free standing and not attached to adjacent buildings or private property. The exception to this would be structures e.g., bridges, provided they are subject to adoption.

Worcestershire County Council shall require a drawing detailing the proposals for any equipment to be mounted to an adoptable structure. This drawing shall include a location plan of the affected structure, details of the proposed equipment and the fixing arrangement, the proposed electrical supply point and any cable routes, an elevation of the affected structure showing the proposed equipment position and associated cable routes and structural integrity reports to confirm the structure is suitable to support any proposed attachments.

Notwithstanding the requirements for structural integrity reports for any affected or new structure, the developer shall be responsible for any remedial works required due to damage suffered to the structure because of the installation of the equipment.

All structure mounted lighting equipment or illuminated signs shall be fed via a PCN. The PCN shall be fed via a private feeder pillar and shall use Mineral Insulated Cable clipped directly to the structure unless otherwise specified by Worcestershire County Council. The developer shall be responsible for liaison with the Distribution Network Operator regarding the provision of a service to the feeder pillar and all associated costs.

8. General

The following important points apply:

1. Street Lighting and CCTV shall not be mounted on the same structure for ease of maintenance.
2. Where Automated Number Plate Recognition (ANPR) cameras are found attached to Worcestershire County Council structures, it is the developer's responsibility to consult with West Mercia Police (WMP) regarding any works involving a change to the asset's functionality, including removal, re-aiming or disconnection of communications or power. Worcestershire County Council accepts no responsibility for these assets and any costs incurred through the requirement to move, amend, or upgrade them. WMP's decision is final.
3. Requirements for festive lighting are to be determined by the lighting Designer in conjunction with key stakeholders.
4. Where a development is within a Parish area, the Development Control officer shall be contacted to arrange the next steps.
5. For the Designer, standard detail drawings are available for download on the Streetscape Design Guide website.
6. Where standard details are not readily available from Worcestershire County Council, they shall be provided at the developer's expense.
7. Failure to show such noteworthy features on a highway lighting design drawing may result in expensive relocation of columns at the developer's expense before the commencement of the maintenance period.
8. Generally, mounting lanterns at heights below 5 (five) metres will not be accepted, except in the case of covered passages that are to become part of the public highway. The developer shall submit a deviation from BS5489 to include location and extent of the departure, mitigation measures and technical justification, where previously discussed with Worcestershire County Council.
9. The Crime and Disorder Act 1998 places a duty on Local Authorities and the Police to ensure that community safety is included in all developments, and this is, therefore, an important consideration in the design of the highway. To comply with Worcestershire County Council's obligations under the Act, the developer will need to demonstrate how they have considered the effect of the highway lighting design upon crime and disorder.
10. Waste Electrical and Electronic Equipment Directive: Producers and the developers/contractors have responsibility for the safe disposal/recycling of electrical equipment including all street lighting at the end of its life or deemed surplus to requirement. Worcestershire County Council

will expect sight of the developers' Site Waste Management Plan to ensure equipment is recycled where possible.

11. As part of the design process, the Lighting Designer must undertake a detailed design risk assessment which will include construction, maintenance, and demolition issues. Evidence of this risk assessment covering maintenance and demolition issues must be included within the design submission for approval.
12. Commuted Sums will be charged where appropriate unless agreed by the Street Lighting Manager.
13. Installation of equipment must be undertaken by HEA and HERS registered contractors. Evidence of membership must be provided for approval by Worcestershire County Council Street Lighting before installation works are undertaken.

9. Design Documentation Required for Approval

9.1 Schedule of Requirements.

The Designer shall provide all the information as requested within the Schedule of Requirements (SoR). This document will be provided upon request. Further guidance is given below on the information to be provided.

Feasibility Report BS5489 states '*there is no statutory requirements for a Highway Authority to provide lighting*', however, where any highway works are proposed, Worcestershire County Council are fully committed to providing safe and sustainable lighting installations where appropriate. Additionally, all designs should balance the needs of our residents, businesses, and visitors, whilst minimising energy consumption and the impact on the natural environment. Therefore, all design submissions shall include a feasibility report which sets out the Designer's proposals and the decision-making process behind them. This report shall include, but not be limited to the following criteria:

1. A brief overview of the scheme objectives and proposed highway improvements, highlighting any proposals which directly impact the lighting design.
2. An assessment of the existing lighting provision both within the scheme extents and adjacent to the scheme, including the age and condition of the existing equipment and suitability for retention, the existing lighting levels provided, confirmation of ownership and method of electrical supply.
3. The justification to light – this shall be thoroughly evidenced including reference to, and commentary upon; planning conditions, environmental and ecological issues, accident figures, potential crime levels, road safety, equality, diversity, and scheme specific objectives such as enhancing the nighttime economy. The Designer shall detail any mitigation which has been considered within their design.
4. The Designer shall consult with Parish and District Councils to obtain feedback on proposals.
5. The recommended lighting levels – this shall include reference to the standards or guidelines used to select the lighting class to include reference to specific clauses or tables used and detailing all the criteria considered.

6. The extent of lighting – this shall detail decisions regarding extents of conflict areas, the use of the five second and tie-in with existing lighting columns.
7. Overview of equipment specification and installation requirements – provide recommended luminaire type, light source, G rating, requirements for passively safe equipment, proposed electrical supply requirements etc.
8. Notable risks or constraints – highlight any significant issues within the scheme, their impact upon design and any mitigation applied (e.g., HV overhead cables, high pressure gas mains, drainage, or structure clashes).
9. Accessibility and maintenance proposals – highlight proposals for maintenance of proposed equipment, including recommendations for off carriageway maintenance areas and safe highway crossing points. Designers should look to design out the requirements for crossing the highway.
10. Departures from standards – outline any departures, deviations, relaxations, or best practice design decisions with reference to supporting documentation which shall be required as detailed elsewhere within this document.
11. Energy and carbon emissions – calculate the predicted energy costs and carbon emissions of the proposed scheme and demonstrate any reduction provided by the proposed design (e.g., by the implementation of a dimming regime).
12. The information and statistics requested as part of the Schedule of Requirements should be supplied when appropriate to the scheme in question, for example 85th percentile vehicle speeds will not be available for new residential settlement Section 38 developments. They should be supplied for Section 278 developments.

10. Design Drawings

10.1 Lighting and Electrical Layout

The drawings supplied will need to:

- a) Contain a unique drawing reference number and title.
- b) Show drawing revision and revision history to be fully populated when appropriate.
- c) Show any amendments to the drawing content from the preceding revision 'rev clouded.'
- d) Be no larger than A1.
- e) Be at a scale of 1:500 or less (e.g., 1:500, 1:250 etc.).
- f) Have a minimum text size of 2.5mm when printed.
- g) Clearly show a North point.
- h) Have cut lines with cross-reference to next drawing sheet where appropriate.
- i) Have a key where symbols can be identified when the drawing is printed in colour or black and white.
- j) Have drawing notes and references section, as required, to fully communicate design requirements and the essential design standard/guidance documents.
- k) Highlight any significant hazards with reference to supporting risk assessment documents.
- l) Show all existing street lighting equipment including illuminated signs and bollards within the proposed extent of works whether affected by the works or not. This shall include the maintenance identification number for all equipment.

- m) Show overhead lines (LV/HV electricity and BT) where appropriate.
- n) Show major underground services (HV electrical cable, high/medium pressure gas, fibre optics, GPSS pipeline etc.) where appropriate.
- o) Show contractual scheme extents (e.g., red-line boundary).
- p) Show lux contours at 1 lux (blue), 0.5 lux (green) and 0.2 lux contour (red) on all drawings.
- q) Tree symbols should be representative of the typical final crown spread when mature to demonstrate compliance with spacing requests.
- r) All submitted drawings must be accompanied by a completed Lighting requirement call off schedule to assist Worcestershire County Council in analysing the various equipment types and connections being proposed. This must be comprehensive and cover all lighting requirements. The blank for this is included as Annex I.

10.2 Electrical Schematic Drawings

Electrical Schematic drawings shall:

- a) Contain a unique drawing reference number and title.
- b) Show drawing revision and revision history to be fully populated when appropriate.
- c) Show any amendments to the drawing content from the preceding revision 'rev clouded.'
- d) Be no larger than A1.
- e) Be at a scale of 1:500 or less (e.g., 1:500, 1:250 etc.).
- f) Have a minimum text size of 2.5mm when printed.
- g) Have a key where symbols can be identified when the drawing is printed in colour or black and white.
- h) Have drawing notes and references section, as required, to fully communicate design requirements and the essential design standard/guidance documents.
- i) Include appropriate BS/IEC numbers for specified equipment.
- j) Include key design assumptions and caveats (e.g., the basis of calculations - i.e., supply details)

11. Calculation Files

11.1 Lighting Calculation Reports:

Lighting Calculation Reports shall:

- a) Contain a unique reference number including revision status that references the drawing they are linked to.
- b) Shall provide a brief description of the latest amendments for a revised report.
- c) Shall be A4 size.
- d) List the columns linked to the calculation by their unique reference number.
- e) Detail how the maintenance factor(s) is calculated.

11.2 Electrical Calculation Reports:

Electrical Calculation Reports shall:

- a) Contain a unique reference number including revision status.
- b) Shall provide a brief description of the latest amendments for a revised report.
- c) Shall be A4 size.

- d) Contain a full cable calculation report.
- e) Contain a full cable schedule report.

12. Competency Requirements

The Lighting Designer will need to be an ILP member experienced in the design and implementation of road lighting systems and associated infrastructure.

All submissions for checking shall be signed off by an ILP member of at least IEng MILP status or equivalent of another institution to ensure buildability, safety, and maintenance acceptability. This person shall be someone other than the lighting Designer. For clarity, a lighting Designer cannot sign off their own work.

13. Hazard Elimination / CDM

The Designer shall ratify all hazards through delivery of a Designer's risk assessment to Worcestershire County Council to be assessed. This will consider the following:

- All notable hazards shall be clearly presented in design drawings.
- The Designer will provide accessibility, buildability, and maintenance proposals. Acceptance of these proposals is subject to approval by the Street Lighting Manager and/or the Term Maintenance Contractor Manager.

14. Departure and Deviation Process

Departures from The Design Manual for Roads and Bridges (DMRB) / Manual of Contract Documents for Highway Works (MCHW) and deviations from BS5489 shall be submitted to Worcestershire County Council by the lighting Designer.

Where proposed these remain the responsibility of the Designer under CDM regulations. Where a departure from the DMRB or MCHW is required, the Designer shall use the template in annex A. Where a deviation from BS5489 is required, justification shall be provided in the feasibility report.

15. Schedule of Requirements

The following information shall be provided for assessment:

- a) Completed project information table from Annex A,
- b) Hazard elimination schedule,
- c) Lighting feasibility report including all information outlined in Annex B,
- d) Completed project checklist for consideration by Designers from Annex E,
- e) Proposed lighting extents drawing in CAD and PDF format,
- f) Lighting calculations in Reality format, Roadway and Outdoor; raw calculations not PDF,
- g) Straight line calculations shall always support an area calculation and must be provided,
- h) Proposed lighting and detailed electrical design in CAD and PDF format,
- i) Where proposed, Annex F departures from DMRB and MCHW.
- j) Statement of how the proposal aligns with the feasibility process chart in Annex G.

A full specification of equipment shall be provided including but not limited to Appendices 5, 13,14 and 19, and any others as applicable from the Specification for Highways Works 'Manual of

Contract Documents for Highways Works' published by National Highways. Alternatively, if Worcestershire County Council Term Maintenance Contractor is undertaking the works, an abbreviated specification located on the lighting drawings can be agreed in liaison with Worcestershire County Council Street Lighting Manager.

Once a lighting design package has been submitted, this will be assessed to ensure compliance with this document. Please note the following:

1. Responses to Annex B and E could trigger additional conversations and requests for more supporting information to determine the adequacy of design.
2. The assessment process will not begin until all the complete feasibility and supporting information is received by the assessor, any assumptions or missing information may lead to a delay in assessment.
3. Worcestershire County Council will not be held responsible for any delays associated with the applicant's failure to provide the information required to enable a detailed design assessment.

Annex A- Project Information Table

Project Name	
Lighting Designer	
Principal Designer	
Developer	
Planning Application No.	
Area	
Date Completed	

Annex B- Feasibility- Supporting Documentation

The supporting documentation requirements detailed in the table below will facilitate the Designer's production of a compliant and meaningful lighting design and enable the recommended investigations and assessments in line with current guidance, such as BS5489-1 Code of Practice for the Design of Road Lighting, and ILP PLG02 The Application of Conflict Areas on the Highway. It is recommended that designers familiarise themselves with the requirements of these documents prior to any submission. In some instances, certain information and statistics may be unavailable or unnecessary for the type of scheme subject to design. A clear and valid reason for not providing the required information must be provided. Not applicable is not an acceptable response unless approved by Worcestershire County Council. Failure to provide the required information and statistics may result in the scheme's rejection.

Table 1. Deliverables – Supporting Documentation

Planning Application Conditions - Related to lighting including planning condition references.
Accident Data – To evidence the requirement to light and for lighting classification selection in accordance with BS5489-1 risk assessment requirements. Minimum 3-year history required, extending to at least 5 seconds driving distance from the scheme extent.
Crime Data – To evidence the requirement to light and for lighting classification selection in accordance with BS5489-1 risk assessment requirements. Minimum 3-year history required, extending to the local area surrounding the scheme.
85th Percentile Speeds - To evidence lighting extents in accordance with ILP PLG02 5 second rule or highlight any disparity.
Existing and Proposed Speed Limits - To evidence lighting extents and lighting classification selection in accordance with BS5489-1 requirements.
Existing and Proposed 24hr ADT - To evidence lighting extents and lighting classification selection in accordance with BS5489-1 requirements.
Existing and Proposed Statutory Undertakers Plans – To evidence safe construction.
Ecological / Environmental Constraints Including Current Survey / Study – Maximum 18 month old Ecology Survey / Study to evidence compliance with legislation. Indication of (not limited to) conservation species present, type of activity (breeding, hibernating, roosting, foraging etc.), habitat quality and connectivity, the presence of nearby known protected areas etc. Any mitigations proposed/required to ensure protection of light sensitive species should be declared. Survey / Study in accordance with Chartered Institute of Ecology and Environmental Management, Bat Conservation Trust guidance and ILP GN08/23: Bats and Artificial Lighting At Night guidance.
Tree Preservation or Root Protection Orders – To evidence compliance with legislation.
Landscaping Proposals – To evidence the impact of light pollution and maintainability of proposed assets e.g., impact on streetlighting due to retained or proposed trees.
Site Clearance Drawings – To evidence continuity of light and tie in with adjacent existing lighting.

General Arrangement / Adoptable Limits Drawings – To evidence adoptability.

Electrical Supply / Liaison with the DNO – To evidence proposed supply is viable and in accordance with DNO practice.

Annex C- Lighting Specification

The table below outlines the various equipment types widely in use and commonly accepted within Worcestershire. The developer is entitled to suggest any manufacturer or provider of the equipment specified. Such proposals, however, will be subject to approval by the Street Lighting Team.

Conservation Areas are unique in their lighting requirements, and it is expected that the developer will engage with the relevant conservation officer to determine the lighting requirements to suit that specific environment. These requirements will be subject to Worcestershire County Council approval.

Table 2. Approved Equipment and Installation List

Lantern	<ul style="list-style-type: none"> • TRT ECO or Aspect Range (including Gen2). • Holophane VMAX Range.
Lamps	<ul style="list-style-type: none"> • LED 3000K, 1750K or 1000K CCT depending on project requirements. • Where CCT is lower than 3000K, depending on local biodiversity, rear, side and front shields may be added upon agreement with t. street lighting team.
Ballast	<ul style="list-style-type: none"> • Philips Xitanium or OSRAM. • CLO is requested to be used wherever possible to reduce wasted light and energy.
Control	<ul style="list-style-type: none"> • Five pin Nema socket 1-part electronic cell. • Residential regime 20/20 (dim to 75% 00:00hrs to 05:00hrs). • Traffic Routes regime 35/18 (dim to 75% 00:00hrs to 05:00hrs). • Produced by Lucy Zodian or Royce Thompson. • Where variable levels are required, the Designer contacts Worcestershire County Council.
Maintenance Factors	<ul style="list-style-type: none"> • Typically, luminaires shall be at least L80 B50 with a longevity of at least 100,000 hours but Worcestershire County Council shall be consulted on a project-by-project basis as this area of technology is constantly evolving.
Sign illumination	<ul style="list-style-type: none"> • Simmon signs LUA or LUB (depending on sign size). • Portland Traffic sign lights. • Simmon signs global base light illuminated bollards. • Mallatite Duraflex bollards. • Solar proposals are subject to a Commuted Sum.
Columns & Posts	<ul style="list-style-type: none"> • Aluminium column type (A.L.C. or SAPA column), specifically no brackets produced to current Worcestershire County Council specification.

	<ul style="list-style-type: none"> • Columns and posts shall be installed in NAL sockets at locations of increased risk in accordance with clause 8.1.23. • Where explicitly agreed with a member of the street lighting team, Galvanised steel columns manufactured by C U Phosco or Mallatite produced to current Worcestershire County Council specification will be acceptable. • Where applicable any Raise and Lowering Column should be aluminium and only 5m or 6m height will be considered. • Lighting column setback and protection is to be as per relevant Standards and Codes of Practice. • Absolutely no additional attachments (such as IOT, electrical connections, hanging baskets or flags etc.) to columns unless agreed in writing with a member of the Street Lighting Team.
Brackets	<ul style="list-style-type: none"> • Where possible post top mounted columns are to be used, unless the use of brackets can be proven to significantly reduce the number of columns required or there is shadowing from Trees and other obstacles. • Where brackets are required, they shall be manufactured as one complete extrusion. • No bolt on brackets shall be used on passive safe columns with electrical disconnection systems installed. • All lanterns are to be mounted at 0° tilt overall, to be clear where a bracket is used at 5° tilt, the luminaire shall be set to -5° tilt to allow a 0° tilt overall. • <i>(Please note the current Worcestershire County Council ESPO specification does not allow for bracket arms on columns and if these are required, certificates of conformity will be required from the column manufacturer.)</i>
Retention Socket Systems	<ul style="list-style-type: none"> • NAL duck foot and tee bend retention socket systems • Installation and foundations shall be made in accordance with manufacturers' guidelines.
Service Arrangement	<ul style="list-style-type: none"> • Direct fed by DNO supply.

Annex D – Required Installation Notes for all Drawings.

Installation Notes

All lighting layout drawings are to have the following installation notes included as a minimum requirement, if these are not included the design will be rejected:

- All lighting elements for internal Worcestershire County Council schemes will be installed by Worcestershire County Council's appointed Lighting Contractor unless there are elements outside of their normal scope. Where the Designer proposes specialist equipment or installation, then Worcestershire County Council's lighting engineers must approve these.
- For external schemes (i.e., those proposed by private developers), only recognised lighting contractors shall be used for street lighting and illuminated signs and bollard installation works. They must also be members of HEA and HERS. Current membership numbers for these bodies must be provided to the supervising authority prior to approval by Worcestershire County Council's lighting engineers of the proposed Lighting Contractor. The approved Lighting contractor shall not sub-contract any part of the works.
- All materials shall be to the relevant British Standard. Site works shall comply in general with Department of Transport Specification for Highway Works, and shall also conform to: The Electricity at Work Regulations (1989) The Health and Safety at Work Act
 - Chapter 8 of the Traffic Signs Manual
 - The Control of Substances Hazardous to Health Regulations 2002
 - The Construction (Design and Management) (CDM) Regulations 2015
- Erection and installation works shall comply with the current issue and amendments of BS7671:18th Edition IET Wiring Regulation 2018 Requirements for Electrical Installations, the current editions of the ILP Code of Practice for Electrical Safety in Public Lighting Operations and the Code of Practice for the Erection of Street Lighting published by the Association of Street Lighting Electrical Contractors.
- All Material and equipment shall comply with the Worcestershire County Council Specifications. Any material or equipment proposed by the contractor shall be submitted to Worcestershire County Council for approval before any purchase agreement is entered into. Exact location of lighting columns to be agreed with Worcestershire County Council's Street Lighting or representative before erection. Ducting to comply with the requirements of the DNO or Worcestershire County Council where required.
- Contractor to liaise directly with the DNO or other DNO approved supplier regarding electrical connection requirements.
- Photocell control residential regime 20/20 (dim to 75% output 00:00hrs to 05:00hrs).

Traffic Routes regime 35/18 (dim to 75% output 00:00hrs to 05:00hrs).

Annex E – Project Checklist for consideration by Designers

Table 3: PROJECT CHECKLIST

Question	Y	N
Has your developer managed a street lighting project in Worcestershire County before?		
Are Worcestershire County Council Street Lighting team aware of the project?		
Does your project interact with land owned by 3 rd parties i.e., not owned by Worcestershire County Council?		
Is there any political interest in the project?		
Is there any public interest in the project?		
Is your project team aware of the interdependence of working with Street Lighting?		
Is your site currently lit? If the site is lit, speak to Worcestershire County Council Street Lighting and Ecology for further advice.		
Are there power cables nearby to power lighting assets?		
Have you raised power supply ownership with your developer? Worcestershire County Council do not arrange power supplies unless they are instructed.		
Is your lead in time for power supply greater than 12 weeks? New or renovated supplies and disconnection / reconnections.		
Do you have stats drawings and any swing and sag for overhead cables?		
Are there ecological constraints present?		
Do you have verge space for lighting columns?		
Have you surveyed the conditions of assets to remain or to be re-used?		
Are there any Tree Preservation Orders (TPO's) or Root Protection Orders (RPO's)?		
Are there any cycleway facilities within your scheme?		
Are there any pedestrian crossing facilities within your scheme?		
Are you designing a roundabout or any roads that require passive safe lighting?		
Are there any sign illumination requirements?		
Are the existing and proposed 24hr Annual average daily traffic (AADT's) known?		
Are the existing and proposed speed limits known?		
Do you have the 85th percentile for all roads found within the project?		
Have there been any night-time Road Traffic Collisions (RTC's) near the project?		

Annex F – Departures from DMRB and MHCW Template

SUBMISSION FOR DEPARTURE FROM STANDARDS TEMPLATE

PROJECT NAME	
APPLICANT ORGANISATION:	
APPLICANT REF No	
HIGHWAY AUTHORITY REF	
PREPARED BY	
CHECKED BY	
DATE SUBMITTED	

1. PROJECT DETAILS

A	Description	
B	Location	
C	Road Category and type	
D	Design speed and speed limit	
E	Traffic and NMU flows	

2. DEPARTURES DETAILS

A	Discipline / Type	
B	Relevant standard(s)	
	Clause	
C	Difference between Standard(s) and Proposed Design	
D	Reason for Departure (overview)	
E	Associated Project Departures	
F	Other options considered	

3. JUSTIFICATION (POTENTIAL POSITIVE AND NEGATIVE IMPACTS)

A	Safety	
B	Congestion/ delay	
C	Environmental/ Sustainability	
D	Capital and Whole Life Cost/Value	
E	Accessibility	
F	Integration	
G	Structural	
H	Network Resilience and Maintenance	

4. COMPENSATORY MEASURES

A	Included Measures	
B	Rejected Options	

5. DESIGN ORGANISATION'S CONCLUDING REMARKS

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6. ATTACHMENTS and OTHER INFORMATION

A	List of Attachments	
B	Consultations	N/A
C	Other information	N/A

7. SIGNED

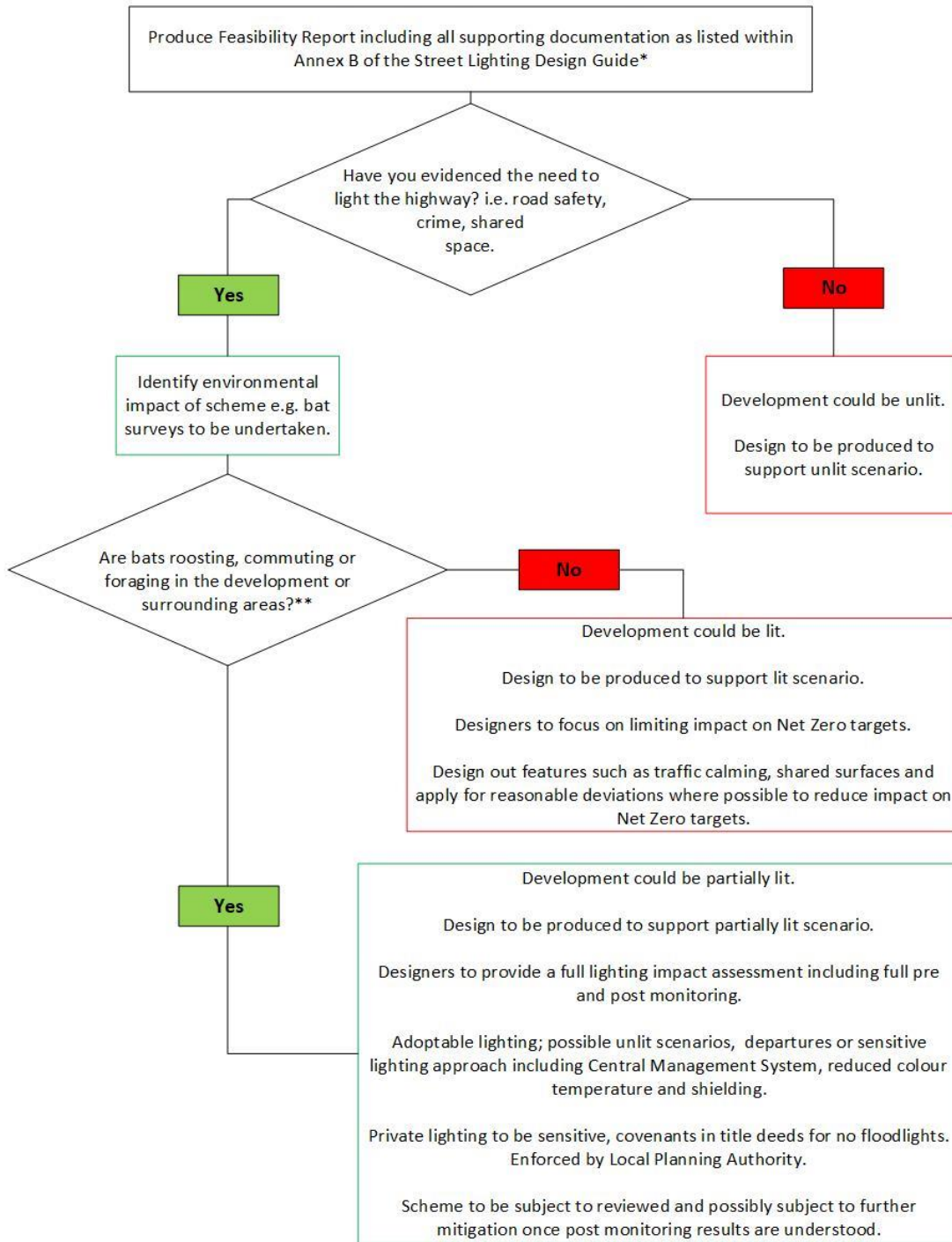
NAME 1	ROLE	SIGNED	DATE
NAME 2	ROLE	SIGNED	DATE

8. DECISION

DECISION TICK ONE BOX and COMMENT	Tick Box
APPROVED	
APPROVED WITH COMMENTS	
REJECTED	
COMMENTS OR REASON FOR REJECTION	

Annex G- Feasibility Process

Street Lighting Design Guide Feasibility Process Chart



***Feasibility report shall be provided to comply with the requirements of section 17 of the SLDG.**
****Where lighting causes significant and/or unacceptable ecological impact on bat roosts or functionally linked commuting/foraging habitats either within the development or its immediate setting decision making shall be based on severity of impact.**

Annex H- Case Studies

Case studies are included in relevant ILP documents and the street lighting design guide as examples of some of the excellent work undertaken by the developers and their lighting Designers in Worcestershire.

No Lighting - Case Study, S38 Lower Howsell Road, Malvern.



Figure 1. S38 Lower Howsell Road, Malvern

Introduction

The developer engaged a lighting designer to provide a street lighting design.

The scheme comprised of 110 properties, located near to the Malvern Hills National Landscape formerly known as ‘Outstanding Natural Beauty’. Malvern Hills National Landscape has published guidance on lighting, intended to “minimise impacts of lighting on wildlife, people and on natural landscapes.” Prior to being developed the land was a greenfield site and had no lighting / dark baseline. This would be classed as dark district brightness as per [Institution of Lighting Professionals Guidance Note 1](#), (ILP GN01/21) the reduction of obtrusive light.

The development is accessed from Lower Howsell Road, which has limited lighting provision. Many adjacent side roads also have limited lighting provision, typical of semi-rural areas of Worcestershire.

The road layout is in line with the Streetscape Design Guide. There were no features that should be illuminated in line with Manual For Streets.

Ecological surveys determined bats were using peripheral hedge lines as linear commuting and foraging features. The project ecologist recommended this feature should remain unlit to avoid impacting light sensitive fauna.

Bats and their roosts are afforded legal protection under international and national legislation. In certain circumstances, such as where foraging or commuting routes are deemed to be 'functionally linked' to a bat roost (and hence important in supporting the favourable conservation status of that bat population) these features may also benefit from strict legal protection.

Challenge

Subsequently, during design it became apparent that the entire site was used by Lesser and Greater Horseshoe bats, no longer confined to the extremity of the site as advised during planning.

The species of bats found within the development are highly light averse, if lighting were provided it could fragment or disrupt commuting and foraging habitat.

Due to its location and dark baseline, the site has a semi-rural context and additionally is located within the setting of a National Landscape. Artificial lighting would therefore need to be sensitively controlled. Institute of Lighting Professionals (ILP) GN01/21-the reduction of obtrusive light states: *"lighting should limit the impact of light pollution on intrinsically dark landscapes"*.

Solution

Due to the significance of the ecological findings, the dark baseline, the semi-rural nature and the provision of a standard road layout, an unilluminated approach was the best option to move forward.

Benefits

By not providing Street Lighting, the developer has avoided causing an ecological impact by removing risk to severance effects on an identified linear commuting/foraging feature, thus reducing risk of contravening legislation by un-intentionally disrupting features which might be considered as functionally linked to a bat roost.

- The scheme is in line with national planning policy framework and lighting guidance.
- The scheme has removed maintenance liability and risk to energy revenue budgets.
- Additionally, this removes the carbon burden from the Net Zero plan.

Lighting - Case Study, S38 Churchfields, Kidderminster.



Figure 1. S38 Churchfields, Kidderminster

Introduction

The developer engaged a lighting Designer to provide a street lighting design.

The scheme comprised of 246 properties, located in Kidderminster Town Centre. Prior to being developed the land was a brownfield site. Due to its low to medium lighting baseline, the site would be classed as medium District brightness as per ILP GN01/21- the reduction of obtrusive light.

The development is accessed from Broad Street and Churchfields, which has full lighting provision. Many of the adjacent side roads also have full lighting provision, this is typical of an urbanised area of Worcestershire. The road layout is in line with the Streetscape Design Guide. There were no features that should be illuminated in line with Manual for Streets.

All buildings were demolished during development removing suitability to support roosting bats but an area of woodland to the north of the scheme provides potential for foraging and commuting bats.

Challenge

The site is located adjacent to an area with a reasonable amount of localised crime of various severity, so it is unsuitable for a no light scenario. In line with BS5489-1-2020 A.3.3.2 a risk assessment was undertaken that indicated if lighting is provided, to deter crime, lighting levels should be increased to a higher level than that of a typical Worcestershire development.

Ecological assessment requested that the woodland area remains dark but adjacent roads must be illuminated.

Solution

On evaluating historic incidences of crime which have been recorded in the scheme's locality, it was determined that provision of lighting was the best option to move forward. However, it must be noted that due to historic incidents of crime, lighting level requirements are 60% higher than what is typically installed within a Worcestershire housing development.

Luminaires installed on roads adjacent to woodland are fitted with shields to reduce illumination in line with the ecological requests.

Benefits

The scheme is in line with British Standards but at the time of writing Worcestershire County Council cannot evidence if crime has remained steady, decreased, or increased due to the enhanced lighting provision of the scheme.

Sensitive Lighting - Case Study, S38 Lea Castle (Phase 1), Kidderminster.



Figure 1. S38 Lea Castle (Phase 1), Kidderminster

Introduction

The developer engaged a lighting designer to provide a street lighting design.

The scheme comprised of over 600 properties, based on the former Lea Castle Hospital site, located within Wolverley Parish. It is located north of Kidderminster between Stour Vale Marsh Site of Special Scientific Interest (SSSI) & Puxton Marsh SSSI to the West, and Hurcott Pasture SSSI and Hurcott and Podmore Pools SSSI to the East.

Prior to being developed the land was mostly a greenfield site, with limited private lighting. The lighting designer estimated the site to have an existing very low / almost dark lighting baseline. As per ILP GN01/21-the reduction of obtrusive light, this site would be classed as mix of dark district brightness and low district brightness.

The development is accessed from Park Gate Road, which has no lighting provision, and Wolverhampton Road (A449), which has a high level of lighting provision associated with a busy A class road. Many of the comparable roads in Wolverley have no lighting provision and are typical of rural areas of Worcestershire.

The road design is in line with the Streetscape Design Guide. There were no features that should be illuminated in line with Manual For Streets, but the main spine road was to be used by a bus service, cyclists, access to shops and be used by schoolchildren.

During planning it was advised that a variety of bat species were using the site. In compensation for licensed destruction of existing roosts, several bat barns were constructed on site. Lesser Horseshoe bats were subsequently understood to be both roosting, foraging and commuting within site boundaries as well as commuting to the nearby network of sites considered to be of conservation significance to forage.

Challenge

Bats and their roosts are afforded legal protection under international and national legislation. In certain circumstances, such as where foraging or commuting routes are deemed to be 'functionally linked' or key in supporting the favourable conservation status of the population, these features may also benefit from strict legal protection.

The species of bats found within the development are highly light averse, if insensitive lighting was provided it was deemed likely to risk fragmentation or disruption of bat commuting and foraging features, particularly hedgerow and blocks of linear woodland which were identified in the project ecologist's 'dark corridor' maps.

The developer's ecologist proposed dark corridors on the spine road, but these interacted with sharp bends and were in proximity to junctions and bus stops. Therefore, the dark corridors would not be endorsed by the Highways Authority Development Control team, due to perceived safety issues.

Solution

Due to the significance of the ecology, rural nature, use of the spine road and un-endorsed dark corridors for the spine road and provision of a standard road layout for side roads it was decided to masterplan the lighting for the entire development.

The spine road was to be lit in its entirety, but all side roads were to be unilluminated.

The spine road lighting was to include heavy mitigation:

- Red lighting (to reduce potential impact),
- Low levels of lighting during quiet periods of the night,
- Post monitoring of the bats on site to understand impact of lighting,
- Implementation of a Central Management System (CMS) to amend the lighting levels if necessary.

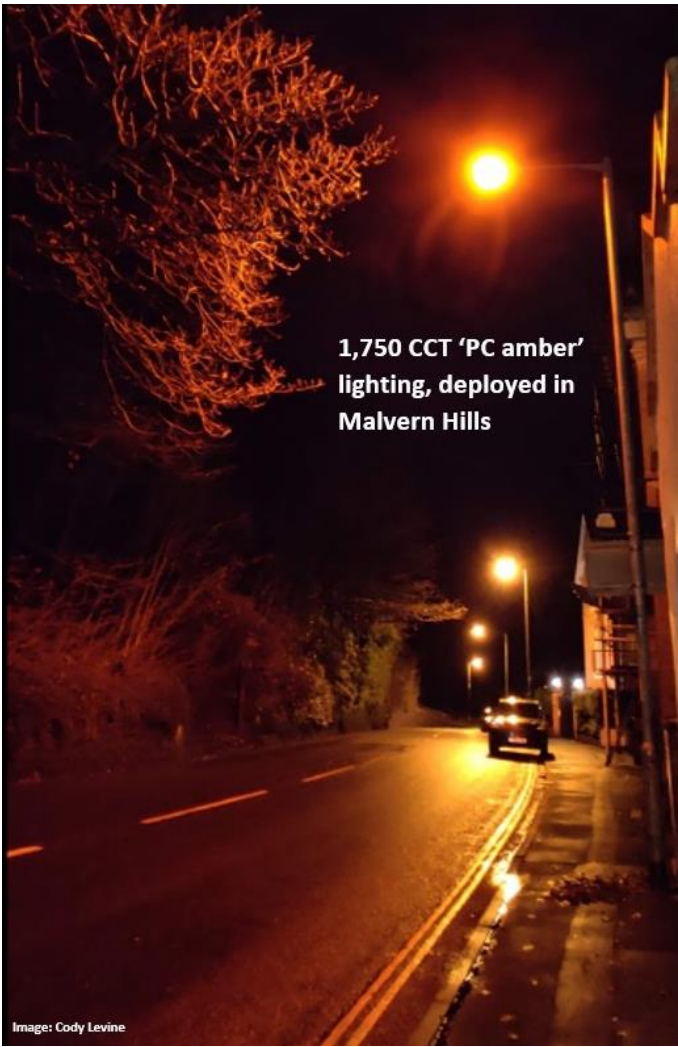
The local planning authority, highway authority development control team and scheme designers felt this was the best option to move the development forward.

Benefits

- By providing street lighting on the main spine road, the developer has focused on providing safe usage for the major risk factors; interactions between motorised users incl. buses and non-motorised users enables a safer night-time environment.
- By not providing street lighting on the side roads, the developer has avoided potential for ecological impact to protected bat species by un-intentionally disrupting and severing commuting and foraging routes functionally linked to a known roost. This has the added bonus of being comparable to the lighting status of many roads within the Parish of Wolverley and will help the development feel rural at night.
- The scheme is in line with the national planning policy framework and lighting guidance.
- The scheme has partially removed maintenance liability and risk to energy revenue budgets with its careful approach to lighting. Additionally, this partially removes the carbon burden from the Net Zero plan.
- By securing a period of post-installation bat and lighting monitoring, related to the predicted scale of impact, a refined insight will be gained into the effectiveness of the lighting mitigation strategy for bats.

Rapid LED Roll-out (RLR) – Case Study.

The Worcestershire County Council Rapid LED Roll-out Case Study is published in 'ILP Guidance Note 08/23: Bats and Artificial Lighting At Night'. It demonstrates how safety and carbon/energy reduction can be balanced alongside biodiversity conservation.



ADDENDUM 1 – Technological Innovation

Where new technological advances are adopted by Worcestershire County Council as best practice, these will be made apparent to Designers at the relevant stage of the process.