Yorkshire Dales National Park Good Lighting Guide

Purpose of the guide

The purpose of this guide is to help applicants understand how new development can be sensitive to its surroundings through the use of appropriate lighting. The aim is to conserve and enhance the Dark Sky Reserve, ensure the development reduces light pollution and nuisance, protects habitats for our wildlife, improves our health and wellbeing and brings increased economic benefit to our tourist industry. Another huge benefit is reducing the unnecessary consumption of electricity thereby minimising carbon footprint and energy costs for properties.

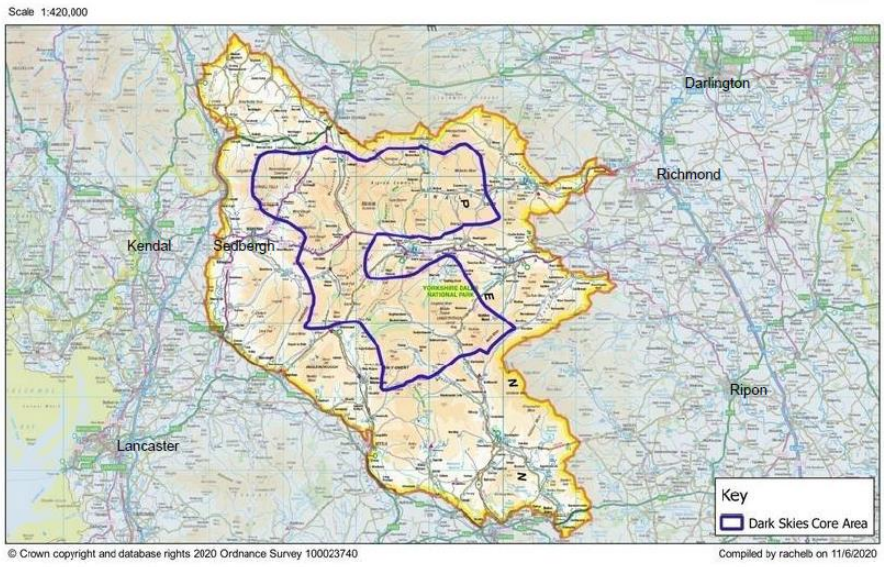
The brief guide is intended to be read in tandem with the technical lighting guidance Good Lighting Technical Advice Note - Designing out light pollution in Cumbria, the Yorkshire Dales National Park and the Arnside and Silverdale AONB which establishes why appropriate lighting is important, good lighting principles and provides an in depth guide to inform the lighting design process and; Towards A Dark Sky Standard which provides design advice for both domestic and non-domestic lighting, including Light Spill from interiors.

Background

The Yorkshire Dales National Park was designated in 2020 as an **International Dark Sky Reserve**; A designated area of public/private land possessing exceptional or distinguished quality of starry nights and nocturnal environment that is specifically protected for its scientific, natural, educational, cultural, heritage and/or public enjoyment. Dark Sky Reserves are designated by Dark Sky International (formerly International Dark-Sky Association).

The Yorkshire Dales Dark Sky Reserve consists of a **core area** which, on designation, must meet the criteria for natural darkness and be of a high quality as well as a **buffer zone** that supports the dark sky in the core and extends from the edge of the core to the boundary of the National Park.

Yorkshire Dales Dark Sky Reserve



Policy Background

National policy gives great weight to the protection of the special qualities of National Parks. New development in the National Park can only be considered to be sustainable if it does not harm what is special about the National Park; in essence its landscape, wildlife, cultural heritage and other special qualities. Dark Skies are a special quality of the National Park. This special quality is identified in the National Park Management Plan 2019-2024 under cultural landscape.

Current Local Plan policies aim to protect the dark skies of the area by ensuring development avoids harmful light emissions. The Yorkshire Dales National Park Local Plan (2015-2030), adopted in December 2016, covers three quarters of the National Park and recognises the importance of dark skies as a special quality of the National Park. Strategic Policy SP4 aims to safeguard the environment from unacceptable adverse impacts on the darkness of the night sky. The National Park Authority has also 'inherited' the policies within the Local Plans for South Lakeland District Council, Eden District Council and Lancaster City Council which apply in the relative parts of the extended National Park and which contain references to lighting. The National Park Authority is producing a new Local Plan (2023-2040) which will include a specific policy aimed at protecting and enhancing the dark skies of the National Park.

Designing your lighting scheme

You should consider the impacts of lighting from the beginning with the design of any building or structure you propose. Information indicating the position of any lights should be indicated on plans provided as part of an application and where planning permission is granted, conditions are likely to be used to control this. The 'Standards and Design' section of this document below (with additional detail found in the Good Lighting Technical Advice Note and Towards A Dark Sky Standard) provides advice on specific areas, lighting types and mitigation. When preparing your planning application, you should aim to go through the process below:

- Context appraisal – Core/Buffer (Environmental Zone), locational, ecological
- Lighting needs of the development
- Standards and design

CONTEXT APPRAISAL

Core or buffer?

The Dark Sky Reserve is based upon the principles of a 'core area' and a 'buffer zone'. These are also known as Environmental Zones E0 and E1 respectively within the adopted Lighting Management Plan and a number of 'Plan Statements' set out the expectations within those areas. In simple terms the core area contains the darkest skies and the buffer zone exists to protect it by actions being taken in that area to prevent light intrusion from the buffer into the core.

Locational characteristics

The National Park is made up of a number of landscape character areas that can be seen in the Authority's Landscape Character Assessment.

There are a range of geographic distinctions within the National Park that give the area a coherent, distinctive identity that make parts of the area particularly sensitive.

Uplands

This area takes in the hills and moorlands of the National Park that form much of the core area of the Dark Sky Reserve and also consist of the Three Peaks and the moorlands to the east of the National Park that also include the major Buckden Pike, Great Whernside and Great Shunner Fell. These areas are largely uninhabited and consequently very sensitive to light pollution. These areas are not particularly susceptible to development other than infrastructure related to communications masts, reservoirs, moorland maintenance or agriculture.

Valley Heads and Slopes

These are remote locations that are sparsely populated where a single source of light pollution has the potential to have a significant effect upon the dark sky quality of the area. Examples include Littondale, Upper Wharfedale, Upper Swaledale and Langstrothsdale. Beyond these areas are often very remote valleys such as Whitsun Dale and Stonesdale with virtually no habitations. However, some remote valley areas do have farm settlements at their heads and recent requirements for new buildings can lead to light

pollution from excessive number of rooflights and from external floodlighting. Such sites have the potential to introduce significant additional light pollution, particularly into core area of the Dark Sky Reserve. When development is put forward in such areas detailed consideration should be given to whether a development could rationalise and reduce the existing lighting rather than increasing it, by reducing the number of lights, better positioning them and where essential using light that is better directed.

Remote Rural, Hamlets and Isolated Buildings

Much of the National Park can be made up of remote rural. This includes many of the valleys of the National Parks that are sparsely populated but where many residents and visitors experience the dark sky qualities of the National Park and are sensitive because of this. This area also includes many of the main valleys of the National Park that are dotted with small villages and hamlets that in their upper reach into the core area of the reserve.

Poor or excessive lighting can have a disproportionate effect upon the night sky and be seen from some distance where buildings are isolated at the heads of valleys and on remote slopes. Roadside barn conversions and farmstead development can be physically isolated in the landscape. The impact of light spill and the lighting requirements of these uses needs early consideration to design out potential sources of light pollution. Excessive use of banks of glazing in the design of new and converted buildings can result in developments appearing to float in the wider dark landscape drawing the attention of the human eye towards them. Lighting should be well sited, such as on rear of enclosed elevations, designed to light only the areas that need lighting and where possible using design, shielding and lower lumen lighting to improve upon the existing baseline rather than increasing light pollution. Opportunities to rationalise and reduce lighting should be considered as part of development proposals.

Settlements

Domestic lighting in settlements can have particular impacts upon the character of an area overall, upon wildlife that may visit our gardens and affect neighbouring amenity with poorly placed lighting affecting human sleeping patterns.

Firstly, consider whether an area needs to be lit at all. Many settlements in the Yorkshire Dales are on hillsides, meaning that badly placed lighting can be seen at great distances as well. Rivers and other watercourses near to or within settlements are likely to support important wildlife habitats and it will always be preferable to avoid lighting near to them if it can be avoided.

Development outside of the National Park

Whilst large stretches of the Yorkshire Dales National Park boundary are contiguous with other national protected landscapes, there are still lighting threats to the National Park from development beyond the boundary, particularly from large scale housing, commercial and visitor developments and infrastructure. In accordance with section 62 of the Environment Act 1995, neighbouring local authorities have a duty to have regard to the purposes for which National Parks are designated. The National Park Authority encourages consultation on proposed development beyond our boundary and we will recommend that developers and the relevant local planning authority consider the impact of lighting for new development on the dark skies of the National Park.

Ecology of the site and surroundings

There are a number of species within the National Park that are nocturnal and rely upon the quality of the darkness. These include Barn Owls, Long-eared and Tawny Owls. The National Park also supports around 1,000 species of moths and 10 out of the 17 bat species in the UK are found within the National Park Excessive and inappropriate lighting attracts insects disrupting their feeding patterns and that of the bats that prey upon them. Research shows that light pollution affects the migratory routes of birds and the routes that bats use to hunt for insects. Light pollution interferes with the ability of insects to pollinate (many nocturnal species carry out pollination as well as daytime species such as bees). Features such as caves, trees, meadows and darker corners around buildings where some species may roost are all

sensitive and should be taken into consideration when planning your development. Wetlands are also particularly light sensitive and artificial light can negatively affect the breeding patterns of amphibians including frogs and toads. Consequently, particular care needs to be taken around, wetlands, rivers and other watercourses.

The Yorkshire Dales National Park has recently adopted a Nature Recovery Plan, minimising lighting and sensitive lighting where it is required can make a positive contribution towards improving life for a number of habitats species within the recovery plan.

LIGHTING NEEDS OF THE DEVELOPMENT

There are a range of reasons why you may wish to include lighting in your development; for navigating the area, for security and decorative reasons.

More lighting does not necessarily relate to greater security; excessive lighting in remote locations allows potential criminals to identify locations that would not otherwise be clearly visible or navigable in darkness. A range of alternative security devices can be used such as motion sensor lighting, securely locking valuable equipment and removing valuable GPS technical devices when not in use.

Internal lights can also have an impact upon dark sky quality where excessive levels of glazing are incorporated into buildings whether they be domestic or commercial and the impacts of excessive glazing and decorative lighting should be carefully considered. Lighting landscape features such as bridges, trees and shrubs is likely to introduce horizontal or upward light pollution, produce light spill beyond the site boundary and be seriously harmful to wildlife.

Agricultural

By definition many farming communities are in remote parts of the National Park or in places that are set away from settlements, a few of these sites will be located in the Core Area of the Dark Sky Reserve. When new infrastructure is provided external lighting should be considered from the outset in terms of the siting of the building to sensitive environmental features such as trees and watercourses. External lighting should be kept to the minimum required and be directed downwards to the area it is intended to light. The Secured By Design ' farm security and machinery' guide provides lots of helpful advice for farmer.

Changes in agriculture and responses to manage pollution to watercourses is resulting in more applications for large agricultural buildings. Where excessive numbers of rooflights and large open areas in the ends or sides of the building are proposed internal lighting can have significant impacts on the quality of the darkness in some of the darkest areas of the National Park. Care should be taken when considering open buildings and what areas they face onto. In addition, the number of rooflights per bay should be limited to one per bay on each roofslope.

Domestic

Whether a new dwelling or existing the lighting needs are likely to be similar. Lighting is generally required for navigational purposes and the extent of lighting required may depend on how isolated the property is from other development and light sources. As a rule of thumb, appropriate lighting could be considered at each external door.

Small scale

For small scale development such as commercial premises, pubs and business units, the key lighting needs are likely to be task orientated lighting and lighting for navigation. The need and extent of lighting proposed should be clearly evidenced and should be limited to the location and time of any outdoor tasks undertaken at the premises. Aesthetic lighting should be avoided completely.

There is often demand for security lighting at commercial premises. There is no strong proven link between lighting levels and crime rates, and security lighting can have the opposite effect whereby bright lights can create contrasting dark spots to hide in, and result in night blindness in observers. Lower rural crime rates should be taken into consideration when designing a lighting scheme to ensure that the level of lighting is proportionate. Alternative means of securing a site should be considered first.

Major Sites

The majority of such sites are located in or adjacent to settlements and more significant developments in terms of scale are likely to be located in these areas. While they can have particular light pollution effects upon the settlements themselves they can have wider effects upon the wider area and can lead to sky glow where the lighting from a settlement can be seen reflected on the underside of low cloud, an effect that is visible despite the settlement causing the light pollution not being directly visible form a given point.

Careful consideration should be given the lighting effects of the siting of new development and the impacts it is likely to have. The Good Lighting Technical Advice Note and Towards A Dark Sky Standard) include detailed, researched information about how to approach more significant development in relation to larger housing sites and commercial buildings.

Detailed consideration should also be given to the effects of new external (and internal) lighting on neighbours and its potential to cause frustration and affect other people's sleeping patterns and enjoyment of their own property.

A number of settlements host significant numbers of trees and are often set on or close to rivers, both elements are home to nocturnal species and inappropriate lighting to watercourses in settlements can affect how species use these key components and corridors within the landscape. The first consideration when planning development is how can these areas be avoided and if development does take place restrict the lighting of such areas.

Infrastructure

While not always thought of as contributing to light pollution infrastructure can have specific lighting needs. Structures such as wind turbines and telecommunications masts may need some form of obstruction lighting due to their height and the need to warn aircraft. The vast majority of structures that would be anticipated would be below the mandatory requirements for such lighting but the Civil Aviation Authority can make request for lower structures to incorporate obstruction lighting if they are near to an aerodrome or airport.

Other remote infrastructure such as reservoirs and pumping stations may have lighting requirements but these should be based solely on the operational needs, be sited so that they only illuminate the area required and be movement sensitive rather than being timed to be on permanently during the hours of darkness.

STANDARDS AND DESIGN

Follow the five key principles of Dark Sky Friendly Lighting



Installing external lights

- Angle lights downward and fully shield all lights Don't allow any unnecessary light to shine near or above the horizon
- Install lights at the lowest possible height
- Install and direct lights only where light is needed What is the lighting for? What is its task? Ensure lighting is positioned to avoid disturbing neighbours or wildlife
- Switch external lights off when not needed Use proximity sensors and night time curfews. Avoid dusk-till-dawn sensors
- Light to the appropriate illuminance Do not overlight needlessly
- Use lamps of 500 lumens and less This is appropriate for most purposes (domestic or all?) (lumens should be shown on the lightbulb box)
- Avoid bright white and cooler temperature LEDs They are harmful to wildlife. Look for a colour scale on the side of the lightbulb box and aim to stay in the warm red and yellow sector – aim for below 2,700 Kelvin (3000 max)
- Avoid lighting for decorative purposes
- Consider the cumulative impact with existing lights Avoid increasing the total light output from the site; can a new building/structure reduce the overall lighting already provided at the site?

Designing out internal light spill

- **Is the building/structure needed, can an existing building be used?**
- **Consider the siting and orientation of the building in the landscape** Consider how the lighting of a building needs to function and how this would affect the landscape. Openings or glazed areas should avoid facing onto landscape vistas, wildlife habitats or create a nuisance to neighbours. Buildings could be orientated to take advantage of existing light.
- **Avoid large expanses of glazing** Consider the size, number and position of windows, glazed doors and rooflights – are they really needed?
- **Mitigate light spill from glazing** Recessing glazing, overhanging eaves, tinted glass and louvres can help reduce light spill. Automated blinds can be of use but are a less permanent solution.

Public realm lighting

- **Is it necessary to have overhead lighting?** Where roadways are not adopted by the local highway authority or where the is no street lighting at present, it may not be necessary for new development to have overhead street lighting or to light public spaces.
- **Consider Low level lighting** Where some form of public realm lighting is required for safety/navigation reasons, low level bollard lighting or lights inset in boundary walls and fences can be used. Public realm lighting should operate at a lower lumen output or be switched off when the area is not in use.
- **Public street lighting can still be dark sky friendly** Most public street lighting is installed and maintained by the local highway authority, although street lighting in a number of settlements in the National Park is maintained by the Parish or Town Council. The local highway authority will have their own lighting requirements which includes ensuring that new lighting installations are sympathetic to the environment in which they are located. However, in designing your lighting scheme aim to achieve a glare rating of G6 and a light source colour temperature of 2,700K or less. Night time curfews, part night time switch off between midnight and, 5am and 50% dimming between 9pm and 6am are usually appropriate.

Seeking Further Advice

The Yorkshire Dales National Park Authority offer pre-application advice and this can be seen here. Mitigating the impacts from lighting should form part of your considerations when you are using this service.

Examples of Dark Sky Lighting Improvements in the Yorkshire Dales	
Poorly adjusted lights cause glare and nuisance which reduces safety, impacts wildlife and pollutes dark skies	*Shielded warm white lights with appropriate controls provide directed light only where and when it is needed.*
	